DENTAL CLINIC MANAGEMENT SYSTEM

WAN NORAQILAH BINTI A. RAZAK



BORANG PENGESAHAN STATUS TESIS

JUDUL: DENTAL CLINIC MANAGEMENT SYSTEM

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DENTAL CLINIC MANAGEMENT SYSTEM

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FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2017

DECLARATION

I hereby declare that this project report entitled

DENTAL CLINIC MANAGEMENT SYSTEM

is written by me and is my own effort and that no part has been plagiarized

without citations.

Date: 6/4/2017 STUDENT (WAN NORAQILAH BINTI A.RAZAK) I hereby declare that I have read this project and found UNIVERSITI TEKNIKAL MALAYSIA MELAKA this project report is sufficient in term of the scope and quality for the award of Bachelor of Computer Science (Database Management) With Honours.

Date: _6/9/2017 SUPERVISOR :

(DR. NORASWALIZA BINTI ABDULLAH)

DEDICATION

This report is dedicated to my parents, who taught me that even the largest task can be accomplished if it is done one step at a time and for their support. To my friends, who helping me out in completing this project and Dr. Noraswaliza Binti Abdullah for her guidance throughout completing this project.



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y involved or not. اونيونر سيتي تيڪنيڪل مليسيا ملاك UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ABSTRACT

Dental Clinic Management System(DCMS) is a system that records, organizes and maintains all dental office records. The system maintains individual patient account ledgers for each treatment and includes appointment schedule. There are some problems faced by the user, firstly is data redundancy. The information of the patient can be redundant as if there are patients that visited more than once. Besides, difficulty in keeping track of new appointments and patient's records. It is also hard for the dentist to make review or analyze patient's progress and mistakes may happen when writing the prescriptions. This project embarks on the following objectives, it is build to prevent data redundancy of patient's record, to keep in tracks of new appointments and patient record. It helps to provide an efficient workflow and improved accessibility to patient data and to avoid any mistakes when giving out the prescription to the patients. A survey at Klinik Rabbisyfina in Johor Bahru has been conducted and there are several requirements that have been gathered by interviewing the staff and dentist, Dr. Ahmad Bin Ali. This project aims at creating a system that able to keep track of a database for clinic such as the information about the patient by having a computerized patient registration and systematic patient's record which allow patient to update their personal information online and able to view their medical record, appointment schedule, previous treatment records with digital image of dental chart, prescriptions of medicine and it can generate receipt for every transaction and to create report required by the management of the clinic. This system provides a smooth and wellorganized system for dental clinic including the doctor, staff and patients. Thus, it helps the dental clinic management to manage the dental clinic

ABSTRAK

Dental Clinic Management System(DCMS) merupakan sistem yang merekod, menyusun dan menyimpan rekod berkaitan klinik pergigian tersebut. Sistem ini menyimpan rekod setiap pesakit termasuk jadual temuduga pesakit terssebut. Terdapat beberapa masalah yang diihadapi oleh pengguna sekiranya mereka tidak menggunakan system. Pertama, data yang berlebihan. Rekod pesakit akan mejadi banyak sekiranya pesakit tersebut dating ke klinik lebih dari sekali. Selain itu, temuduga pesakit yang baru sukar untuk disimpan atau rekod temuduga tersebut boleh hilang. Tambahan pula, sukar untuk doctor untuk melakukan analisis berkaitan progress pesakit tersebut dan kesilapan juga boleh berlaku semasa menulis preskripsi ubat. Oleh itu, sistem ini dapat menmbantu doctor untuk mengelakkan berlakunya data berlebihan, memudahkan untuk membuat temuduga dan membantu melancarkan process klinik pergigian tersebut. Kajian telah dilakukan Klinik Rabbisyfina di Johor Bahru. Terdapat beberapa maklumat yang telah dikumpulkan dengan menemubual pekerja dan doctor gigi, Dr. Ahmad Bin Ali. Tujuan utama projek ini adalah untuk membina system yang boleh menyimpan data untuk klinik seperti rekod pesakit yang membolehkan pesakit untuk mengemaskini data mereka secara online dan boleh melihat rekod kesihatan dengan adanya carta gigi dan rekod temu janji serta preskripsi ubat. Malah, system ini mampu mencetak resit untuk kegunaan laporan. Sistem ini merupakan system yang teratur dan mudah digunakan di klinik gigi. Tambahan pula, ia dapat membantu doktor dan pekerja menguruskan klinik gigi.

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CHAPTER I

INTRODUCTION

1.1 Project Background

Dental Clinic Management System(DCMS) is a system that records, organizes and maintains patients records in a dental clinic. DCMS software provides easy access of the data in advanced and ordered fashion. The system maintains individual patient treatment record including appointment schedule. It is designed and built to meet all the requirements of a dental clinic and to help the dentist in managing their clinics effectively. With just a few clicks the user can schedule, record treatment plans easier and faster.

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This project aims at creating a system which will automate the process in DCMS. It is possible to keep track of a database for clinic such as the information about the patient, appointment schedule, previous treatment records with digital image of dental chart, prescriptions of medicine and it can generate receipt for every transaction and to create report required by the management of the clinic. Patient records are used by the dentists to organize the records of the patients in their practice.

Before the patient reaches the front desk, staff has prepared a walkout statement in which treatment plan fees have been entered. As the last patient leaves, staff can access

reports to make sure that day has been efficient and financially productive. In a single click, they can quickly schedule a follow-up appointment. The software offers automated reports to close the day. Moreover, if the patient wants to set up an appointment, they must choose dental treatment and services such as Oral Prophylaxis (Cleaning), Restoration (Filling), Prosthodontics (Dentures, Crown, Bridged), Surgery (Extraction/Impaction), Endodontic (Root canal treatment), and Cosmetics (Tooth Whitening) and other related services. DCMS able to save time and streamline workflow.

1.2 Problem Statements

These are the problems faced by user:

- Data Redundancy
 The information of the patient can be redundant because there are patients that visited more than once.
- ii. Difficult in keeping track of new appointments and patient records All appointments are paper-based and the tendency of data lost is high
- iii. It is hard for the dentist to make review or analyze patient's progressThey need to find patients records and it is time consuming.
- iv. Mistakes may happen when writing the prescriptions
 Dentist may make mistake when writing the prescription and their illegible handwriting can create confusion.

1.3 Objectives

This project embarks on the following objectives:

- i. To prevent data redundancy of patient's record
- ii. To keep tracks of new appointments and patient record by replacing the current system with a computerized system to provide better management.
- iii. To improved accessibility to patient data. The dentist can automatically record patient's treatment by clicking on the dental treatment chart. By creating this chart, dentist has all the information that they need to access patient's dental health, in one place in a simple format. They will update patient chart every time they have a dental appointment so they can track the progress of patient's dental health.
- iv. To ease the process of giving the prescription and calculating the total payment to the patients by clicking all the dosage and prescription on the computer to be sent to the staff.

1.4 Scopeliversiti teknikal malaysia melaka

i. Login and Logout

There are three type of users which are doctor, staff and patient. User need to sign up before login in to the system by entering username and matching password.

ii. Registration

Registration of a new patient is made on computer by staff. All the records regarding patient's information is save into the database.

iii. Appointment

Doctor can set an appointment for each patient on the system and patient can request an appointment based on the doctor's availability.

iv. Dental Imaging Treatment

Treatment data on each patient will be uploaded on the dental image, so that it can be easily viewed by the doctor or patience.

v. Report

Staff can analyze and print sales report.

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1.5 Project significance

This system provides a smooth and well-organized system for the dental clinic including the doctor, staff and patients. Thus, it helps the dental clinic management to manage the dental clinic.

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1.6 Expected Output | TEKNIKAL MALAYSIA MELAKA

- i. A computerized patient registration and systematic patient's record which allow patient to update their personal information online and able to view their medical record.
- ii. Well-organized and smooth treatment by having a dental treatment chart.
- iii. Accurate Sales Report in tabular format which can be printed through the system.

1.7 Conclusion

With dental clinic management system, the process gets much faster and more efficient than traditional way. DCMS is specially designed to let the clinic staff to have a high efficiency management tools, computerized and systematic patients' records, and detail of treatment records. This system also provides appointment feature, which allow staffs, dentist and patients to view the appointment that already made by dentist and patient. It also can increase the profitability of the organization. The methodology that will be used will be explained in the next chapter.



CHAPTER II

PROJECT METHODOLOGY AND PLANNING

2.1 Introduction

In this chapter, the methodology that is used which is Incremental Development method and the project milestone for this system starting from the week 1 until week 14 will be explained. There are also expected documents and dates provided in the project schedule.

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2.2 Project Methodology

In this section, the research methodology will be explained in detail regarding the methodology that is used in the development of Dental Clinic Management System(DCMS). The fundamental for this project is to develop a management system that can be implemented and integrated in dental clinics. This project will be conducted based on the Database Lifecycle Method (DBLC) as illustrated in Figure 2.2. DBLC contains six phases which are initial study, database design, implementation and loading, testing and evaluation, operation, maintenance and evolution. A survey has been conducted at Klinik Rabbisyfina in Johor Bahru and there are several requirements that have been gathered by interviewing the staff and dentist. Dr. Ahmad Bin Ali, the dentist at the clinic, had explain the system that is used at Klinik Rabbisyfina. Currently, the clinic does not have any computerized system as they are still using a manual system.

Initial study is the first step in DBLC. It analyses the company situation, define problems and constraints, define objectives of the organization and define the scope and boundaries to make sure the database is created exactly as specified. During this phase, the objective of the project is determined and the requirements to produce the product are considered. The analysis of the dental clinic has been figured out. The requirements have been collected by interviewing the dentist and the staff at Klinik Rabbisyfina. The schedule and milestone of this system has been stated as illustrated in Figure 2.1. All the requirements have been classified into two types of requirements which are functional and non-functional requirement. The functional requirement is based on the scope that has been identified during planning phase.

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During the database design phase, the conceptual design is created by creating an abstract data structure that attempts to model real-world objects. Then, it is translated into logical design which is a DBMS dependent. Physical design is the process of selecting data storage and data characteristics of the database.

Conceptual design is used to determine end-user views, outputs and transaction requirements. During this phase, Entity Relationship diagram(ERD) has been drawn as shown in figure 4.2. Selection of DBMS which is Oracle SQL Developer has been selected for this project.

The logical design includes defining the tables, columns, relationship and constraints of the DCMS. The purpose of logical design is to ensure the model supports user requirements. DCMS database system is logically explained in this stage by specifying data and query based on user requirements. Physical design is the last step and it is the process of defining tables, indexes, roles and access control.

The third step is implementation and loading. In this phase, the DBMS is installed and the data is loaded into the database tables. In this phase, conceptual, logical and physical design is implemented.



Figure 2.1 Database Lifecycle Method (DBLC)

In testing and evaluation phase, it requires the database to be tested by testing the integrity, physicsl security, password security and access rights. The testing and evaluation phase occurs in parallel with applications programming. During the test phase, all aspects of the system are tested for functionality and performance. The DCMS database is tested to ensure that it maintains the integrity and security of the data. Data integrity is enforced by the DBMS through the proper use of primary and foreign key rules. In database testing, physical security allows, password security, access database tables. rights and data encryption must be checked. This phase is used ensure that it maintains the integrity and security of the data.

The DCMS database performance also need to be evaluated, security standards set up, backup and recovery procedures such as full backup, differential backup and transaction log backup are put in place and data integrity enforcement. The operation phase is the phase where the database has passed the evaluation stage, it is considered to be operational. In operation phase, problems that could not have been foreseen during this phase begin to surface. All the changes occur will lead to the last phase, maintenance and evolution. In maintenance and evolution phase, there are some routine maintenance activities within the database need to be prepared for example, baackup and recovery.

2.3 Project Schedule and Methodology

	Table 2.1: Project Schedule and Milestone	-
UNIVERSITI	TEKNIKAL MALAYSIA MELAKA	ķ

Requirement	Expected Documents/ Output	Dates(Weeks)
Initial Planning	Objectives, Scope, Project Significance	6/3/2017 – 10/3/2017 (Week 2- Week 4)
Project Planning	Project Methodology, Project Schedule and Milestones	13/3/2017 – 17/3/2017 (Week 4- Week 6)

Analysis	Functional Requirements, Non- functional Requirements	20/3/2017 - 24/3/2017 (Week 6- Week 7)
Design	ERD, Context Diagram, Data Flow Diagram(DFD), Graphical User Interface(GUI)	27/3/2017- 31/3/2017 (Week 7)
Implementation	Create database, triggers, stored procedures, system implementation	13/7/2017 - 9/8/2017
Testing	Create test testing, test data and test result	15/4/2017 - 19/5/2017
Presentation	Presentation of PSM2	16/8/2017

	Duration														
Activity	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Proposal Writing Report															
Topic															
Discussion															
Problem															
Statement															
Objectives															
Scope															
Project															
significant															
Conclusion															
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Table 2.2 : Gantt Chart of DCMS

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2.4 Conclusion

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There are many reasons why Database Lifecycle Method has been used for this project. DBLC Method is a very efficient to deal with a project that change often and response need to be quick. Furthermore, DBLC method is a top down approach that systematically implement and maintain a database. Therefore, it is suitable to be used for this project.

CHAPTER III

ANALYSIS

3.1 Introduction

The analysis phase involves gathering requirements for the system. At this stage, business needs are studied with the intention of making business processes more efficient. The system analysis phase focuses on what the system will do in an effort that views all stakeholders, as viable sources of information. In the analysis phase, a significant amount of time is spent talking with stakeholders and reviewing the stakeholder's input. Within this analysis phase, requirements are collected at Klinik Rabbisyfina in Johor Bahru using interview method.

3.2 Problem analysis

Based on the current system, the dental clinic still using the traditional method. Traditional method is the process that is being done manually, for example, papers, files are still use for patient registration, medicine prescription and treatment record. Manual method has a lot of disadvantages as it takes a longer time to retrieve the information, and mistakes might happen when writing the prescription or misplaced the files. Figure 3.1 illustrates the flowchart of appointment set by patient on current system. Based on the flowchart, patient need to go to the counter and the staff will check whether they are existing patient or new patient. If they are new patient, the patient need to fill in their details in registration form manually and the information will only keep in files. If the existing patient set an appointment through phone, the need to choose date and time. The appointment can only be set based on the dentist availability.



Figure 3.1 Flowchart of Patient based on current system

Based on figure 3.2, flowchart of dentist on current system, the dentist need to write down the patient name and treatment of each patient for the medical record. After the treatment, the dentist will write the medicine prescription and give to the staff. If the patient need to have follow-up appointment, dentist will choose the available date and time.



Figure 3.2 Flowchart of Dentist based on Current System

Figure 3.3 illustrates the flowchart of the payment process based on the current system after treatment. Staff will receive medicine prescription from the dentist and they will give out the medicine to the patient. The payment will be calculated based on the treatment and prescribe medicine.



Figure 3.3: Flowchart of Payment Process based on Current System

3.3 The proposed improvements/solutions

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Dental charting is a neatly designed interface that will be used in this system. It helps the dentist to mark treatments or disease on a dental chart. It helps them to enter the details very quickly and efficiently.

Dental appointments help to save a lot of time. With appointment module, the doctor can easily give appointments on available time slots to patients. This system also allows user to generate reports in few clicks. Staff won't spend hours manually formatting spreadsheets and consolidating and collating reports.

Figure 3.4 illustrates the flowchart of patient. Patient need to sign-up before they can access to the system. If they have sign-up, they need to login by entering correct username and password. Patient can set an appointment by checking on dentist availability. They need to choose date and time for appointment.

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Figure 3.4 Flowchart of Patient based on Proposed System

In figure 3.5, the figure shows the flowchart of dentist. Dentist need to login before access to the system. The dentist need to enter patient name for treatment and after the treatment is done, dentist will enter the treatment records and medicine prescription. If the patient need follow-up check-up, dentist can set an appointment by choosing the date and time.



Figure 3.5 Flowchart of Dentist based on Proposed System

Figure 3.6 illustrates the flowchart of staff. Staff need to login before access to the system. Staff will save the date and time of visit patient. After the treatment by the dentist is done, staff will receive the medicine prescription to give out to the patient. They need to enter the patient name for payment process. Staff able to print receipt. Other than that, staff able to generate reports.



Figure 3.6 Flowchart of Staff based on Proposed System
3.4 Requirement analysis of the to-be system

There are two types of requirement analysis which are functional and nonfunctional requirement.

3.4.1 Functional Requirement (Process Model)

Figure 3.7 shows the context diagram of DCMS. The circle represents an entity, rectangle represent an external entity and each directional line indicates the flow of the process. Appointment selection is made by patient and dentist and this process flows from the user to the system. Both users receive the appointment notification. Dentist set available schedule and prescription of each patient to the system. Staff able to retrieve registered patient information and medicine information from the system. Staff will save the payment to the system.



Figure 3.7 Context Diagram of DCMS

Data Flow Diagram

Figure 3.8 shows the parent process of 'DCMS' which will be described in detail in Figure 3.8. The external entity of this system are staff, patient and dentist. In login process, staff, patient and dentist need to enter their email and password and the system will verify the data by accessing into the data store. Process 2 shows the flow diagram of manage appointment process. Patient and dentist need to enter the appointment information such as date and time. The appointment information will be saved in the appointment table. User will get the appointment status from the appointment table. In visit process, when the patient visits the clinic, the dentist will get the visit information of each patient. Treatment is the fourth process of level 0. Dentist will enter the treatment information of the patient and that information will be saved in v_treatment table. Dentist can retrieve data in medicine table during treatment process, staff will calculate the total payment and it will be saved in payment table. Report process is the process where the staff will generate reports.

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Figure 3.8 DFD of Level 0

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i. Appointment Selection

The appointment calendar used to set an appointment. Appointment can be made by patient and dentist. When a patient creates an account, he/she will be assigned to the appointment scheduler. They can set an appointment based on the doctor's availability by clicking on the date and time.

ii.Appointment Notification

Patient and dentist will receive appointment notification. The appointment notification received by patient is based on dentist availability while dentist is notified by the date and time that has been chosen by patient.

iii.Available Schedule

Patient can make an appointment based on dentist availability as shown on the appointment status.

iv.Treatment

Graphical treatment chart is an interactive graphic experience with tooth numbering. It facilitates the doctor to enter treatment or defect for each patient in organized manner by clicking on the check button of the tooth number.

v.Registered Patient

Registration information of new patient is saved on the computer and patient can also update their personal information.

vi.Manage Visit

Staff will save the visit date and time of each patients and it will be saved into the database.

vii.Payment

Payment is calculated automatically based on the medicine and treatment of each patient

viii.Medicine Information

Staff can view medicine information including the current quantity of the medicine. Staff will receive the prescribed medicine for patient.

Figure 3.9 shows the level 1 of login process. In level 1.1 process, user need to enter the correct username and password and the verification of data the system will verify the data by accessing into the 'User account' data store. If it is an unverified account, user need to enter the correct information. Patient can update their information as shown in the level 1.3.



Figure 3.9 DFD of Level 1 of Login

In figure 3.10, patient need to enter date and time and the system will verify the selection by checking on the available slot of the dentist schedule. The dentist can also set an appointment and the dentist will get the appointment status from the appointment table. Staff able to view the all the appointments.



Figure 3.10 DFD of Level 1 of Manage Appointment

Figure 3.11 shows the data flow diagram of level 1 of process 5. Level 5.1 shows the insert treatment details process, where the patient able to view their medical record by retrieving the data from v_treatment table. While, dentist will save the patient treatment information and medicine prescription. The medicine prescription will be saved on v_medicine table and all these data will be saves on visit table. Dentist are able to view the treatment information from the visit and v_medicine table.



Figure 3.12 is the level 1 of process 6. This process shows the flow diagram of payment process. Total payment information saved on payment table. The treatment data retrieved from v_treatment, v_medicine, treatment, medicine, patient and visit table. Patient will get the receipt and the information on the receipt is retrieved from the payment table.



Figure 3.12 DFD of Level 1 of Compute Total Payment & Print Receipt

3.4.2 Non-functional Requirement

i. Security

Login Identification:

The system requires the patient to identify himself /herself

using their username and correct password. Any user who uses the system shall have a Logon ID and Password.

Staff Rights:

Staff shall be able to view all patient information, add new payment to system but shall not be able to modify any information in it. Staff can also view and analyse sales report.

ii. Performance Requirements:

Response Time:

The system shall give responses in 1 second after checking the patient's information.



Back-Up:

The system shall provide the capability to back-up the Data **Availability:**

The system shall be available all the time

3.4.3 Other Requirements

This system uses PHP programming language and Oracle SQL Developer as the database system. PHP is a server-side scripting language designed primarily for web development but also used as a general-purpose programming language. Oracle SQL Developer is a free integrated development environment that simplifies the development and management of Oracle Database in both traditional and Cloud deployments

3.5 Conclusion

In analysis phase, there are several requirements that has been gathered. The design phase will be explained in the next chapter including Entity Relationship Diagram, logical and physical design.



CHAPTER IV

DESIGN

4.1 Introduction

In this chapter, the design of this system will be explained. The complete Entity Relationship Diagram(ERD) diagrams with relationship cardinality is provided including the business rule. Design phase focuses on the logical and physical design.

4.2 System Architecture Design KAL MALAYSIA MELAKA



Figure 4.1: System Architecture Design of DCMS

In a 3-tier design as shown in the figure above, the client interacts with application software deployed on a separate server, and the application server interacts with a database that is located on another server. This is a very common pattern for most Web applications and Web services, and sufficient for most general scenarios. Based on the system, the patient, staff and dentist are the clients. The clients will interact or use the system as it is on the web/app tier. In web/app tier or also called middle tier, control the application functionality by performing detailed processing. For example, user can login, sign-up, save the visit information and calculate payment. In database tier, all the data that the user receive or retrieve is connected to the Oracle SQL Developer database.

4.3 Database Design

There are three types of database design will be explained in this section which are conceptual, logical and physical designs.

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4.3.1 Conceptual Design



Business Rule: UNIVERSITI TEKNIKAL MALAYSIA MELAKA

- A staff can a receive payment from one or many patients. A payment is received by a staff
- A patient can either request more than one appointments or did not make any appointment, an appointment can be requested by a patient.
- A dentist can either set more than one appointments or did not make any appointment of each patient, an appointment can be requested by a dentist.
- A patient may be sponsored by an organization
- An organization related to many patients to be served by the clinic.
- A visit is made by a patient
- A patient may visit the dental clinic once or more than one

- V_medicine represents the medication of each patient and a medicine can have one or many v_medicine
- A v_medicine related to a medicine
- V_treatment table save the medical record of each patient visit.
- A visit patient can have many treatments.
- One v_treatment is related for a visit.
- Each treatment, can be listed for one or many treatment of the patient
- A treatment received by patient is related to treatment.
- A tooth is related for many visit treatments.
- A visit treatment may have one tooth.
- Each visit generates one payment.
- Visit table stored information of patient such as treatment and medication treatment of each patient

4.3.2 Logical Design

Data Dictionary:

Table 4.1 Data Dictionary

Entity	Attribute	Description	Datatype	Range	PK/F	Table
					K	
Staff	staffID	Primary key	Varchar2	8		
		for staff			Pk	
	name	Name of staff	Varchar2	100		
	age	Age of staff	Number	3		
	email	Email of staff	Varchar2	50		
	address	Address of	Varchar2	100		
		staff				
	street	Street of staff	Varchar2	100		
	gender	Gender of	Varchar2	6		
		staff				
	phoneNumbe	Phone	Varchar2	12		
	r	number of				
		staff				

	password	Password of staff	Varchar2	20		
	state	State of staff	Varchar2	100		
	postcode	Postcode of staff	Varchar2	5		
	city	City of staff	Varchar 2	100		
Payment	paymentID	Primary key of payment	Varchar2	8	Pk	
	Fk_staffID	Fk referencing staffID	Varchar2	8	Fk	Staff
	Fk_visitID	Fk referencing visitID	Varchar2	8	Fk	Visit
white the	totalAmount	Total amount received	Varchar2	8		
TEKN	status 💈	Status of payment	Varchar2	10		
Patient	patientID	Primary key of patient	Varchar2	8	Pk	
alle	Fk_organizati onID	Fk referencing organizationI	Varchar2	8 اونبور	Fk	Organi zation
UNIVE	name RSITI TEKN	Name of	Varchar2			
	age	Age of patient	number	-		
	email	Email of patient	Varchar2	50		
	address	Address of patient	Varchar2	100		
	street	Street of patient	Varchar 2	100		
	gender	Gender of patient	Varchar2	6		
	phoneNumbe r	Phone number of patient	Varchar2	12		
	password	Password of patient	Varchar2	20		

	state	State of patient	Varchar2	100		
	postcode	Postcode of patient	Varchar2	5		
	city	City of patient	Varchar 2	100		
Appointment	appointmentI D	Primary key of appointment	Varchar2	8	Pk	
	Fk_patientID	FK referencing patientID	Varchar2	8	Fk	Patient
LAL MA	Fk_dentistID	Fk referencing dentistID	Varchar2	8	Fk	Dentist
EKMI	appointment Date	Date of appointment	Timestam p	-		
L III	status	Status of appointment	Varchar2	8		
Dentist	dentistID	Primary key of dentist	Varchar2	8	Pk	
ملاك	کل ملیسیا	Name of dentist	Varchar2	100		
	age	Age of	number	2		
UNIVE	RSITI TEKN	dentist MA	AYSIA ME	LAKA		
	email	Email of dentist	Varchar2	50		
	address	Address of dentist	Varchar2	100		
	gender	Gender of dentist	Varchar2	6		
	phoneNumbe r	Phone number of dentist	Varchar2	12		
	password	Password of patient	Varchar2	20		
	postcode	Postcode of dentist	Varchar2	5	_	
	State	State of dentist	Varchar2	100		

Visit	visitID	Primary key of visit	Varchar2	8	Pk	
	Fk_appointm entID	Fk referencing appointmentI D	Varchar2	8	Fk	Appoi ntment
	Fk_patientID	Fk referencing patientID	Varchar2	8	Fk	Patient
	visitDate	Date of visit	Timestam p	-		
V_medicine	Fk_visitID	Fk referencing visitID	Varchar2	8	Pk,Fk	Visit
L MA	Fk_medicineI	Fk referending medicineID	Varchar2	8	Pk,Fk	Medici ne
1 TEKUIN	\Quantity	Quantity of medicine given to the patient	Number	3		
SURAIN	Description	Description of prescribed medicine	Varchar2	500		
Medicine	medicineID	Primary key of medicine	Varchar2	اويقونه	Pk	
UNIVE	name RSITI TEKN	Name of medicine	Varchar2	100 LAKA		
	dosage	Dosage of medicine	Varchar2	10		
	description	Description of medicine	Varchar2	500		
	price	Price of medicine	Varchar2	10		
	quantity	Quantity of medicine	Number	3		

V_Treatment	Fk_visitID	Fk	Varchar2	8	Pk,Fk	Visit
		referencing				
		visit				

	Fk_treatmentID	Fk referencing treatmentID	Varchar2	8	Pk,Fk	Treatment
	Fk_toothID	Tooth of patient	Varchar2	100	Pk,Fk	Tooth
	Description	Description of patient treatment	Varchar2	500		
Treatment	treatmentID	Id of each treatment	Varchar 2	8	Pk	
	treatment	Treatment provided by the dental clinic	Varchar2	100		
	cost	Cost of each treatment	Number	12,2		
Organization	organizationID	Pk referencing organization	Varchar 2	8	Pk	
1 11/80	organizationName	Organization name of organization	Varchar 2	100		
ملاك	telNo	Telephone number of organization	Varchar 2	12 و نبو		
UNIVE	personInCharge	Name of the person in charge	Varchar SIA MEI	100 _AK/	A	
	address	Address of organization	Varchar 2	500		
Tooth	toothID	Primary key of tooth	Varchar 2	8	Pk	
	description	Description of tooth numbering	Varchar2	500		

Data Normalization

The normalization is displayed using relational schema.

i. Payment

1st Normalization:

Payment(patientID,name,visitID,visitDate,treatmentID,treatment,cost,toot hID,description,medicineID,name,dosage,description,price,quantity,staffI D,name,totalAmount,status)

2nd Normalization:

Patient(patientID,name)

Visit(visitID,visitDate)

Treatment(treatmentID,treatment,cost)

Tooth(toothID,description)

Medicine(medicineID,name,dosage,description,price,quantity)

Staff(staffID,name,totalAmount,status)

3rd Normalization:

Payment(paymentID,staffID,visitID,totalAmount,status)

ii. Visit

1st Normalization:

Visit(appointmentID,appointmentDate,time,patientID,name,treatmentID,t reatment,cost,medicineID,name,dosage,description,price,quantity,toothID,description,visitDate)

2nd Normalization:

Appointment(appointmentID,appointmentDate,time)

Patient(patientID,name)

Treatment(treatmentID,treatment,cost)

Tooth(toothID,description)

Medicine(medicineID,name,dosage,description,price,quantity)

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3rd Normalization:

Visit(visitID,appointmentID,patientID,visitDate)

4.3.4 Query Design

Select, insert and update subqueries has been used in this system and join queries of two tables which are appointment and patient table. Besides, insert and update stored procedure was used in this system too. Aggregate queries used to get the total amount of payment by using sum functions while count was used to get the total number of patient per month.

List of the queries in the system including aggregation, join and subqueries:

Table 4.2 List of Queries

ERSITI TEKNIKAL MALAY	Description
Simple query used to select all from	It used for the dentist to view
medicine	list of medicine from medicine
	table including the price,
	description and current
	quantity
Simple query used to select patient	It is used to display list of
ID and name from patient	patient name for the dentist to
	make appointment
	Simple query used to select all from medicine Simple query used to select patient ID and name from patient

Simple	Simple query statement that select	It is used for the staff to view
Query	all from medicine	data from medicine table
Join	Join query that is used to select	To display patient name based
Query	visit ID from visit table and patient	on the visiting time and date
	ID, and name from patient table	during patient registration
Join	Join query that is used to select	To display appointment date,
Query	appointment date and status from	time and status of the patient
	appointment table and patient ID	according to the date on patient
	from patient table order by	page
	appointment date	
57	40	
Join 🦉	Join query that is used to select	To display appointment date,
Query	appointment date and status from	time and status of the patient
T.o.d.	appointment table and dentist ID	on dentist page according to
	from patient table order by	the date
Ke	appointment date	in sie
Join UNI	Join query that is used to select all	To display list of visiting
Query	from visit table and patient ID from	patients according to visit date
	patient table by using sysdate	
Join	Join query between visit and patient	To display list of visiting
Query	table by having where clause where	patient name based on the date
	patient ID equivalent to the foreign	of treatment
	key of patient ID in visit table order	
	by appointment date	
1		

Join	Join query that is used to select	To display list of appointment
Query	patient name from patient table and	according to the current date
	appointment ID, date, status from	
	appointment table by having where	
	clause which is appointment date is	
	more than sysdate and order by	
	appointment date	
Subquery	Select all information from dentist	It is a query that is used to
	table where email is username and	validate dentist id and
	password is password	password
	ALAYSIA	
Subquery	Select all information from staff	It is a query that is used to
KAU	table where email is username and	validate staff id and password
H	password is password	
FIRE		
Subquery	Select all information from patient	It is a query that is used to
Ke	table where email is username and	validate patient id and
	password is password	password
UNIV	ERSITI TEKNIKAL MALAY	SIA MELAKA
Subquery	Select all information from patient	To display data of the patient
	table where email is patient ID	from patient table for update
Subquery	Select all from patient by having	To display all information of
	where clause which is name is not	the patient during patient
	null	registration
Aggregate	Select sum from v_treatment and	It is used to
Query	treatment	calculate cost of

		the treatment of
		the patient
Aggregate	Select sum from v_medicine and	This select
Query	medicine	statement is used
		to calculate the
		total price of
		treatment and
		medicine
Aggregate	Select count all from patient where	This query is
Query	email is username and password is	used to know the
	password	existence of user
	WALAYSIA	ID

4.3.3 Physical Design

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4.3.4.1 Selection of DBMS .0

Oracle SQL Developer is the database chosen for this system. Oracle SQL Developer is a free integrated development environment that simplifies the development and management of Oracle Database in both traditional and Cloud deployments.

4.3.4.2 Stored Procedure and Triggers

Insert, update and select stored procedure has been used in this system. Stored procedures allow faster execution and it can be used as a security mechanism. It also helps to execute SQL statement with a single call. Sequences statement is made for auto-increment on every primary key of each table. There are several triggers that has been used and there are before insert and after insert triggers. Before insert trigger of auto-increment was used on all tables, status of appointment of each selection and trigger of 'No appointment can be made on Sunday' is triggered on appointment table. After insert trigger is used on medicine table as it will calculate current quantity of medicine.

Module	Stored Procedure	Description
Patient	Insert	Insert information of
		patient into patient table
WALAYSIA 4		
E X	Insert	Insert appointment date
KM		and time into
1		appointment table by
5		patient
100	Update	Update patient
Alun -		information on patient
		table
shi ala	6.6.	in the second

Table 4.3 Stored Procedure used in Patient Module

Table 4.4 Stored Procedure used in Dentist Module

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Module	Stored Procedure	Description
Dentist	Insert	Insert appointment date
		and time into
		appointment table by
		patient
	Insert	Insert fk toothID, fk
		treatment ID, fk visit ID
		and description into
		v_treatment table

Table 4.5 Stored Procedure used in Staff Module

Module Stored Procedure Description	Module	Stored Procedure	Description
-------------------------------------	--------	------------------	-------------

Staff	Insert	Insert fk visitID, fk
		staffID, totalAmount and
		status into payment table

Table 4.6 Triggers of DCMS

Trigger Name	Туре	Description
Appt_status	Before insert	Appointment status was
		set 'pending' whenever
		user choose date and
		time
Auto_increment	Before insert	Auto increment of
		dentistID
Auto_increment_appt	Before insert	Auto increment of
		appointmentID
Auto_increment_medicine	Before insert	Auto increment of
EW		medicineID
Auto_increment_patient	Before insert	Auto increment of
11		patientID
Auto_increment_payment	Before insert	Auto increment of
inno .		paymentID
Auto_increment_Staff	Before insert	Auto increment of
ل منسبا مارد		staffID
Auto_increment_tooth	Before insert	Auto increment of
UNIVERSITI TEK	NIKAL MALAYSIA	toothID
Auto_increment_treatment	Before insert	Auto increment of
		treatmentID
Auto_increment_visit	Before insert	Auto increment of
		visitID
Auto_increment_vmedicine	Before insert	Auto increment of
		vmedicineID
Auto_increment_vtreatment	Before insert	Auto increment of
		vtreatmentID
Backup_patient	After insert or update	Insertion of new patient
		information or updates
		will be inserted or
		updated on
		patient_backup table
Med_qty	After insert	Medicine quantity will
		be deducted by 1 on
		medicine table,

		whenever the dentist
		click on the medicine
		button. Staff able to view
		the current medicine
		quantity.
No_appt	Before insert or update	This trigger disallow
		user from setting an
		appointment on Sunday

4.3.4.3 Security Mechanism

There are several security mechanisms that has been implemented in this system. Each user is identified by username and password. A user can set their own password and only the matching password allowed to access the system.

4.4 Graphical User Interface (GUI) Design

4.4.1 Navigation Design

Figure 4.1 shows the navigation design of DCMS. Users need to login before access to the system. Patient need to sign-up and they can update their profile and set an appointment. A staff is able to view appointment list, register visit patient, view patient profile, view medicine inventory, receive payment and generate reports. A dentist is able to set appointment, do treatment on patient and give out medicine prescription.



4.4.2 Input Design

Figure 4.4 shows login interface of DCMS. There are three users which are dentist, staff and patient. Table 4.7 shows the input design of login interface.



UNIVERSIT Table 4.7 Input Design of Login Interface

Attribute	Data type	Data(eg)	Validation
Username	Varchar2(50)	wan@gmail.com	Required
Password	Varchar2(20)	123abc	Required

Figure 4.5 shows the registration patient interface.

DCMS			HOME LOGO	DUT
PATIENT MODULE		REGISTR	ATION	
REGISTRATION	NAME		ADDRESS	
PERSONAL	AGE		STREET	
INFORMATION	GENDER		POSTCODE	
MEDICAL	EMAIL		СІТҮ	
REPORT	CONTACT NO.		STATE	
APPOINTMENT	PASSWORD		Submit	Cancel

Figure 4.5: Registration Interface

Table 4.8 Input Design of Registration Interface			
Attribute	Data type	Data(eg)	Validation
Name/EDSIT	Varchar2(100)	Wan Noraqilah	Required
Age	Number	22	Required
Email	Varchar2(50)	wan@gmail.com	Required
Address	Varchar2(100)	Bukit Beruang	Required
Gender	Varchar2(6)	Female	Required
Phone	Varchar2(12)	0123344567	Required
Number			
Password	Varchar2(20)	123abc	Required
State	Varchar2(100)	Melaka	Required
Street	Varchar2(100)	Jalan Bukit	Required
		Beruang Bestari	
City	Varchar2(100)	Bukit Beruang	Required
Postcode	Number	79539	Required

DCMS			HOME LOGO	DUT
PATIENT MODULE		PERSONA	AL INFORMATIO	DN
REGISTRATION	NAME		ADDRESS	
PERSONAL	AGE		STREET	
INFORMATION	GENDER		POSTCODE	
MEDICAL	EMAIL		CITY	
REPORT	CONTACT NO.		STATE	
APPOINTMENT	PASSWORD		\frown	
7	2		Submit	Cancel

Figure 4.6 shows personal information interface. It is used for the patient to update their personal information.

Figure 4.6: Personal Information Interface

Table 4.9 Input Design of Personal Information Interface

Attribute	Data type	Data(eg)	Validation
Name	Varchar2(100)	Wan Noraqilah	Required
Age	Number KAL	22 AYSIA MEL	Required
Email	Varchar2(50)	wan@gmail.com	Required
Address	Varchar2(100)	Bukit Beruang	Required
Gender	Varchar2(6)	Female	Required
Phone	Varchar2(12)	0123344567	Required
Number			
Password	Varchar2(20)	123abc	Required
State	Varchar2(100)	Melaka	Required
Street	Varchar2(100)	Jalan Bukit	Required
		Beruang Bestari	
City	Varchar2(100)	Bukit Beruang	Required
Postcode	Number	79539	Required

DCMS	HOME LOGOUT		
PATIENT	Fib. 100	50	
REGISTRATION	Fill Max. Samite Diff. Junction Diff. Frances Diff. Junction	2	
Non-service in memory	EPERERAAAAAAA	1848	
PERSONAL	WHEN Y Y Y Y Y Y Y Y Y Y Y Y Y Y	W 15 11	
INFORMATION	, . interest	-	
REPORT	• • • • • • • • • • • • • • • • • • •		
APPOINTMENT		BACK	

Figure 4.7 shows treatment interface used by dentist.

Figure 4.7: Treatment Interface

 Table 4.10: Input design of Treatment Interface

Attribute	Data type	Data(eg)	Validation
Treatment	Varchar2(100)	Bridged	Required
Patient Name	Varchar2(100)	Wan	Required
Tooth	Varchar2(100)	1-1 incisors	Required
Medicine	Varchar2(100)	Amoxilin Suspension	Required

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Figure 4.8 shows medicine interface on staff module

DCMS	HOME LOGOUT
STAFF	NAME DOSAGE DESCRIPTION PRICE QUANTITY
	Orajel 250mg Oral Rinse RM20 1 Twice a day
REGISTRATION	
	Anabesol 250mg Oral Rinse RM30
APPOINTMENT	
MEDICINE	
VISIT	SUBMIT

Figure 4.8: Medicine Interface on Staff Module

Table 4.11: Input design of Medicine Interface on Staff Module

Attribute	Data type	Data(eg)	Validation
Quantity	Number	1	Required
Description	Varchar2(500)	Twice a day	Required
يسيا ملاك	کنیکل ما	ىسىتى ىيە	اويبوم

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Figure 4.9 shows appointment interface

DCMS				HOME LOGOUT	
PATIENT'S MODULE	Hi! Make	Appointme	nt Today!		
REGISTRATION	Time	Calend	ar		
	No	Date	Time	Status	
PERSONAL INFORMATION					
MEDICAL REPORT					
APPOINTMENT					



Table 4.12: Input design of Appointment Interface

Attribute	💈 Data type	Data	Validation
Date	Timestamp	20/6/2017	Required
		10:00 a.m.	

Figure 4.10 shows payment interface on staff module.

DCMS **	U .	HOME LOGOUT
MODULE	Amira	ALAYSIA MELAKA
PATIENT REGISTRATION	N Total Amount:	212.00
APPOINTMEN	П	PAID V
MEDICINE	_	PAY
VISIT		

Figure 4.10: Payment Interface Table 4.13: Input design of Payment Interface

Attribute Data type Data(eg) Validation

Status Varchar2(10) Paid Required

4.4.3 Output Design



Figure 4.12: Dentist Module Interface

Staff Module:





List of Medicine:

DCMS			HOME	LOGOUT
STAFF	ID NAME A	GE EMAIL	ADDRESS	ACTION
WIODOLL	220 AMIRA 4	5 mira@gmail.com	no 28 jalan	VISIT
PATIENT REGISTRATION			bukit beruang	1
			bestari 4	
APPOINTMENT				
MEDICINE				
VISIT				



Figure 4.17: Payment Interface on Staff Module
Payment Receipt:

	P	AYMENT RECEIPT		
DENTAL CLINIC Address: Jalan F 81100 Johor Bal Malaysia.	C MANAGEMENT SYSTEM Pemuda, Kampung Melayu M hru, Johor,	ajidee,		
CLIENT INFO	RMATION			
AMIRA				
Туре	Description	Quantity.	Unit Price	Sub Total
Treatment	Tooth Whitening	1	RM 200	RM 200
MALAY	SIA			Total Amount: RM :200 Tax: RM :25.8 (6 % GST
Reminder: 1. This rece	eipt can be print out.	Te	BIL	L AMOUNT: RM :212
سا ملاك	کنیکا ملس	ست. تىك	اونيةم	

Figure 4.18: Payment Receipt Interface on Staff Module

Report UNIVERSITI TEKNIKAL MALAYSIA MELAKA

DCMS				HOME	LOGOUT
STAFF MODULE	Date				
PATIENT	No	PaymentID	Total Amount	Options	
	- 1	P1	RM 200.00	L L	
REPORT				View	
>Sales	2	P2	RM 50.00		
>Total No. of	3	P3	RM 30.00	View	
Patient					

Figure 4.19: Report Interface on Staff Module

4.5 Conclusion

In this chapter, the design stage of this system has been explained. Design includes the ERD, query design, stored procedure, triggers, security mechanism and the user interface. For the next chapter, implementation phase will be explained in more details.



CHAPTER V

IMPLEMENTATION

5.1 Introduction AYSIA

In this chapter, the implementation of the system will be explained. Implementation includes the installation of Oracle SQL Developer, DDL statements and the implementation of stored procedures and triggers. All the stored procedures and triggers will be shown in this chapter.

اونيۈم سيتى تيكنيكل مليسي

5.2 System Development Environment setup AYSIA MELAKA

DCMS used Hypertext Preprocessor(PHP) Language, Oracle SQL Developer database and xampp version 3.2.2 that act as a server to integrate connection between database and interfaces of the system.

5.2.1 Server Development Environment setup

Step 1: Anti-virus must be disabled as it can cause some XAMPP components to behave erratically.

Step 2: To begin installation, Open/double-click .exe file On opening the file, a XAMPP set up wizard will initiate

Setup	
\frown	Setup - XAMPP
	Welcome to the XAMPP Setup Wizard.
1 bitos	ni
	AYSIA
S. S. S.	<back next=""> Cancel</back>
N.	× ×
H F	gure 5.1: Xampp Installation

Step 3: Choose the components by clicking on the checkbox. Then, click 'Next'.

Select Components Select the components you want to install;	EKNIKAL MALAYSIA Clear the components you do not want to install. Click
Vext when you are ready to continue.	Click on a component to get a detailed description
XAMPP Installer	< Back Next > Cancel

Figure 5.2: Select Component of Xampp Installation

Step 3: Click 'Browse' and choose Local Disk(C) **to** install the XAMPP. Then, click 'Next'.

XAMPP 1.8.0 win32	
Choose Install Location Choose the folder in which to install XAMPP 1.8.0.	ខេ
Setup will install XAMPP 1.8.0 in the following folder. To install in a different fo Browse and select another folder. Click Next to continue.	lder, dick
Destination Folder	
C:\xampp Br Space required: 608.3MB Space available: 87.4CB	rowse
Nullsoft Install System v2:85	Cancel
نۇر سىتى تىكنىكا مايسىا ملاك	اوز
Figure 5.3: Choose Install Location of Xam	pp Installation
NIVERSITI TEKNIKAL MALAYSIA MELA	KA

Figure below shows the Xampp folder that has been saved on Local Disk(C.)

File Home Share	View			
📀 🍥 🝷 ↑ 퉬 🕨 This P	C → Local Disk (C:) → xampp			
This PC Desktop Documents Downloads Music Pictures Videos Local Disk (C:) htdocs Images Instantclient_11_2 Intel Lob4 Medilab Notepad++ PerfLogs	 anonymous FileZillaFTP licenses MercuryMail phpMyAdmin tomcat apache_stop ctlscript mercury_start passwords RELEASENOTES uninstall.dat xampp_stop 	 apache htdocs locale mysql sendmail webalizer catalina_service filezilla_setup mercury_stop properties service service sampp-control 	 cgi-bin img mailoutput perl src webdav catalina_start filezila_start mysql_start readme_de setup_xampp xampp_shell xampp-control 	 contrib install maitodisk php tmp apache_start catalina_stop filezilla_stop mysql_stop readme_en test_php xampp_start xampp-control
🕌 Notepad++ 퉲 PerfLogs				



Step 4: This is the installing page and it takes less than 10 minutes.



Figure 5.5: Installing Xampp

Step 5: On successful completion of Installation, following screen will appear. Then, click 'Finish'.

\frown	Completing the XAMPP Setup Wizard
	Setup has finished installing XAMPP on your computer.
	☑ Do you want to start the Control Panel now?
\sim	
A 1 1 1	
l hitnami	
bitnami	
U bitnami	< Back Finish Cancel
WALAYSIA 4	< Back Finish Cancel
WALAYSIA 4	< Back Finish Cancel

Step 6: Then the control panel screen will automatically launch. Click on 'Apache'

3	مارك	XAMPP Co	ntrol Panel v3.	2.2 [Con	npiled: No	v 12th 201	ور الم	× اوني
Modules Service	Module	IPP Contr PID(s)	ol Panel v3. Port(s)	2.2 Actions	IALA	YSIA	MEL	Config
	Apache	5716 7156	80, 443	Stop	Admin	Config	Logs	Shell
	MySQL			Start	Admin	Config	Logs	Explorer
	FileZilla			Start	Admin	Config	Logs	Services
	Mercury			Start	Admin	Config	Logs	🚱 Help
	Tomcat			Start	Admin	Config	Logs	Quit
12:33:24 12:33:24 12:33:24 12:33:24 2:36:38 P 2:37:02 P	PM [main] PM [main] PM [main] PM [main] M [Apache] M [Apache]	All prerequ Initializing Starting Cl Control Pa Attempting Status cha	isites found Modules neck-Timer nel Ready g to start Apache ange detected: ru	app unning				^

Figure 5.7: Xampp Control Panel v3.2.

5.2.2 Database Development Environment setup

Installation of Oracle 11g Enterprise Edition

Step 1: Go to the following site to download Oracle database 11g for Windows, http://www.oracle.com.

Step 2: Click free download and unachieved the zipped download file.

Step 3: Double click on setup.exe from unachieved folder of oracle database source.

Name	Date modified Type Size
📕 doc	2/12/2016 11:02 AM File folder
🜗 install	2/12/2016 11:02 AM File folder
🔋 response	2/12/2016 11:02 AM File folder
stage // n	2/12/2016 11:04 AM File folder
🐻 setup	12/3/2010-1:11 AM Application334 KB
setup hunde	13/7/2009 5:02 AM Configuration sett. 1KB
💿 welcome	12/3/2010 11:53 AM Chrome HTML Do 5 KB

Figure 5.8: Oracle Database 11g Folder

Step 4: Email is needed for security updates and user can uncheck the box. Then, click Next.

👙 Oracle Database 11g Release 2 Ins	taller - Installing database - Step :	Lof 9	
Configure Security Updates			ORACLE 118
Configure Security Updates	Provide your email address to be i and initiate configuration manager	nformed of security issues, install the produ View details.	*
Installation Option Grid Installation Options	E <u>m</u> ail:	Easier for you if you use your My Oracle S	upport email address/username.
Install Type	I wish to receive security upda	tes via My Oracle Support.	
Prerequisite Checks	My Oracle Support Password:		
Install Product			
Ů Finish			
Help		< <u>B</u> ack	Next > Enish Cancel

Figure 5.9: Oracle 11g Database Installation

Step 5: Tick on 'create and configure a database' radio button and click Next to continue.

an .	
Oracle Database 11g Release 2 In:	staller - Installing database - Step 2 of 9 📃 📼 💌
Select Installation Option	
Configure Security Updates	Select any of the following install options.
Grid Installation Options	◯ Install database software only
Typical Installation	◯ <u>U</u> ggrade an existing database
Summary	
Ú Install Product Finish	
Help	< Back Next > Einish Cancel

Figure 5.10: Oracle 11g Database Installation Option

Step 6: Tick on 'desktop class' then click Next.

ystem Class	
Configure Security Updates Installation Oxtion. System Class Typical Installation Prerequisite Checks Summary Install Product Finish	Desktop Class Choose this option if you are installing on a laptop or desktop class system. This option includes a starter database and allows minimal configuration. Gerver Class Choose this option if you are installing on a server class system, such as what you would use when deploying Oracle in a production data center. This option allows for more advanced configuration options.
HALAYSIA	<back next=""> Finish Cancel</back>

Step 7: Enter the global database name as 'orcl' then enter password twice. Click Next button to continue.

Source Database 11g Release 2 Inst	aller - Installing database -	Step 4 of 8	18 18
Configure Security Updates	Perform full Database insta Oracle bage:	atation with basic configuration.	Browse
System Class Typical Installation	Software location:	C:\app\McLaughlinM\product\11.2.0\dbhome_1	Browse
Prerequisite Checks	Database file location:	C: \app\McLaughlinM\oradata	Browse
Summary	Database <u>e</u> dition:	Enterprise Edition (3.34GB)	
Finish	Character Set:	Default (WE8MSWIN1252) -	
	<u>G</u> lobal database name:	orcl	
	Administrative password:		
	Confirm Password:		
Help		< Back Next > Einish	Cancel

Figure 5.12: Typical Installation of Oracle 11g Database

Step 8: This is a progress bar screen that checks for prerequisites. It takes less than a minute to run but can take two or so. Then, it will proceed to the summary page.

9 Oracle Database 11g Release 2 In Perform Prerequisite Chec	staller - Installing database - Step 5 of 8
Configure Security Updates Installation Option System Class	Verifying that the target environment meets minimum installation and configuration requirements for products you have selected. This can take time. Please wait. 33% Checking Swap Size
Prerequisite Checks Summary Install Product Finish	
HALAYSIA Here	KBAK Next - Erich Cocc

Figure 5.13: Prerequisite Checks of Oracle 11g Database

Step 9: The summary shows all the selected values for the installation. Click Finish button to proceed.



Figure 5.14: Summary Installation of Oracle

👙 Oracle Database 11g Release 2 Installer - Installing database - Step 7 of 8 ORACLE 118 Install Product Progress Installation Option 9% Extracting files to 'C:\app\McLaughlinM\product\11.2.0\dbhome_1' Status Oracle Database installation
 Prepare
 Copy files
 Setup files In Progress Succeeded Finish Install Product In Progress Pending Details Retry Skip 11 ORACLE 118 Consolidate on Fast, DATABASE Reliable, and Scalable Low-Cost Grids Grid Computing Cancel Help

Step 10: This is the main progress bar and it normally takes 5 to 10 minutes.

Figure 5.15: Install Product of Oracle 11g Database

Step 11: The popup screen requires the authorization of the Java runtime to call home. Click Allow access to continue. 1

	Jw access	اوىيۇنىسىتى ئىكىيىك
🔐 Windows Securi	ity Alert	**
UNVERS	ITI TER	KNIKAL MALAYSIA MELAKA
Window	ws Firewall	has blocked some features of this program
Windows Firewall ha all public and private	as blocked some e networks.	features of Java(TM) 2 Platform Standard Edition binary on
	Name:	Java(TM) 2 Platform Standard Edition binary
	Publisher:	Sun Microsystems, Inc.
	Path:	C:\users\mclaughlinm\appdata\local\temp\orainstall2011-12 -29_06-43-21pm\jdk\jre\bin\javaw.exe
Allow Java(TM) 2 Pl	atform Standard	Edition binary to communicate on these networks:
🔽 Private netwo	orks, such as my	home or work network
Public networ because thes	ks, such as thos e networks ofte	e in airports and coffee shops (not recommended n have little or no security)
What are the risks o	of allowing a pro	gram through a firewall?
		Allow access Cancel

Figure 5.16: Windows Security Alert

Step 12: On this page, failures may occur as the progress bar configuring the instance. If there is no failure, it will proceed to the next page.

nstall Product		
Configure Security Updates Installation Option System Class Typical Installation	Progress 100% Starting 'Oracle Net Configuration Assistant'	
Prerequisite Checks	Status	
Summary	✓ Oracle Database installation	Succeeded
Install Product	✓ • Prepare	Succeeded
. Printed	 Copy files 	Succeeded
/ Finish	 Setup files 	Succeeded
	Oracle Database configuration	In Progress
	 Oracle Net Configuration Assistant 	In Progress
	Oracle Database Configuration Assistant	Pending
	Oracle Comgaration warager Comgaration (Optional)	Pending
AL AY SI		Details Retry Sk
an machiola	DATABASE 118	Maximize Performan Availability, and Productivity
Help	Carl Back	lext > Einish Canc

Figure 5.17: Configuring the Instance of Oracle 11g Database

Step 13: This progress bar is launched by the Oracle Database Configuration Assistant and it takes a few minutes.



Figure 5.18: Database Configuration Assistant

Step 14: The second popup requires the authorization of the Java runtime to call home. Then, click Allow access to proceed.

🔐 Windows Securi	ity Alert	
Window	ws Firewal	I has blocked some features of this program
Windows Firewall ha	as blocked some e networks.	e features of Java(TM) 2 Platform Standard Edition binary on
	Name:	Java(TM) 2 Platform Standard Edition binary
	Publisher:	Sun Microsystems, Inc.
	Path:	C:\app\mclaughlinm\product\11.2.0\dbhome_1\jdk\jre\bin \java.exe
Allow Java(TM) 2 Pl	atform Standar	d Edition binary to communicate on these networks;
📝 Private netwo	orks, such as m	ny home or work network
Public networ because thes	rks, such as tho se networks oft	ose in airports and coffee shops (not recommended en have little or no security)
What are the risks of	of allowing a pro	ogram through a firewall?
	AMA	Allow access Cancel
	Figure 5.	19: Windows Security Alert

heme.

Click	OK button to proceed.
	Database Configuration Assistant
U	Database creation complete. For details check the logfiles at SIA MELAKA CtapptMcLaughlinMtcfgtoollogstdbcatorcl.
	Database Information: Global Database Name: orcl System Identifier(SID): orcl Server Parameter File name: C:\app\McLaughlinM\product\11.2.0\dbhome_1\database\spfileorcl.ora
	The Database Control URL is https://localhost:1158/em
	Management Repository has been placed in secure mode wherein Enterprise Manager data will be encrypted. The encryption key has been placed in the file: C:/app/McLaughlinM/product/11.2.0 /dbhome_1/localhost_orcl/sysman/config/emkey.ora. Please ensure this file is backed up as the encrypted data will become unusable if this file is lost.
	Note: All database accounts except SYS, SYSTEM, DBSNMP, and SYSMAN are locked. Select the Password Management button to view a complete list of locked accounts or to manage the database accounts (except DBSNMP and SYSMAN). From the Password Management window, unlock only the accounts you will use. Oracle Corporation strongly recommends changing the default passwords immediately after unlocking the account.
	Password Management)
	<u>ok</u>)
	Figure 5.20: Database Configuration Assistant

Step 16: This page shows that the network and database instances are configured and it also run the OEM(Oracle Enterprise Manager) installation.

Configure Security Updates	Progress
🔍 Installation Option	100%
Q. System Class	Starting 'Oracle Configuration Manager Configuration'
Prerequisite Checks	Status
ý Summary	✓ Oracle Database installation Succeeded
Install Product	Prepare Succeeded
Finish	Copy files Succeeded
	• Setup riles Succeeded
	 ✓ • Oracle Net Configuration Assistant Succeeded
	✓ • Oracle Database Configuration Assistant
	Oracle Configuration Manager Configuration (Optional) In Progress
ALAYSIA	
Pro	
2	Details Retry Skip
N.	
S/	DATABASE 118 Extreme Performance
×	Det Manhausing
<u> </u>	Data Warehousing
Help	<pre><pre><pre><pre><pre><pre>content</pre><pre><pre><pre>content</pre><pre><pre><pre><pre>content</pre><pre><pre><pre>content</pre><pre><pre><pre>content</pre><pre><pre>content</pre><pre><pre>content</pre><pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre><pre>content</pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>
×	
0	
E	
Figure 5.21: C	completion of Installation of Oracle 11g Database
Figure 5.21: C	completion of Installation of Oracle 11g Database
Figure 5.21: C	completion of Installation of Oracle 11g Database
Figure 5.21: C	completion of Installation of Oracle Tig Database
Figure 5.21: C p 17: Open SQL	Developer
Figure 5.21: C p 17: Open SQL	Developer
Figure 5.21: C p 17: Open SQL	Developer
Figure 5.21: C p 17: Open SQL	Developer اونيوش سيني نيكني Developer
Figure 5.21: C p 17: Open SQL	اونيوسيني نيكني Peveloper
Figure 5.21: C p 17: Open SQL	اونيون سيني نيكنيه Peveloper TEKNIKAL MALAYSIA MELAKA
Figure 5.21: C p 17: Open SQL	اونيونر سيني نيكني Peveloper
Figure 5.21: C p 17: Open SQL	Developer
Figure 5.21: C p 17: Open SQL	Developer TEKNIKAL MALAYSIA MELAKA
Figure 5.21: C p 17: Open SQL	Developer TEKNIKAL MALAYSIA MELAKA ORACLE
Figure 5.21: C	Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C p 17: Open SQL	Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C p 17: Open SQL	Developer اونيونر،سيني نيكني Peveloper TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C p 17: Open SQL	Developer Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C p 17: Open SQL	Developer Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C p 17: Open SQL UNIVERSITI	Developer اوينون سيني نيكيد TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C p 17: Open SQL	Developer Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C	Developer Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C	Developer Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C	Developer Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER
Figure 5.21: C	Developer Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER Version 4.2.
oading	Developer Developer TEKNIKAL MALAYSIA MELAKA ORACLE SQL DEVELOPER Version 4.2.

Figure 5.22: Oracle SQL Developer

5.2.3: Managing database objects using Oracle SQL Developer

Connection Name	Connection Details	Connection Name	psm
ımdb	wan@//localhost:1521/orcl	<u>U</u> sername	wan
sm	wan@//127.0.0.1:1521/ord	Password	•••••
est	nr@//localnost:1521/ord	Caus Bassus	d M Connection Color
		Save Passwor	
		Oracle	
		Connection Typ	a Paris V Pole dofault V
		connection ryp	
		Hostname	127.0.0.1
		Port	1521
		⊖ s <u>i</u> d	
		Service name	orcl
		OS Authenti	cation Kerberos Authentication Advanced
	ALAYST.		
14	ACCU SIA		
2	and the second		
tatus : Success	C.		
Halo	1		ue Clear Tect Connect Cancel
Teb	>	20	

Step 1: Enter service name for the Connection Name, then click Test.

Step 2: The status of the connection was tested successfully. The connection was not saved however. To save the connection, click Connect.

Connection Name mmdb psm test	Connection Details wan@//localhost: 1521/ord wan@//127.0.0.1:1521/ord hr@//localhost: 1521/ord	New / Select Database Connection × Connection Name psm
Status : Helo		Port 1521 SID Service name ord OS Authentication Kerberos Authentication Advanced Advanced

Figure 5.24: Test New Database Connection

🏮 Oracle S	QL D	eveloper										×
Eile Edit \	/iew	Navigate	Run	Debug	Source	Tools	Help					
🔮 🗁 🗐	8	0 - 0) ×	- -								_
Connection	15	Report	5		_							
62 Y												ddiuc
	ctions											ets
		New Databa	ase Cor vections	nection	· · · · ·							
		mport Conn	ections									
	_											
A A	.AY	SIA										
~		4										
y			1									
7			12									
	-											
Connections										Editing	🛱 6М о	f 8
3	F	Figure	5.2	5: C	eate	New	Data	abase Co	onne	ection		
630		-8****	- /=			~						
MINI	١.											

Step 3: In the Connections tab, right-click Connection and select 'New Database Connection'.

Step 4: The connection was saved and the database is in the list. Expand PSM.

	· · · · · · ·
Connections × 🖃	sql 📵 psm45.sql 🐣 🔳 Messages - Log
	SQL Worksheet History MELAKA
🖃 📷 psm	Worksheet Ouery Builder
PATIENT	
DAYMENT	
PRESENTATION	
PRODUCT_LIST -	

Figure 5.26: List of Table in PSM Connection

Connections × =	sql	🗊 psm45.sql 🛛 🔳 M	lessages - Log 💉 ි trig_sub.:	sql 🛛 🚰 EMI	P_NUM_TRIG ×	📵 test2.sql 🛛	est~11.sql
🕂 - 🔞 🝸 🔁	Columns	Data Model Constrain	ts Grants Statistics Triggers	Flashback Dep	endencies Details	Partitions Inde	exes SQL
	1	🖌 🔁 🗢 Actions					
🖮 🙀 psm		COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
Tables (Filtered)	1	APPOINTMENTID	VARCHAR2 (8 BYTE)	No	(null)	1	(null)
	2	FK_PATIENTID	VARCHAR2 (8 BYTE)	Yes	(null)	2	(null)
	3	FK_DENTISTID	VARCHAR2 (8 BYTE)	Yes	(null)	3	(null)
FK_PATIENTIC	4	APPOINTMENTDATE	DATE	Yes	(null)	4	(null)
FK_DENTISTIC	5	STATUS	VARCHAR2 (8 BYTE)	Yes	(null)	5	(null)
	6	TIME	VARCHAR2 (20 BYTE)	Yes	(null)	6	(null)
TIME							
PANEL +							

Step 5: Select the table to view the table definition.



5.2.4 PHP connection with Oracle SQL Developer

Step 1: Review the code in connect.php The oci_connect() function contains the username, the password and the connection string. The oci_close() function closes the connection. Any standard connections not explicitly closed will be automatically released when the script ends.

C:\xampp\htdocs\psm\pages\connection.php - N									
<u>F</u> ile <u>E</u> dit <u>S</u> earch <u>Vi</u> ew E <u>n</u> coding <u>L</u> anguage Settings T <u>o</u> ols <u>M</u> acro <u>R</u> un <u>P</u> lugins <u>W</u> indow <u>2</u>									
C 🔒 🗄 🔁 S Co 🚔 🕹 🛍 🛅 🗩 C # 🍇 🔍 🧠 📴 🖾 💷 N 🗵 🖉 🗶 🖄 🕗 🔍 🗉 🗩 🔤									
🖹 connection.php 🔀 🗮 thshames.ora 🗷 🗮 dentistapp.php 🔀 🚍 patientapp.php 🗵 🗮 insert_dentistappt.php 😢 🗮 dentappupdate.php 🗵									
1									
2									
<pre>3 //\$conn=oci_connect('username', 'password', 'oracle_sid');</pre>									
4									
5 \$conn=oci_connect('wan', 'wan123', '127.0.0.1/orcl');									
6									
7 [if (\$conn) {									
8 echo "Successfully connected :)";									
9 -}									
10 🗧 else {									
11 echo "Failed to connect :(";									
12 -}									
13 L _{2>}									
14									

Figure 5.28: Connection.php coding

Step 2: Review the code in tnsnames.ora. The hostname '127.0.0.1' is put on host while

port is replaced to 1521 port based on the oracle port.



Step 3: Review the code in listener.ora. The hostname '127.0.0.1' is put on host while port is replaced to 1521 port based on the oracle port.

2		C:\app\product\11.2.0\dbhome_1\\NETWORK\ADMIN\listener.ora - Notepad++							
<u>F</u> ile	Edi	t Search View Encoding Language Settings Tools Macro Bun Plugins Window 2 🗆 🗣 S 🕼 🕼 💭 🖉 👘 😭 🖉 📽 💘 📴 🚰 🚋 11 🊎 🐼 💽 💽 🐨 D D 📷 🗛 🗛 🗛							
📄 Istener ore 🖸 🗮 new 2 🕄 🚍 new 3 🕄 🚍 dentistapp php 🖸 🚔 patientapp php 🕃 🚔 inset_dentistapp php 🕃 🚔 inset_dentistapp php 😂 🚔 inset_dentistapp php 😂									
	1	<pre># listener.ora Network Configuration File: C:\app\product\11.2.0\dbhome_1\network\admin\listener.ora</pre>							
	2	# Generated by Oracle configuration tools.							
	3								
	4	SID_LIST_LISTENER =							
	5	(SID_LIST =							
	6	(SID_DESC =							
	7	(SID_NAME = CLRExtProc)							
	8	(ORACLE_HOME = C:\app\product\11.2.0\dbhome_1)							
	9	(PROGRAM = extproc)							
1	LO	(ENVS = "EXTPROC_DLLS=ONLY:C:\app\product\11.2.0\dbhome_1\bin\oraclr11.dll")							
1	1								
1	12)							
1	13								
	14	LISTENER =							
1	15	(DESCRIPTION_LIST =							
1	16	(DESCRIPTION =							
	17	(ADDRESS = (PROTOCOL = IPC) (KEY = EXTPROC1521))							
	18	(ADDRESS = (PROTOCOL = TCP) (HOST = 127.0.0.1) (PORT = 1521))							
	19								
2	20)							
2	21								
2	22	ADR_BASE_LISTENER = C:\app							
2	23								

Figure 5.30: listener.ora coding

Step 4: Open a Web browser and enter the following URL to display the output:



Successfu	lly	connected	:)
	_		

Figure 5.31: Connection on web browser

5.3 Database Implementation 5.3.1: Data Definition Language(DDL) Create Statement: i. Appointment Table: create table appointment (appointmentID varchar2(8) primary key not null. fk_patientID references patient(patientID), ALAYSIA MELAKA fk_dentistID references dentist(dentistID), appointmentDate date, time timestamp, status varchar2(8)); ii. Dentist Table: create table dentist(dentistID varchar2(8) primary key not null, name varchar2(100), age number, email varchar2(50), address varchar2(100),

street varchar2(100), city varchar2(100),

postcode number,

```
state varchar2(100),
 gender varchar2(6),
 phoneNumber varchar2(12),
 password varchar2(20)
 );
iii. Medicine Table:
 create table medicine
 (
 medicineID varchar2(8) primary key not null,
 name varchar2(100),
 dosage varchar2(10),
 description varchar2(500),
 price varchar2(10),
 quantity number
 );
iv. Organization Table:
 create table organization
 (
 organizationID varchar2(8)not null primary key,
 organizationName varchar2(100)
 telNo varchar2(10),
 personInCharge varchar2(100),
 address varchar2(500)
 );
v. Patient Table:
  create table patient(
  patientID varchar2(8) primary key not null,
                                              AYSIA MELAKA
  fk_panelID references panel(panelID),
  name varchar2(100),
  age number.
  email varchar2(50),
  gender varchar2(6),
  address varchar2(100),
  street varchar2(100),
  city varchar2(100),
  postcode number,
  state varchar2(100),
  phoneNumber varchar2(12),
  password varchar2(20)
  );
```

vi. Payment Table: create table payment (paymentID varchar2(8) primary key not null, fk_staffID references staff(staffID), fk_visitID references visit(visitID), totalAmount varchar2(8), status varchar2(10));

vii. Staff Table: Create table staff (staffID varchar2(8) primary key not null, name varchar2(100), age number, email varchar2(50), address varchar2(100), street varchar2(100), city varchar2(100), postcode number, state varchar2(100), gender varchar2(100), gender varchar2(6), phoneNumber varchar2(12), password varchar2(20));

UTEM

create table tooth (toothID varchar2(100) primary key not null, description varchar2(500));

viii. Tooth Table:

```
ix. Treatment Table: TEKNIKAL MALAYSIA MELAKA
```

create table treatment

treatmentID varchar2(8) primary key not null, treatment varchar2(100), cost number (12,2));

x. Visit Table:
create table visit

(
visitID varchar2(8) primary key not null,
fk_appointmentID references appointment(appointmentID),
fk_patientID references patient(patientID),
visitDate date,
time timestamp,
mc varchar2(50)

xi. V_medicine Table: CREATE TABLE V_MEDICINE (fk_medicineID varchar2(8) not null, fk_visitID varchar2(8) not null, quantity number (30,0), description varchar2(200), CONSTRAINT v_medicine_pk PRIMARY KEY (fk_medicineID, fk_visitID

);

);

xii. V_treatment Table: create table v_treatment (fk_toothID varchar2(8) not null, fk_treatmentID varchar2(8) not null, description varchar2(200) CONSTRAINT v_treatment_pk PRIMARY KEY (fk_toothID, fk_visitID, fk_treatmentID); UNERSITITEKNIKAL MALAYSIA MELAKA

Alter Statement:

i. Staff Table:
alter table staff
add postcode varchar2(5),
add street varchar2(100),
add city varchar2(100);

ii. Dentist: Table:alter table dentistadd street varchar2(100),add city varchar2(100);

iii. Patient Table:

alter table patient add street varchar2(100), add city varchar2(100);

iv. Medicine Table:alter table medicinemodify price varchar2(10);

v. Medicine Table: alter table medicine add quantity int;

5.3.2: Data Manipulation Language(DML)

Insert Statement

i. Insert statement is used to insert data of visiting patient into visit table. INSERT INTO VISIT (FK_PATIENTID, VISITDATE)

VALUES('\$patient_id',sysdate)

Update Statement

i. Update statement is used to update the appointment status for new appointment

UPDATE appointment SET STATUS='approve' WHERE APPOINTMENTID='\$latestID'

Select Statement SITI TEKNIKAL MALAYSIA MELAKA

i. Select statement used to check the existence of user email and password in patient table

select count(*) from patient where email='\$username' and
password='\$password'

ii. It is a query that is used to validate patient email and password

select * from patient where email='\$username' and password='\$password'

iii. It is a query that is used to validate staff email and password

select * from staff where email='\$username' and password='\$password'

iv. It is a query that is used to validate dentist email and password

select * from dentist where email='\$username' and password='\$password'

v. Select statement is used to display data of the patient from patient table for update

select * from patient where email = '\$patientID'

vi. Select statement is used for the patient to view list of appointments according to date

select TO_CHAR(a.appointmentdate, 'dd/MM/yyyy HH:MI AM'),a.status from APPOINTMENT a, patient p where a.fk_patientId = p.patientId and p.patientId='\$PATIENDID' ORDER BY a.appointmentdate'

vii. Select statement is used to display list of patient name for the dentist to make appointment

SELECT PATIENTID, NAME FROM PATIENT

viii. Select statement is used for the dentist view list of appointment where the status is pending and according to date

select a.appointmentid,d.dentistId,TO_CHAR(a.appointmentdate, 'dd/MM/yyyy HH:MI AM'),a.status from APPOINTMENT a, dentist d where a.status='pending' ORDER BY a.appointmentdate DESC

ix. Select statement is used for the dentist to view list of appointments according to date and status is not pending

select a.appointmentid,d.dentistId,TO_CHAR(a.appointmentdate, 'dd/MM/yyyy HH:MI AM'),a.status from APPOINTMENT a, dentist d where a.fk_dentistId = d.dentistId and a.status<>'pending' ORDER BY a.appointmentdate DESC

x. Select statement is used to display list of visiting patient name based on the date of treatment

SELECT v.VISITID,p.PATIENTID,p.NAME FROM VISIT v,PATIENT p WHERE p.PATIENTID=v.FK_PATIENTID

TO_CHAR(v.VISITDATE,'DD/MM/YYYY')=TO_CHAR(sysdate,'DD/MM/ YYYY')

xi. Select statement is used for the staff to view list of medicine from medicine table

SELECT * FROM medicine

xii. Select statement is used for the dentist to view list of medicine from medicine table

SELECT * FROM medicine

xiii. Select statement is used to view list of patient name from patient table by staff for patient registration

SELECT * FROM patient where NAME is not null

xiv. Select statement is used to display list of visiting patients according to date

SELECT * FROM VISIT v,PATIENT p WHERE p.PATIENTID=v.FK_PATIENTID AND TO_CHAR(v.VISITDATE,'DD/MM/YYYY')=TO_CHAR(sys date,'DD/MM/YYYY')

xv. Select statement is used for the staff to view list of recent appointment

select n.name,a.appointmentID,TO_CHAR(a.appointmentdate, 'dd/MM/yyyy HH:MI AM'), a.status from patient n, appointment a where a.fk_patientID = n.patientID and a.appointmentdate>sysdate order by a.appointmentDate

- xvi. This select statement is used to display patient name on the receipt
 SELECT p.name FROM VISIT v,PATIENT p WHERE
 p.PATIENTID=v.FK_PATIENTID AND v.visitid=\$visitid
- xvii. It is used to display patient treatment and cost

SELECT T.TREATMENT,T.COST FROM V_TREATMENT V,TREATMENT T WHERE V.FK_VISITID=\$visitid AND T.TREATMENTID=V.FK_TREATMENTID

- xviii. This select statement is used to display medicine description, quantity and price of the patient SELECT M.DESCRIPTION, V.QUANTITY, M.PRICE FROM V_MEDICINE V, MEDICINE M WHERE V.FK_VISITID=\$visitid AND M.MEDICINEID=V.FK_MEDICINEID
 - xix. Select statement to display patient information from patient table which is not null

SELECT * FROM patient where NAME is not null

xx. This select statement is used to display all data from visit table of the patient based on the patient ID
 SELECT * FROM VISIT v,PATIENT p WHERE
 p.PATIENTID=v.FK_PATIENTID AND

p.PATIENTID='\$patient_id' AND

TO_CHAR(v.VISITDATE,'DD/MM/YYYY')=TO_CHAR(sys date,'DD/MM/YYYY')

- It is used to calculate cost of the treatment of the patient
 SELECT SUM(T.COST) FROM V_TREATMENT
 V,TREATMENT T WHERE V.FK_VISITID=\$visitid AND
 T.TREATMENTID=V.FK_TREATMENTID
- xxii. This select statement is used to calculate the total price of treatment and medicine

SELECT	SU	M(V.0	QUANTI	TY*M.	PRICE)	FROM
	NE	V ,	MEDICI	NE	М	WHERE
V.FK_VISIT	rid=\$	visitid				AND
M.MEDICIN	VEID=	V.FK	MEDIC	INEID		

xxiii. Select statement that is used to display patient information order

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SELECT * FROM patient ORDER BY PATIENTID

xxiv. Select statement that is used to know date that has been choose by patient to display error message of no_appt trigger where the patient cannot choose appointment date on sunday
SELECT to_char(to_date('\$appointmentDate','yyyy-MM-dd HH24:MI SS') ,'Day') from dual"

5.3.3.4: Stored Procedures

i. Insert:

This is an insert stored procedure on patient table. All the information filled in by the patient will be inserted into patient table.

create or replace procedure patient_proc(

p_patientID patient.patientID%TYPE,

p_fk_panelID patient.fk_panelID%TYPE,

p_name patient.name%TYPE,

p_age patient.age% TYPE,

p_email patient.email%TYPE,

p_address patient.address%TYPE,

p_gender patient.gender%TYPE,

p_phoneNumber patient.phoneNumber%TYPE,

p_password patient.password%TYPE,

p_state patient.state%TYPE,

p_postcode patient.postcode%TYPE)

is

begin insert into

(patientID,fk_paneIID,name,age,email,address,gender,phoneNumber,passwor d,state,postcode)

values

(p_patientID,p_fk_paneIID,p_name,p_age,p_email,p_address,p_gender,p_ph oneNumber,p_password,p_state,p_postcode); A Relation and a state of the state

ii. Insert:

Appt_proc is a insert procedure that is used to insert appointment date and time into appointment table by patient.

```
create or replace procedure appt_proc(
p_fk_patientID in APPOINTMENT.fk_patientID%type,
p_appointmentDate in APPOINTMENT.APPOINTMENTDATE%type)
is
begin
insert into appointment(fk_patientID,appointmentDate) values
(p_fk_patientID,p_appointmentDate);
end;
```

iii. Insert:

Insert stored procedure is used to insert payment information into payment table.

create or replace procedure payment_proc(p_fk_staffID in payment.fk_staffID% type, p_fk_visitID in payment.fk_visitID% type, p_totalAmount in payment.totalAmount% type, p_status in payment.status% type) is begin insert into payment(fk_staffID,fk_visitID,totalAmount,status) values (p_fk_staffID,p_fk_visitID,p_totalAmount,p_status); end:

iv. Insert:

Dentist_proc is a insert procedure that is used to insert appointment date and time into appointment table by dentist.

```
create or replace procedure dentist_proc(
p_fk_dentistID in APPOINTMENT.fk_dentistID%type,
p_fk_patientID in APPOINTMENT.fk_patientID%type,
p_appointmentDate in APPOINTMENT.APPOINTMENTDATE%type)
is
begin
insert into appointment(fk_dentistID,fk_patientID,appointmentDate) values
(p_fk_dentistID,p_fk_patientID,p_appointmentDate);
```

end; UNIVERSITI TEKNIKAL MALAYSIA MELAKA

v. Insert:

Vtreatment_proc is used to insert data into vtreatment table

```
create or replace procedure vtreatment_proc(
 p_fk_toothID in v_treatment.fk_toothID%type,
 p_fk_visitID in v_treatment.fk_visitID%type,
 p_fk_treatmentID in v_treatment.fk_treatmentID%type,
 p_description in v_treatment.description%type
)
 is
 begin
 insert into v_treatment(fk_toothID,fk_visitID,fk_treatmentID,description)
 values (p_fk_toothID,p_fk_visitID,p_fk_treatmentID,p_description);
 end;
```

vi. Update:

Update stored procedure is used to update patient information on patient table

create or replace PROCEDURE updatePatient(

p_patientID IN patient.patientID%TYPE, p_name IN patient.name%TYPE, p_age IN patient.age%TYPE, p_email IN patient.email%TYPE, p_address IN patient.address%TYPE, p_phoneNumber IN patient.phoneNumber%TYPE, p_password IN patient.password%TYPE, p_state IN patient.gender%TYPE, p_state IN patient.state%TYPE, p_postcode IN patient.postcode%TYPE)

AS



END;

5.3.3.5 Triggers

i. Before insert:

This trigger will set an appointment status as 'pending' for new appointment.

create or replace trigger appt_status before insert on appointment for each row begin :new.status:= 'pending'; end;

ii. Before insert:

This is an auto increment trigger for dentist table.

create or replace trigger auto_increment before insert on dentist for each row declare begin if (:new.dentistID is null) then :new.dentistID := dentist_seq.nextval; end if; end;

iii. Before insert:

This is an auto increment trigger for appointment table.

create or replace trigger auto_increment_appt before insert on appointment for each row declare begin if (:new.appointmentID is null) then :new.appointmentID := appointment_seq.nextval; end if; end;

iv. Before insert: This is an auto increment trigger for medicine table.

create or replace trigger auto_increment_medicine
before insert on medicine
for each row
declare
begin
if (:new.medicineID is null)
then
:new.medicineID := med_seq.nextval;
end if;
end;

v. Before insert:

This is an auto increment trigger for patient table.

create or replace trigger auto_increment_patient before insert on patient for each row
declare
begin
if (:new.patientID is null)
then
:new.patientID := patient_seq.nextval;
end if;
end;

vi. Before insert:

This is an auto increment trigger for payment table.

create or replace trigger auto_increment_payment before insert on payment for each row declare begin if (:new.paymentID is null) then :new.paymentID := payment_seq.nextval; end if; end;

vii. Before insert: This is an auto increment trigger for staff table.

> create or replace trigger auto_increment_staff before insert on staff for each row

> declare

begin

if (:new.staffID is null)
then
:new.staffID := staff_seq.nextval;
end if;
end;

viii. Before insert:

This is an auto increment trigger for tooth table.

create or replace trigger auto_increment_tooth before insert on tooth for each row declare begin if (:new.toothID is null)

```
then
:new.toothID := tooth_seq.nextval;
end if;
end;
```

ix. Before insert:

х.

xi.

This is an auto increment trigger for treatment table.

```
create or replace trigger auto_increment_treatment
before insert on treatment
for each row
declare
begin
if ( :new.treatmentID is null)
then
:new.treatmentID := treatment_seq.nextval;
end if;
end:
Before insert:
This is an auto increment trigger for visit table.
create or replace trigger auto_increment_visit
before insert on visit
for each row
declare
begin
if ( :new.visitID is null)
then
:new.visitID := visit_seq.nextval;
end if;
end;
Before insert:
This is an auto increment trigger for v_medicine table.
create or replace trigger auto_increment_vmedicine
before insert on v_medicine
for each row
declare
begin
if ( :new.v_medicineID is null)
then
:new.v_medicineID := v_medicine_seq.nextval;
end if;
```

end;

xii. Before insert:

This is an auto increment trigger for v_treatment table.

create or replace trigger auto_increment_vtreatment before insert on v_treatment for each row declare begin if (:new.v_treatmentID is null) then :new.v_treatmentID := v_treatment_seq.nextval; end if; end;

xiii. Before insert or update:

No_appt trigger is a trigger that disallow user from choosing an appointment on Sunday.

```
create or replace trigger no_appt
before insert or update on appointment
for each row
begin
if(trim(to_char(:new.appointmentDate ,'Day')) = 'Sunday')
then
raise_application_error(-20100,'No appointment can be made on Sunday');
end if ;
end;
```

xiv. After insert:

This trigger will automatically deduct the medicine quantity by 1 whenever the dentist clicks on the medicine button. Staff are able to view the current quantity.

```
create or replace trigger med_qty
after insert on V_MEDICINE
for each row
declare
begin
update MEDICINE set quantity = (quantity - 1) where MEDICINEID =
:new.FK_MEDICINEID;
end;
```

xv. After insert or update:

This trigger will automatically insert patient information into patient_backup table and it will update any changes made on patient table on the backup table.

create or replace trigger backup_patient after insert or update on patient for each row declare begin insert into patient_backup values (:new.patientID,:new.fk_paneIID,:new.name,:new.age,:new.email, :new.address,:new.gender,:new.phoneNumber,:new.password,:new.state,:new .postcode); DBMS_OUTPUT_PUT_LINE('Record successfully inserted into patient_backup table');

END; ALAYSIA

5.4 Conclusion

In this chapter, the installation steps, database creation and the database implementation has been explained. For the next chapter, testing phase will be explained in detail.

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CHAPTER VI

TESTING

6.1 Introduction

In this chapter, the testing of the system will be explained. Testing phase includes the test plan, test strategy, test design and test result and analysis. Testing strategy that is adopted for this project is Dynamic Testing.

6.2 Test Plan

Test plan is a document or subproject plan for the testing part of a project. It contains the detailed procedures that determine the scope, approach, resources and schedule of all testing activities.

13.0

6.2.1 Test Organization

There are three persons involved in the testing phase. The system developer is the one that build the system while software tester and client will analyse and evaluate the software product and to detect defects. The detailed about the tester will be explained in the table below.

Name	Roles	Responsibilities
Wan Noraqilah Binti A.Razak	System	Build the system and execute
	Developer	integration and component test.
Dr. Noraswaliza Binti	Software	Analyse the functionality of the
Abdullah	Tester	system and monitor the system
		performance.
Dr. Ahamad Bin Ali	Client	Analyse the functionality and
		requirement of the system.

Table 6.1: Test Organization of DCMS

6.2.2 Test Environment

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chi (

The testing is being done at Faculty of Information Communication and Technology(FICTS) of UTeM. The specification of system configuration that has been used for this project is shown in the table below.

Table 6.2: System Configuration of DCMS

	او بیو چې سيسې س
System Configuration	Specification
Operating System TI TEKNIKAL	Windows 8.1 MELAKA
Database	Oracle SQL Developer
Server	Xampp v3.2.2
Web Browser	Google Chrome
Programming Language	Hypertext Preprocessor(PHP) Language

6.2.3 Test Schedule

Test schedule is a record of activities tor tasks with estimated start and end dates. Test schedule of DCMS system is shown on the table below.

Activities	Description	Start Date	Finish Date	Duration
Unit testing	It is used to test the	27/3/2017	18/5/2017	2 months
	codes and functions			
	of the system			
Integration	It is used to verify	9/4/2017	15/4/2017	1 week
testing	combined			
	functionality after			
	integration			
System testing	It is used to evaluate	16/4/2017	30/4/2017	2 weeks
	the system's			
MAL	compliance with			
and the second se	specified			
TEK	requirements			
Acceptance	It is used to test if	1/5/2017	14/5/2017	2 weeks
testing	the requirements of a			
ch L (specification are met	/ .		
ا ملاك	نيكل مليسيا	بتي نيڪ	اويبوترس	

Table 6.3: Test Schedule of DCMS

6.3 Test Strategy

Dynamic Testing is used for this system. It involves the execution of the software of a component or system. Dynamic testing is divided into two different methods which are Black-box and White-box. Black-box testing used to test the functional and non-functional of the system while White-box is used to test the internal structure of the system. The details of the methods is explained in the table 6.4 below.

Table 6.4: Test Strategy of DCMS

Approaches	Explanation
Black-box Testing	Black-box test either functional or non-functional
	without reference to the internal structure of the
	component or system. It focuses on the output
	generated in response to selected inputs and execution
	conditions
White-box Testing	White-box test based on an analysis of the internal
	structure of the component or system



Login module involved patient, dentist and staff. This module allows authorized user with correct email address and matching password to log into the system. Table 6.5, 6.6 and 6.7 shows the test case of login for patient, dentist and staff.

Test Case	Description	Action	Expected Output
ID			
TC P/01	Patient left the password	Password	Error: Please fill
	text field blank	left blank	out this field

TC P/02	Patient left the email text	Email	Error: Please fill
	field blank	address is	out this field
		left blank	
TC P/03	Patient insert incorrect	All input	Error: Incorrect
	email address or password	inserted but	email or
		misspelled	password!
TC P/04	Hidden password is used	Hidden	Successfully
		password is	login!
		used when	
		user enter	
MALAYS	Ca-	the	
A.S.	AR.	password	
TC P/05	Patient insert correct email	All input	Successfully
E E	and password	inserted and	login!
No.		spelled	
Ainn		correctly	
سا ملاك	تىكنىك ملى	ومرسيت	اود

Table 6.6: Test Case of Login for Dentist

41. 41

Test Case	Description	Action	Expected Output
	1		1 1
ID			
TC D/01	Dentist left the password	Password	Error: Please fill
	1 I		
	text field blank	left blank	out this field
TC D/02	Dentist left the email text	Email	Error: Please fill
	field blank	address is	out this field
		1 0 1 1 1	
		left blank	

TC D/03	Dentist insert incorrect	All input	Error: Incorrect
	email or password	inserted but	email or
		misspelled	password!
TC D/04	Hidden password is used	Hidden	Successfully
		password is	login!
		used when	
		user enter	
		the	
		password	
TC D/05	Dentist insert correct email	All input	Successfully
MALAYS	and password	inserted and	login!
134	10	spelled	
line a	AKA	correctly	
-			

Table 6.7: Test Case of Login for Staff

Freuenna	Table 6.7: Test Case	of Login for St	aff
Test Case ID	تيڪنيڪ ملي	Action بونرسيبي	Expected Output
TC S/01	Staff left the password text	Password	Error: Please fill
	field blank	left blank	out this field
TC S/02	Staff left the email text	Email	Error: Please fill
	field blank	address is	out this field
		left blank	
TC S/03	Staff insert incorrect email	All input	Error: Incorrect
	or password	inserted but	email or
		misspelled	password!

TC S/04	Hidden password is used	Hidden	Successfully
		password is	login!
		used when	
		user enter	
		the	
		password	
TC S/05	Staff insert right email and	All input	Successfully
	password	inserted and	login!
		spelled	
		correctly	

MALAYSIA .

ii. Patient Registration:

Table 6.8 shows the input that need to be fill-in in patient registration module.

Table 6.8: Test Case of Patient Registration

Test Case	Description	Action	Expected
سا ملا	تىكنىكل ملى	ىۋىر سىخ	Output
TC PR/01	All text fields, radio	No input data	Able to enter
UNIVERSI	buttons and button are	SIA MELA	data in all input
	active		fields
TC PR/02	All fields marked with	Patient fill-in	Show message"
	asterisk (*)	data in the	Please enter
		marked field	values in the
			required field"
TC PR/03	Interface verification	Use tab to	Able
		navigate this	to navigate in
		page	sequence

TC PR/04	Patient did not put @	Patient enter	Error: Please
	symbol	email	enter valid
		address	email!
		without @	
		symbol	
TC PR/05	Patient did not put dot	Patient fill-	Error: Please
	symbol in email address	enter email	enter valid
		address	email!
		without dot	
		symbol	
TC PR/06	System uses hidden	Patient enter	Successfully
MALAYS	password	password	login!
TC PR/07	System validate full name	Patient enter	Error: Please
Š.	KA	alphanumeric	enter valid
		name	name!
TC PR/08	System validate length of	Patient enter	Error: Password
Alun .	password inserted by the	password	should be at
سا ملاك	patient	less than 8	least 8!
TC PR/09	System validate length of	Patient enter	Error: Password
UNIVERSI	password inserted by the	password	is too long!
	patient	more than 8	
TC PR/10	Patient has inserted all	All input has	The information
	data	been inserted	has been saved!

iii. Appointment

Appointment module is used by dentist and patient where they need to choose date and time to make an appointment.

Table 6.9: Test Case of Appointment

Test Case	Description	Action	Expected Output
ID			
TC AP /01	User did not select date	No input	Error: Please
	and time	data	choose
			appointment
			date and time
TC AP/02	User did not select	Date is left	Error: Please
	appointment date	blank	choose
			appointment
MALAYS	14 14		date and time
No. of the second secon			
TC AP/03	User did not select	Time is left	Error: Please
	appointment time	blank	choose
Personal State			appointment
the f			date and time
سيا ملاك	تيڪنيڪل ملي	بۇىرسىتى	اود
TC AP/04	Dentist can click on	Dentist	Status of
UNIVERSI	'Approve' or 'Reject'	click on the	appointment
	button	button	change to
			approve or reject
TC AP/05	Status of appointment	Click on	Status of
	change to pending	submit	appointment
	whenever patient make	button	change to
	new appointment		pending
TC AP/06	System display list of	Staff click	display list of
	appointments information	on	appointments
	according from current to	appointment	information
	upcoming date to the staff	button	according from

			current to
			upcoming date is
			displayed
TC AP/07	System display list of	Dentist	display list of
	appointments information	click on	appointments
	according to date to the	submit	information
	dentist	button	according to
			date is displayed
			to the dentist
TC AP/08	System display list of	Patient click	Display list of
MALAYS	appointments information	on submit	appointments
S. St.	to the patient	button	information
N. Contraction	NKA .		according to
			date
TC AP/09	User choose appointment	All input	Error: No
MAININ -	date on Sunday	has been	appointment can
سا ملك	تتكنيك ملي	inserted	be made on
	. 0	S. V.	Sunday!
TC AP/10	User choose past date	All input	Error:
		has been	Appointment
		inserted	failed!
TC AP/11	User has chosen date and	All input	Appointment
	time	has been	date and time
		inserted	has been saved!

iv. Treatment

Treatment module is used by dentist and they need to enter patient name and choose type of treatment as shown in the table below.

Table 6.10: Test Case of Treatment

Test Case	Description	Action	Expected
ID			Output
TC T/01	Dentist left patient name,	No input	Error: Please
	treatment and tooth blank	data	choose patient
			name and
			treatment
MALAYS	IA Ha		
TC T/02	Dentist left patient name	Patient	Error: Please
E .	blank	name is left	choose patient
E E		blank	name
TC T/03	Dentist left treatment and	Treatment is	Error: Please
t i l	tooth blank	left blank	choose
سيا ملاك	تيکنيکل مليا	بونرسيتي	treatment
TC T/04	Data has inserted all data	Data is	Treatment
UNIVERSI	IT TENNINAL MALA	inserted	information has
			been saved!

v. Medicine

Medicine module is used by the dentist. Table 6.11 shows the requirement that need to be fulfilled by the dentist.

Table 6.11: Test Case of Medicine

Test Case	Description	Action	Expected
ID			Output
TC M /01	Dentist left description	Description	Error: Please
	field blank	is left blank	fill-in the text
			field!
TC M /02	Dentist left total field	Total is left	Error: Please
	blank	blank	fill-in the text
			field!
TC M /03	System display current	Click on	Display current
	quantity of the medicine	medicine	quantity of the
MALAYS	A He	button	medicine
TC M /04	Dentist has inserted all	All input	The information
EK.	data 🔓	has been	has been saved!
		inserted	

vi.

-



Medicine module is used by the dentist. Table 6.12 shows the requirement that need to be fulfilled by the dentist. LAYSIA MELAKA

Test Case	Description	Action	Expected
ID			Output
TC V /01	System display list of	Click	Display list of
	visiting patients when they	patient	names of the
	click patient name during	name	visiting patient
	patient registration		

TC V /02	System can display	Click on	Navigate to
	payment page when staff	patient	payment page of
	click on patient registration	information	the patient
	button on visit page	button	

vii. Payment

Payment module is used by the staff. Table 6.13 shows the requirement that need to be fulfilled by the dentist.

Test Case	Description	Action	Expected
ID	A CONTRACTOR		Output
TC PY/01	System display total	Click on	Display and
<u>s</u> =	amount on payment page	visit button	total amount
"A BAINO		of the	
سيا ملاك	تيڪنيڪل ملي	patient	اوز
TC PY/02 JNIVERSI	System can display payment receipt	Click on pay button	Display payment receipt

viii. Logout

Medicine module is used by the dentist. Table 6.14 shows the requirement that need to be fulfilled by the dentist.

Table 6.14: Test Case of Logout

Test Case	Description	Action	Expected
ID			Output
TC L /01	Patient can log out from	Click logout	Navigate to
	the system		login page
TC L/02	Dentist can log out from	Click logout	Navigate to
	the system		login page
TC L/03	Staff can log out from the	Click logout	Navigate to
	system		login page
MALAYS	A HA		

6.4.2 Test Data

Test data is the input given to a software program and it will be used to ensure the system effectiveness.

i. Login UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Login module involved patient, dentist and staff. This module allows authorized user with correct email address and matching password to log into the system. Table 6.15 shows the details of login test data.

Test	Test Case	Input Test/ Data	Result
No.	ID		
T01	TC P/01	Email:	Error: Please fill-
		wnoraqilah@gmail.com	out this field
		Password: blank	

Table 6.15: Details of Login Test Data for Patient

T02	TC P/02	Email: blank	Error: Please fill-
		Password: *******	out this field
T03	TC P/04	Email: wnraqla@gmail.com	Error: Incorrect
		Password: *******	email or
			password!
T04	TC P/05	Email:	Successfully
		wnoraqilah@gmail.com	login!
		Password: *******	

WALAYSIA 4

Table 6.16: Details of Login Test Data for Dentist

	•		
Test	Test Case	Input Test/ Data	Result
No.	ID		
T05	TC D/02	Email: ahmad@gmail.com	Error: Please fill-
املاك	كل مليسي	ومرسيني Password: blank	out this field
JNIVER	SITI TEK	NIKAL MALAYSIA MELA	AKA
T06	TC D/03	Email: blank	Error: Please fill-
		Password: *******	out this field
T07	TC D/04	Email: ahmd@gmail.com	Error: Incorrect
		Password: *******	email or
			password!
T08	TC D/05	Email: ahmad@gmail.com	Successfully
		Password: *******	login!

Table 6.17: Details of Login Test Data for Staff

Test	Test Case	Input Test/ Data	Result
No.	ID		
T09	TC S/02	Email: siti@gmail.com	Error: Please fill-
		Password: blank	out this field
T10	TC S/03	Email: blank	Error: Please fill-
		Password: *******	out this field
T11	TC S/04	Email: st@gmail.com	Error: Incorrect
MAL	AYSIA	Password: *******	email or
ST	Mer		password!
EKI	AKA		
T12	TC S/05	Email: siti@gmail.com	Successfully
Tool .		Password: ******	login!
AINE			
املاك	کل ملیست	زىرىسىتى تىكنىڭ	اوتبو
	a a 😪		14 mm

ii. Patient Registration UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Table 6.18 Details of Patient Registration Test Data

Test	Test Case	Input Test/ Data	Result
No.	ID		
T13	TC PR/01	None	Able to enter data in all input fields

T14	TC $PR/02$	Name*: Wan Noragilah	Error Please enter
	101102		volue in the
		Age ⁺ : 22	
		Gender*: Female	required field"
		Address*:2, Jalan Bukit	
		Beruang	
		Postcode*: 73500	
		Street*: Taman Bukit Beruang	
		City*: Bukit Beruang	
		State*: Melaka	
		Email*:	
		wnoraqilah@gmail.com	
. 64	AYSIA	Contact Number*: 0123344567	
A. Mar	MEL	Password*: *******	
T15	TC PR/03	Check the sequence navigation	Able to navigate
H I		of all text fields, radio buttons	in sequence
E		and button	1
SAINT SAINT			
the (*
ا ملاك	کل ملیسی	بۆمرسىتى بېكىنىڭ	اود
	TC DP/04	IIKAL MALAYSIA MELA	KA Emer: "Dlagge
110	IC PK/04	Amira	EITOI. Please
		Age:	enter valid email"
		40	
		Gender:	
		Female	
		ContactNumber:	
		0123344564	
		Address: 17 Jalan Bestari 8/4 taman	
		Bestari	
		Street:	
		Jalan Bestari 8/4	
		Postcode:	
		75470	
		City:	

T17	TC PR/05	Bukit Beruang State: Melaka Email: mira_at_gmail Password: Name: Amira Age: 40 Gender: Female ContactNumber: 0123344564 Address: 17, Jalan Bestari 8/4, taman Bestari Street: Jalan Bestari 8/4 Postcode: 75470 City: Bukit Beruang State: Melaka Email: mira@gmail Password:	Error: "Please enter valid email"
T18	TC PR/06	Name: Amira Age: 40 Gender: Female ContactNumber: 0123344564 Address: 17, Jalan Bestari 8/4, taman Bestari Street: Jalan Bestari 8/4 Postcode: 75470	Show message "Data has been saved!"

		City: Bukit Beruang State: Melaka Email: mira_at_gmail Password: ******	
T19	TC PR/07	Name:	Show message
		Amira123	"Please enter a
		Age:	i lease chief a
		40	valid name"
		Gender:	
		Female	
		ContactNumber:	
AAL	AYSIA	0123344564	
and the second	140	Address:	
S.	E.	17, Jalan Bestari 8/4, taman	
2	KA	Bestari	
F	•	Street:	
E		Jalan Bestari 8/4	
600		Postcode:	
*AIN0	-	/54/0 Citan	
del (City:	
1 2010	≥ , ahm	State:	او د
		Malaka	-
INIVER		Email: MALAVEIA MELA	KA
UNIVER	OIII IENN	mira@gmail.com	RA .
		Password:	

TA A			~1
T20	TC PR/08	Name:	Show message
		Amira Age:	"Password should
		40	be at least 8!"
		Gender:	
		Female	
		ContactNumber:	
		0123344564	
		Address:	
		17, Jalan Bestari 8/4, taman	
		Bestari	
		Street:	
		Jalan Bestari 8/4	

		Postcode: 75470 City: Bukit Beruang State: Melaka Email: mira@gmail.com Password: **	
T21	TC PR/09	Name:	Show message
		Amira	"Password is too
		Age:	1
		40	long!"
		Gender:	
		Female ContactNumber:	
MAL	AYSIA	0123344564	
S	201	Address.	
2	R	17 Jalan Bestari 8/4 taman	
EX	7	Bestari	
1		Street:	
Es.		Jalan Bestari 8/4	
"SATUR		Postcode:	
· · · /	-	75470	
Jake	undo 15	City:	101
		Bukit Beruang	2
		State:	17.6
UNIVER	SITI TEKN	Melaka MALAY SIA MELA	KA
		mira@gmail.com	
		rassword: ******	
		· · · · · · · ·	
T22	TC PR/10	Name:	Show message
		Amira	"Data has been
		Age:	
		40 Gender:	saveu!
		Female	
		ContactNumber	
		0123344564	
		Address:	
		17, Jalan Bestari 8/4, taman	
		Bestari	
		Street:	

	Jalan Bestari 8/4	
	Postcode:	
	75470	
	City:	
	Bukit Beruang	
	State:	
	Melaka	
	Email:	
	mira@gmail.com	
	Password:	

iii. Appointment

Table 6.19: Details of Appointment Test Data

a p.L	AYSIA		
Test	Test Case	Input Test/ Data	Result
No.	ID 🍾		
T18	TC AP /01	Date: blank	Error:" Please choose date and
Parine Ver			time"
1 alde	4		In
T19	TC AP /02	Date: blank	Error:" Please
UNIVER	SITI TEKI	Time: 10:00 am ySIA MEL	choose date and
			time"
T20	TC AP /03	Date: 20/08/2017	Error:" Please
		Time: blank	choose date and
			time"
T21	TC AP /04	Click on 'Approve' or	Status of
		'Reject' button	appointment change to approve
			or reject

T22	TC AP /05	Patient click on Submit button	Status of
		and appointment status change	appointment
		to 'pending'	change to pending
T23	TC AP /06	List of appointment is	List of
		displayed in the table in staff	appointment is
		module according from	displayed in the
		current to upcoming date	table
T24	TC AP /07	List of appointment is	List of
		displayed in the table in	appointment is
		dentist module according to	displayed in the
MAL	AYSIA	date	table
T25	TC AP /08	Date: 21/08/2017 Time: 11:00 a.m.	Appointment that has been requested on 21 st August at 11:00 a.m. is displayed in the table
N/N/N			
T26	TC AP /09 <	Date: 20/08/2017	Error:" No
	V	11me: 10:00 a.m. 9. 0 3	appointment can
UNIVEF	SITI TEKI	NIKAL MALAYSIA MEL	be made on
			Sunday
T27	TC AP /10	Date: 1/08/2017 Time: 10:00 a.m.	Error:" No Appointment failed!
T28	TC AP /11	Date: 15/08/2017 Time: 10:00 a.m.	Success!

iv. Treatment

Table 6.20: Details of	Treatment Test Data
------------------------	---------------------

Test	Test Case	Input Test/ Data	Result
No.	ID		
T24	TC T/01	Patient Name: blank	Error: Please
		Treatment: blank	choose patient
		Tooth: blank	name, treatment
			and tooth
T25	TC T/02	Patient Name: blank	Error: Please
		Treatment: Bridged	choose patient
	1.110	Tooth: 4-2 incisor	name
AT MAL	ALSIA MC		
T26	TC T/03	Patient Name: Wan Noraqilah	Error: Please
	·	Treatment: blank	choose treatment
Ela		Tooth: blank	and tooth
S'SAINT			
shlal	1		Initial
T27	TC T/04	Patient Name: Wan Noraqilah	Treatment
UNIVER	SITI TEKI	Treatment: Bridged	information has
		Tooth: 4-2 incisor	been saved!

v. Medicine

Table 6.21: Details	s of Medicine	Test Data

Test	Test Case	Input Test/ Data	Result
No.	ID		
T26	TC M /01	Total: 1	Error: "Please fill
		Description: blank	out this field."

T27	TC M /02	Total: blank	Error: "Please fill
		Description: Twice a day	out this field."
T28	TC M /03	None	Clarithromycin- 3
T29	TC M /04	Total: 1	The information
		Description: Twice a day	has been saved!

vi. Visit

AT MAL	AYSIA 40	able 6.22: Details of Visit Test Da	ata
Test	Test Case	Input Test/ Data	Result
No.	ID >		
T20	TC V /01	None	Display list of
*** 3A.			visiting patients
- inter			based on that day
4NL	4		
T21	TC V /02	None	Display payment
		17	information of the
UNIVEF	SITI TEKI	IKAL MALAYSIA MEL	patient

vii. Payment

Table 6.23: Details of Visit Test Data

Test	Test Case	Input Test/ Data	Result
No.	ID		
T22	TC PY/01	None	Display total
			amount of the
			payment

T23	TC PY/02	None	Display payment
			receipt

i. Logout

Table 6.24: Details of Logout Test Data

Test	Test Case	Input Test/ Data	Result
No.	ID		
T34	TC L/01	None	Patient log out
			from the system
T35	TC L/02	None	Dentist log out
ST	MEL		from the system
E .			a 201 a
136	TC L/03	None	Staff log out from
LISS		IU IEN	the system
SAINE			
) ملاك	كل مليسي	ومرسيتي تيكنيك	اوني

6.5 Test Results and Analysis NKAL MALAYSIA MELAKA

Test result and analysis is used to validate and to see whether the result in the test design is the same with test result and analysis. The details of the result and analysis has been shown in the table below.

Table 6.25 Login Test Result and Analysis

Test	Test	Test	Pre	Test	Test Data	Expected	Post	Actua	Stat
Case	Scena	Case	-	Steps		Results	Conditi	1	us
ID	rio		con	_			on	Result	(Pas
			diti						s/Fai
			on						1)

TC P/01	Valid ate that patien t did not enter passw ord	Check the requir ed fields by not fill-in data on passw ord field		1. Patient enter email	Email: wnoraqila h@gmail.c om Password: blank	Patient can log into the system	Patient click on submit button	Error: Please -fill out this field	Pass
TC P/02	Valid ate that patien t did not enter email	Check the requir ed fields by not fill-in any data on email	SELAKA		Email: blank Password: ******	Patient can log into the system	Patient click on submit button	Error: Please -fill out this field	Pass
TC P/03	Valid ate that patien t enter incorr ect email or passw ord	Check the requir ed fields by enteri ng incorr ect email or passw ord	ىل م TEK	NIKAL	Email: wnraqla@ gmail.com Password: blank	Patient cannot log into the system	Patient click on submit button	Error: Incorr ect email or passw ord	Pass
TC P/04	Valid ate that the syste m uses hidde n	Check the hidde n passw ord of the patien t		1. Patient enter email and passwo rd	Email: wnoraqila h@gmail.c om Password: ******	Patient can log into the system	Patient click on Submit button	"Succ essfull y login!	Pass

	passw ord								
TC P/05	Valid ate that patien t enter correc t email and passw ord	Check the fields by enteri ng correc t email and passw ord		 Patient enter email Patient enter passwo rd 	Email: wnoraqila h@gmail.c om Password: *****	Patient can log into the system	Patient click on submit button	Succe ssfull y login!	Pass
TC D/01	Valid ate that dentis t did not enter passw ord	Check the requir ed fields by not fill-in data on passw ord field	ALLANA -	1. Dentist enter email	Email: ahmad@ gmail.com Password: blank	Dentist can log into the system	Dentist click on submit button	Error: Please -fill out this field	Pass
TC D/02	Valid ate that dentis t did not enter email	Check the requir ed fields by not fill-in any data on email field	TEK	NIKAL	Email: blank Password: ******	Dentist can log into the system	Dentist click on submit button	Error: Please -fill out this field	Pass
TC D/03	Valid ate that dentis t enter incorr	Check the requir ed fields by			Email: ahmd@gm ail.com Password: blank	Dentist can log into the system	Dentist click on submit button	Error: Incorr ect email or	Pass

	ect email or passw ord	enteri ng incorr ect email or passw ord						passw ord	
TC D/04	Valid ate that the syste m uses hidde n passw	Check the hidde n passw ord of the dentis	S. C.	1. Dentist enter email and passwo rd	Email: ahmad@g mail.com Password: ******	Dentist can log into the system	Dentist click on Submit button	"Succ essfull y login!	Pass
ТС	Valid	Chaolz	1×	1	Email	Dontist	Dontist	Succe	Decc
D/05	v allu	the		1. Dentist	elliali:	can log	click on	succe	Pass
D/03	that	fields		enter	mail.com	into the	submit	v	
	dentis	by		email	Password:	system	button	login!	
	t enter	enteri		2.	******	System	outon	10giiii	
	correc	ng		Dentist	/				
	alle	correc	a, 1	enter	-w."	pro, me	100		
	email	ť **	0	passwo	- Q	· / / ·	-		
	and passw	email and	TEK	NIKAL	MALAYSI	A MELA	KA		
	ord	passw							
		ord							
TC S/01	Valid	Check		1.	Email:	Staff can	Staff	Error:	Pass
	ate	the		Staff	siti@gmai	log into	click on	Please	
	that	requir		enter	l.com	the	submit	-fill	
	staff	ed		email	Password:	system	button	out	
	did	fields			blank			this	
	not	by not						field	
	enter	fill-in							
	passw	data							
	ora								
		ord							
		field							
		11010							

TC S/02	Valid ate that staff did not enter email	Check the requir ed fields by not fill-in any data on email field			Email: blank Password: *****	Staff can log into the system	Staff click on submit button	Error: Please -fill out this field	Pass
TC S/03	Valid ate that staff enter incorr ect email or passw ord	Check the requir ed fields by enteri ng incorr ect email or passw ord	Sternica .		Email: st@gmail. com Password: blank	Staff can log into the system	Staff click on submit button	Error: Incorr ect email or passw ord	Pass
10 5/04	ate that the syste m uses bidde	the hidde n passw ord of the staff	TEK	Staff enter email and passwo rd	siti@gmai l.com Password: ******	can log into the system	click on Submit button	essfull y login!	rass
TC S/05	n passw ord Valid	Check		1.	Email:	Staff can	Staff	Succe	Pass
	ate that staff enter correc t	the requir ed fields by not fill-in		Staff enter email 2. Staff enter	siti@gmai l.com Password: ******	log into the system	click on submit button	ssfull y login!	

email	any	passwo			
and	data	rd			
passw	on				
ord	email				
	field				

 Table 6.26
 Patient Registration Test Result and Analysis

Test	Test	Test	Dre	Test	Test Data	Expected	Post	Actua	Stat
Case	Scena	Case	110	Stens	Test Data	Results	Conditi	1	
ID	rio	Case	con	Steps		Results	on	1 Docult	
ID	110	ALAYSIA	diti				UII	Result	ass/ Eail)
	1		on						1°a11)
тс	Vorify	Chaolr	No	Clipton	None	Ablata			Daga
	verity		ine	Click on	None	Able to			Pass
PK/		all the	W	text		enter			
01	input	text	reg	fields,		data in			
	field	fields,	1str	radio		all input			
	are	radio	ati	buttons		fields			
	active	buttons	on	and					
	5 NI	and	pag	button	<u> </u>				
		button	e is		S		2		
			suc		1.0				
	UNI	ERSIT	ces	KNIKAL	MALAYSI	A MELA	KA		
			sfu						
			lly						
			dis						
			pla						
			ved						
			5						
TC	Verify	Check		1.	Leave	Show			Fail
PR/	that	the		Do not	blank:	message			
02	the	require		enter anv	Name:	" Please			
	requir	d fields		value in	Age:	enter			
	ed/	by not		the	Gender:	value in			
	mand	filling		marked	Address	the			
	atory	any		field	Postcode	required			
	fields	data		11010	Straat	field"			
	aro	uata		2	511001.	nciu			
	ale			∠.					
	marke					1			1

	d with asteris k(*)			Click on Submit button	City: State: Email: Contact Number: Password:			
TC PR/ 03	Verify interfa ce	Check the sequenc e navigati on of all text fields, radio buttons and button	TEI	Use tab to navigate from 1. Name 2. Age 3. Gender 4. Contact Number 5. Address 6. Street 7. Postcode 8. City 9. State 10. Email 11. Passwor d	None	Able to navigate in sequence	اوز KA	Pass
TC PR/ 04	Valid ate email field	Check email text field that has @ symbol written in words		 Enter invalid email Click passwor d text field/sub 	Name: Amira Age: 40 Gender: Female Contact Number: 01233445 64 Address:	Show message "Please enter valid email"		Pass

		ALAYSIA		mit button	17, Jalan Bestari 8/4, taman Bestari Street: Jalan Bestari 8/4 Postcode: 75470 City: Bukit Beruang State: Melaka Email: Mira_at_g mail Password:			
TC PR/ 05	Valid ate email field	Check email text field that has missing dot in the email address	ج TEI	 Enter invalid email Click passwor d text field/sub mit button 	Name: Amira Age: 40 Gender: Female Contact Number: 01233445 64 Address: 17, Jalan Bestari 8/4, taman Bestari 8/4, taman Bestari 8/4, taman Bestari Street: Jalan Bestari 8/4 Postcode: 75470 City: Bukit Beruang State: Melaka Email:	Show message "Please enter valid email"	اود KA	Pass

ТС	Valid	Check		1	mira@gma il Password:	Show		Show	Pass
PR/ 06	ate that the syste m uses hidde n passw ord	the hidden passwo rd of the patient		 Enter data into the passwor d field Click on submit button 		message "Data has been saved!"		messa ge "Data has been saved!	1 455
TC PR/ 07	Valid ate full name	Check the name text field that has number	TEI	1. Enter alphanu meric name 2. Click on submit button/ot her text field	Name: Amira123 Age: 40 Gender: Female Contact Number: 01233445 64 Address: 17, Jalan Bestari 8/4, taman Bestari Street: Jalan Bestari Street: Jalan Bestari 8/4 Postcode: 75470 City: Bukit Beruang State: Melaka Email: mira@gma il.com Password:	Show message "Please enter a valid name!"	اون KA	Show messa ge "Data has been saved! "	Fail

TC	Valid	Check		Enter	Name:	Show		Show	Fail
PR/	ate	the		passwor	Amira	message		messa	1 un
08	nassw	minimu		d less	Age	"Passwor		ge	
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	3		S.		75470				
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	- 9	1mn			Melaka				
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	LINUS	EDOIT	-		Password:	A 14771 A	12.6		
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TC	Valid	Check		Enter	Name:	Show		Show	Pass
PR/	ate	the		passwor	Amira	message		messa	
09	passw	minimu		d more	Age:	"Passwor		ge	
	ord	m value		than 8	40	d is too		"Pass	
		of			Gender:	long"		word	
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					Jalan Bestari 8/4 Postcode: 75470 City: Bukit Beruang State: Melaka Email: mira@gma il.com Password: *******				
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10	data	of the		data into		"Data		ge	
	insert	patient	Me.	the fields		has been		"Data	
	ed	-	3	require		saved!"		has	
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L	×.3	1/wn .	I					I	I
	الأك	Table 6	.27 A	Appointmen	t Test Result	and Analysi	e		
					**			1	

TC	Vali	Check	1.		Leave	Show	12.4	"Succ	Fail
AP/02	date	the	User	User	Blank:	message	NA	ess"	
	that	required	logi	did not	Date:	" Please			
	user	fields by	n to	choose	Time:	choose			
	did	not	the	date	10:00 a.m.	date and			
	not	choosing	syste			time"			
	selec	appointm	m	2.					
	t	ent date		Click					
	date			on					
				Submit					
				button					
TC	Vali	Check	1.	1.	Leave	Show		Succe	Fail
AP/03	date	the	User	User	Blank:	message		SS	
	that	required	logi	did not	Date:	" Please			
	user	fields by	n to	choose	14/08/201	choose			
	did	not	the	appoint	7	time"			
	not	filling	syste	ment	Time:				
	choo	any data	m	time					

TC AP/04	se appo intm ent time Vali date that denti st can click on 'Ap prov e' or 'Rej ect' butt on	Check the required fields by clicking on the button	 Dent ist logi n to the syste m Dent ist choo se patie nt nam e Dent ist choo se date and time 	2. Click on Submit button Click on 'Appro ve' or 'Reject' button	Date: 15/08/201 7 Time: 11:00 a.m.	Status of appointm ent change to approve or reject	اون KA	Status of appoi ntmen t chang e to appro ve or reject	Pass
AP/05	vali date that statu s appo intm ent on patie nt page	the required fields by clicking on the button	1. Patie nt logi n to the syste m 2. Patie nt	on Submit button	Date: 15/08/201 7 Time: 11:00 a.m.	Status of appointm ent change to pending		of appoi ntmen t chang e to pendi ng	Pass
	chan ge to 'pen ding , whe neve r they requ est new appo intm		choo se date and time						
-------------	---	--	---	--	--------	--	------------	---	------
TC AP/06	ent Vali date that syste m can displ ay appo intm ent date, time and statu s to the staff acco rdin g from curr ent date upco min g date	Check the required fields by clicking on appointm ent button on staff module	1. Staff logi n to the syste m Lo Jo	1. Staff click on appoint ment	تي تيك	List of appointm ent is displaye d in the table	اود. КА	List of appoi ntmen t is displa yed in the table	Pass

TC	Vali	Check	1.	1.		List of		List of	Pass
AP/07	date	the	Dent	Dentist		appointm		appoi	
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	can	on	the			table		yed in	
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ТС	Voli	Chaok	1		Doto:	Appoint		Annoi	Doce
TC	Vali	Check	1. Patie	1. Patient	Date: 21/08/201	Appoint ment that		Appoi	Pass
TC AP/08	Vali date that	Check the required	1. Patie	1. Patient	Date: 21/08/201 7	Appoint ment that has been		Appoi ntmen t that	Pass
TC AP/08	Vali date that	Check the required fields by	1. Patie nt	1. Patient choose appoint	Date: 21/08/201 7 Time:	Appoint ment that has been requeste	اون	Appoi ntmen t that has	Pass
TC AP/08	Vali date that syste m	Check the required fields by choosing	1. Patie nt logi n to	1. Patient choose appoint ment	Date: 21/08/201 7 Time: 11:00 a m	Appoint ment that has been requeste d on 21 st	اون	Appoi ntmen t that has been	Pass
TC AP/08	Vali date that syste m can	Check the required fields by choosing date	1. Patie nt logi n to the	1. Patient choose appoint ment date on	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August	اوز KA	Appoi ntmen t that has been	Pass
TC AP/08	Vali date that syste m can displ	Check the required fields by choosing date, time and	1. Patie nt logi n to the syste	1. Patient choose appoint ment date on Sunday	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00	اون KA	Appoi ntmen t that has been reques ted on	Pass
TC AP/08	Vali date that syste m can displ av	Check the required fields by choosing date, time and click on	1. Patie nt logi n to the syste m	1. Patient choose appoint ment date on Sunday	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is	اوز KA	Appoi ntmen t that has been reques ted on 21 st	Pass
TC AP/08	Vali date that syste m can displ ay appo	Check the required fields by choosing date, time and click on Submit	1. Patie nt logi n to the syste m	1. Patient choose appoint ment date on Sunday 2. Click	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye	اون KA	Appoi ntmen t that has been reques ted on 21 st Augus	Pass
TC AP/08	Vali date that syste m can displ ay appo intm	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	1. Patient choose appoint ment date on Sunday 2. Click Submit	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the	اون KA	Appoi ntmen t that has been reques ted on 21 st Augus t at	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اون KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اون KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اود KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati on to	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اون KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa yed in	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati on to the	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اود. KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa yed in the	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati on to the patie	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	او ن KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa yed in the table	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati on to the patie nt	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اون KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa yed in the table	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati on to the patie nt whe	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اود KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa yed in the table	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati on to the patie nt whe neve	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اون KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa yed in the table	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati on to the patie nt whe neve r	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اون KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa yed in the table	Pass
TC AP/08	Vali date that syste m can displ ay appo intm ent infor mati on to the patie nt whe neve r they	Check the required fields by choosing date, time and click on Submit button	1. Patie nt logi n to the syste m	 Patient choose appoint ment date on Sunday Click Submit button 	Date: 21/08/201 7 Time: 11:00 a.m.	Appoint ment that has been requeste d on 21 st August at 11:00 a.m. is displaye d in the table	اود KA	Appoi ntmen t that has been reques ted on 21 st Augus t at 11:00 a.m. is displa yed in the table	Pass

	e a new appo intm ent								
TC AP/09	Vali date that user choo se appo intm ent date on Sun day	Check the required fields by choosing date on Sunday	1. User logi n to the syste m	1. User choose appoint ment date on Sunday	Date: 20/08/201 7 Time: 10:00 a.m.	Show message "No appointm ent can be made on Sunday		Show messa ge" No appoi ntmen t can be made on Sunda y	Pass
TC AP/10	Vali date that user choo se past date	Check the required fields by choosing past date	1. User logi n to the syste m	1. User choose past date	Date: 1/08/2017 Time: 10:00 a.m.	Show message " Appoint ment failed!	اوذ	Show messa ge" Appoi ntmen t failed! Sunda	Pass
TC AP/11	Vali date that choo se date and time	Check the required fields by choosing the correct date and time	1. User logi n to the syste m	1. CAL User choose date and time 2. User click on Submit button	Date: 15/08/201 7 Time: 10:00 a.m.	Show message " Success"	KA	Show messa ge" Succe ss"	Pass

Test Case	Test Scena	Test Case	Pre- cond	Test Steps	Test Data	Expected Results	Post Conditi	Actua 1	Stat us(P
ID	rio		ition	-			on	Result	ass/
TO	N L 10	<u> </u>	1	1	T			D	Fail)
TC T/01	Verify	Check	l.		Leave	Show		Data	Fail
1/01	that	the .	Dent	Dentist	Blank:	message		has	
	the	require	1St	ala not	Patient	Please		been	
	requir	d fields	into	enter	Traatmont:	doto"		saved	
	fields	filling	the	uny value in	Tooth:	uala			
	are all	any	syste	the	10001.				
	filled	data	m	field					
	mea	Gutu	111	neia					
			2.						
		AVOR	Clic						
		A P C C C C	k on						
	Y		treat						
	3		ment						
	E -		butt						
TO	AL CO	<u> </u>	on	1	-	01		D	F '1
TC	Verify	Check	1. D (1. D	Leave	Show		Data	Fail
1/02	that	the	Dent	Dentist	Blank:	message		has	
	the	patient	1St	did not	Patient	Please		been	
	patien	fields	into	notiont	Trootmont:	notiont	100	saved	
	l name	hy not	the	patient	Bridged	patient	-		
	field	choosin		name	Tooth: 4-2		12.6		
	is left	σ	m	NIKAL	incisor	AMELA	NA		
	blank	s patient	2		mensor				
	onum	name	 Clic						
			k on						
			treat						
			ment						
			butt						
			on						
TC	Verify	Check	1.	1.	Leave	Show		Data	Fail
T/03	that	the	Dent	Dentist	Blank:	message		has	
	the	treatme	ist	did not	Patient	"Please		been	
	treatm	nt and	log	enter	Name:	choose		saved	
	ent	tooth	into	treatme	Amira	treatment			
	and	tields	the	nt and	Treatment:	and			
	tooth	by not	syste	tooth	Tooth	tooth"			
	fields		m						

Table 6.8 Treatment Test Result and Analysis

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	left	g data	ck					
	blank		on					
			treat					
			ment					
			butt					
			on					
TC	Verify	Check	1.	Enter	Patient	Show	"Data	Pass
T/04	that	the	Dent	patient	Name:	message	has	
	the	require	ist	name,	Amira	"Data	been	
	requir	d fields	log	treatme	Treatment:	has been	saved!	
	e field	by	into	nt and	Bridged	saved"	"	
	by	filling	the	tooth	Tooth: 4-2			
	enteri	the data	syste		incisor			
	ng		m					
	data							
	in all		2.					
	fields	AALAYSIA	Clic					
	SY.		k on					
	3		treat					
	EK		ment					
	F		butt					
	E		on					

Table 6.9 Medicine Test Result and Analysis

	21	a wall	VV			<u>~~</u> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
Test	Test	Test	Pre-	Test 👘	Test Data	Expected	Post	Actua	Stat
Case	Scena	Case	cond	Steps	MAL AVOI	Results	Conditi	1	us(P
ID	rio	EKSII	ition	NIKAL	MALAYSI	AMELA	on	Result	ass/
									Fail)
TC	Valid	Check	1.	1.	Leave	Show	1.	"Pleas	Pass
M/	ate	the	Dent	Enter	Blank:	message	Click	e fill-	
01	that	descript	ist	total	Total: 1	" Please	Give	out	
	descri	ion text	click	quantit	Descriptio	fill-out	Medica	this	
	ption	field	on	У	n:	this	tion	field"	
	field		Save			field"	button		
	is left		n						
	blank		butt						
			on						
			on						
			treat						
			ment						
			page						

TC M/ 02	Valid ate that total field is left blank	Check the total text field	1. Dent ist click on Save n butt on on treat ment page		Leave Blank: Total: Descriptio n: Twice a day	Show message "Please fill-out this field"	1. Click Give Medica tion button	"Pleas e fill- out this field"	Pass
TC M/ 03	Valid ate that syste m can displa y curren t quanti ty of medic ine to the staff	Click on medicin e A S button	1. Staff log in to the syste m		None	Display current quantity of the medicine	او ن	Displa y curren t quanti ty of the medic ine	Pass
TC M/ 04	Valid ate that all data has been insert ed	Check the require d field	1. Dent ist click on Save n butt on on treat ment page	NIKAL	Total: 1 Descriptio n: Twice a day	Show message "New Medicine Assign"	KA	"New Medic ine Assig n"	Pass

Test Case ID	Test Scenari o	Test Case	Pre- cond ition	Test Steps	Test Data	Expected Results	Post Conditio n	Actua l Result	Sta tus (Pa ss/ Fai 1)
TC V/01	Validat e that system can display list f visiting patient name when they click patient name during registra tion	Click on patien t name	Staff login to the syste m	1. Staff click on visit button	None	Display list of visiting patients based on that day		Displa y list of visitin g patien ts based on that day	Pas s
TC V/02	Validat e that system can display paymen t page when staff click on Patient Informa tion button on visit page	Click on Patien t Infor matio n button	Staff login to the syste m	1. Staff click on Patient Informa tion button	None MALAYSI	Display payment informati on of the patient	KA	Displa y paym ent infor matio n of the patien t	Pas s

Table 6.9 Visit Test Result and Analysis

Test Case ID	Test Scenari o	Test Case	Pre- cond ition	Test Steps	Test Data	Expected Results	Post Conditi on	Actual Result	Stat us (Pas s/Fai 1)
TC P/01	Validat e that system can display total amount of the paymen t of for a particul ar patient	Click on patien t name	Staff login to the syste m	1. Staff click on visit button	None	Display total amount of the payment		Display total amount of the paymen t	Pass
TC P/02	Validat e that system can display paymen t receipt	Click on pay button	Staff login to the syste m	1. Staff elick on pay button	ی تیک MALAYS	Display payment receipt	اود KA	Display paymen t receipt	Pass

Table 6.10 Payment Test Result and Analysis

Test Case ID	Test Scen ario	Test Case	Pre- cond ition	Test Steps	Test Data	Expected Results	Post Conditio n	Actua l Result	Stat us (Pas s/Fai l)
TC L/01	Vali date that patie nt can log out from the syste m	Click on log out button	Patie nt click on log out butt on	1. Patient click on logout button	None	Patient log out from the system	System navigate to login page	Patien t log out from the syste m	Pass
TC L/02	Vali date that denti st can log out from the syste m	Click on log out button	Patie nt click on log out butt on	1. Dentist click on logout button	None چي نيڪ MALAYS	Dentist log out from the system	System navigate to login page	Dentis t log out from the syste m	Pass
TC L/03	Vali date that staff can log out from the syste m	Click on log out button	Staff click on log out butt on	1. Staff click on logout button	None	Staff log out from the system	System navigate to login page	Staff log out from the syste m	Pass

Table 6.11 Logout Test Result and Analysis

6.6 Conclusion

In this chapter, all activities involved in testing phase has been explained and there are three personnel that involved in testing the system and test strategy that has been used is dynamic testing which consists of two different methods which are blackbox and white-box. In the next chapter, all the strengths, weaknesses, improvement and contribution of this system will be explained.



CHAPTER VII

CONCLUSION

7.1 Introduction

The last chapter will describe the weaknesses, strengths, proposition for improvement and the contribution of DCMS system. DCMS has successfully completed within the time given but it has several strengths and weaknesses. All the strengths and weaknesses will be explained and there are some suggestions to improve the system.

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7.2 Observation on Weaknesses and Strengths

DCMS were introduced to solve the existing dental clinic system. The computerized system, DCMS has many strengths compared to the existing system but there are several weaknesses.

7.2.1 Strengths

- This system simplifies appointment process as it can be made online.Appointment request is available all the time.
- ii. Patient can know their appointment status that has been requested either it is approved or rejected.
- iii. DCMS allows patient to update their personal information online
- iv. Dentist can view lists of appointment and follow-up appointment accordingly
- v. 🝈 Staff can view list of upcoming appointments and quantity of medicine
- vi. This system is classified into three types of user which are staff, patient and dentist. Each user has different access level to the system. Hence, it enhances security of patient information as it requires authentication.

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7.2.2 Weaknesses

- i. There is no interactive tooth chart as the dentist can easily tick on the chart of defect tooth
- ii. This system does not provide notification system that reminds user of their appointment
- iii. DCMS does not provide backup and recovery

7.3 Propositions for Improvement

DCMS system can be improved better by having an interactive tooth chart as the dentist can automatically tick on the defect tooth. Other than that, notification system should be implemented by sending notification via messaging or email as it can remind patient of their appointments. Backup and recovery should be implemented to avoid data lost.

7.4 Contribution

DCMS is a system that is mainly develop for dental clinic. This system helps dental clinic to have smooth and better management. Firstly, patient information is more secured as it requires user authentication. There is a lot of dental clinic that still using paper-based system and it can cause data lost.

Besides, appointment can be made online and patient can also view lists of upcoming appointment without having to go to the dental clinic. Dentist can also record patient treatment easily as they can tick on the tooth checkbox and medicine can be given out to the patient by click on the medicine name and quantity without having to write as it can cause confusion to the staff.

Other than that, staff can print receipt and the receipt include patient treatment and prescribed medicine from dentist

7.5 Conclusion

DCMS not only provides an opportunity to the dental clinic to improve their operation but it can increase the profitability to an organization. DCMS does meet the objectives as it includes variety of functions such as manage appointment, manage visit of the patient, treatment chart and payment. It also includes concepts that facilitate the transition from a manual dental office to a computerized system.

Furthermore, DCMS has meet non-functional requirements such as security and performance requirements and the objectives and it indicates the system has reached the goal.



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USER MANUAL



This is a homepage of DCMS and there are about, operating hours, contact, sign-up and logout button that enable user to get information regarding the dental clinic. When the user click on the button, it will navigate to the section.



-

Dental Clinic Management System	n(DCMS)	Home	Logout
I	Registration		
	Please fill-in the information below		
	Name		
	Age		
	Gender Male Female Contact Number		
	Address		
	Street		
- AL	Postcode		
New Marker	City State		
TT TTE STATE	email@example.com Password		
shl al	Submit		

Sign-up page is the registration of new patient and patient need to fill-in all the data.

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	ount:			
Patient Login	Staff Login D	entist Login		
Login				
Username				
Email				
Password				
Password				
Password				

This is a login page for three different users which are patient, staff and dentist. They need to enter their email address and password. Then, click on login button.

Dental Clinic Management System(DCMS)			Home	Logout
	Staff Mod	dule		
	Patient Registration	Appointment		
	Medicine	Visit		

There are four functions in staff module which are patient registration, appointment, medicine and visit.

Date: 31-08-17						
Dental Clinic Management Sys	stem(DCMS)					Home Logout
Search						
a	PATIENT ID	NAME	AGE	EMAIL	ADDRESS	ACTION
Patient Registration	102	syikin	30	syikin@gmail.com	bbb4	Visit
2 Visit	220	AMIRA	45	mira@gmail.com	no 17, jalan kempas indah 8/5, taman kepas indah	Visit
Appointment	24	Eilisa	30	el@gmail.com	Emerald Park	Visit
Medicine	4	Wan Noraqilah	23	wan@gmail.com	Bukit Beruang Bestari,Melaka	Visit
Medicine	4	Wan Noraqilah	23	wan@gmail.com	Bukit Beruang Bestari,Melaka	Visit

This is a patient registration page on staff module. Those are list of patient name from the database. Staff need to click on visit button when the patient visit the dental clinic.

Date: 31-08-17	at at	0		Ç.,	-03	22		
Dental Clinic Management S	ystem(DCMS)	EKNI	CAL	MALAYSIA	MELA	KA	Home	Logout
Search								
Q	PATIENT ID	NAME	AGE	EMAIL	ADDRESS	ACTION		
Patient Registration	102	syikin	30	syikin@gmail.com	bbb4	Patient Information		
∰ Visit								
Appointment								
2 Medicine								

When the staff click on the visit button of the visiting patient, the page will navigate to visit page for further use such as payment.

Date: 31-08-17						
Dental Clinic Managem	nent Sys	stem(DCMS)				Home Logout
Search	0			Medicine		
An Patient Registration	ų	NAME	DOSAGE	DESCRIPTION	PRICE	QUANTITY
A Visit		Amoxilin Suspension	250mg/5ml	This medication is a penicillin-type antibiotic. It works by stopping the growth of bacteria. This antibiotic treats only bacterial infections	20.00	1
Appointment		Clarithromycin	250mg	Clarithromycin is a prescription drug. It?s available as an oral tablet, extended-release oral tablet, and oral suspension.	20.00	2
20 Wedicine		Chlorhexidine gluconate	473ml	it is an oral rinse provides antimicrobial activity during oral rinsing	20.00	7
		Benzocaine	250mg	used to reduce pain or discomfort caused by minor skin irritations, sore throat, sunburn, teething pain	20.00	8
		Orajel	250mg	Provides instant relief for severe toothaches and painful gums	30.00	9
		Azithromycin	250mg	Azithromycin is used to treat a wide variety of bacterial infections. It is a macrolide-type antibiotic. It works by stopping the growth of bacteria.	25.00	9
		Anabesol	100mg	Antiseptic and anaesthetic for quick-acting and effective relief of pain from recurrent mouth ulcers, denture irritation and babies' teething	25.00	9

Staff can view quantity of medicine by click on medicine button



This is a list of appointments that can be viewed by the staff.

Treatment:

Dental Clinic Management System(DCMS)	Home Logout
Dentist Module	9
Appointment Treat	nent

This is a dentist module and there are two functions on dentist module which are appointment and treatment.

Date: 31-08-17					
Dental Clinic Management S	ystem(DCMS)				Home Logout
SearchQ				Treatment	
Appointment	Molars	Premolars Canine	Incisors	Canine Premolars	Molars
A Treatment			Annual and annual and annual and annual and annual and annual		
	ard 2nd 2nd Patient Name: syikin •	Ist 2nd Ist	ateral Central Late	ral 1st 2nd 1st	2ad 3rd
	+ Add Row	enture •			

This is a treatment page. The dentist need to select patient name as it will display list of visiting patients.

MAL	AISIA AL			
+ Add Row	10			
Treatment: Complete Dentu	re 🔻 🔀			
N.	Ş			
Cost: 100 💾	•			
Incisors	2-1 incisors	■1-2 la	teral incisors	 2 -2 lateral incisors
⊠1- 3	2-3	■1-4 pr	emolar	■1-5 premolar
2-4 premolar	■2-5 premolar	□1-4 m	olar	□1-7 molar
□2-4 molar	□2-7 molar	□1-8 3r	d molar(wisdom to	oth)□2-8 3rd molar(wisdom tooth)
■4-8 3rd molar(wisdom	tooth) 3-8 3rd molar(wisdom tooth) 2-3		□4-7 molar
■4-6 molar	3-7 molar	□3-6 m	olar	4-5 premolar
□4-4 premolar	3-5 premolar		emolar	4-3
3-3	4-2 inciscor	■3-2 in	ciscor	4-1
	CONTI TEKN	UKAL MAI	AVGIA N	
UNIVER		INAL MAI	ATOTA N	ILLAKA
Treatment: Oral Prophylaxis(Cleanin	ng) 🔻			
Cost: 200				
1-1 incisors		✓1-2 lateral incisors	2-2 lateral incisor	S
□1-3	2-3	1-4 premolar	1-5 premolar	
2-4 premolar	2-5 premolar	■1-4 molar	■1-7 molar	
2-4 molar	2-7 molar	1-8 3rd molar(wisdom to	ooth) ≣2-8 3rd molar(wis	dom tooth)
4-8 3rd molar(wisdom tooth)	3-8 3rd molar(wisdom toot	h)=2-3	■4-7 molar	
4-6 molar	3-7 molar	3-6 molar	4-5 premolar	
4-4 premoiar	3-5 premoiar	3-4 premoiar	4-3	
3-1			U-4-1	
Description:				
Treatment: Complete Denture and	Cleaning			

Save

The dentist need to choose treatment and they can click on the checkbox. Dentist can

also add new treatment on the same patient and they can write comment on the description box below.



it will proceed to medicine page and the dentist need to fill-in number of medicine to be given out and the description.

Date: 31-08-17			
Dental Clinic Management Sy	stem(DCMS)	Home	Logout
Search Q	svikin		
Patient Registration	Payment		
Appointment			
Medicine	Payment		
₫ Visit	Add payment:		
	Amount RM 740 Status Paid • Pay		

This is a payment page. This page is from the visit page where the staff need to click on patient information button and it will display total amount of the treatment. Staff need to click on pay button to view payment receipt.



PAYMENT RECEIPT

DENTAL CLINIC MANAGEMENT SYSTEM Address : Jalan Pemuda, Kampung Melayu Majidee, 81100 Johor Bahru, Johor, Malaysia.

CLIENT INFORMATION

syikin

Туре	Description	Quantity.	Unit Price	Sub Total
Treatment	Complete Denture	1	RM 100	RM 100
Treatment	Oral Prophylaxis(Cleaning)	1	RM 200	RM 200
Treatment	Oral Prophylaxis(Cleaning)	1	RM 200	RM 200
Treatment	Complete Denture	1	RM 100	RM 100
Treatment	Complete Denture	1	RM 100	RM 100
Medicine	This medication is a penicillin-type antibiotic. It works by stopping the growth of bacteria. This antibiotic treats only bacterial infections	1	RM 20.00	RM 20
Medicine	Clarithromycin is a prescription drug. It?s available as an oral tablet, extended-release oral tablet, and oral suspension.	1	RM 20.00	RM 20
	Nanna	Total Am	iount : RM :	740
5	Mohundo Kai in in	Tax : RM :44	4.4 (6 % GS	ST)
Reminder: 1. This red		AMOUNT	: RM :784	1.4
Back	Print			

This is a payment receipt page and it will display list of treatment, and total amount including GST. Staff can print the receipt by click on print button.

nt		8/31/2017	Free Bootstrap Invoice				
l page	Saus Cancel	PAYMENT RE	CEIPT				
stination	Save as PDF	DENTAL CLINIC MANAGEMENT SYSTEM Adates : Jalan Pemula, Kampung Melayu Majden, 81100 Jahor Bahou, Jahor, Malaysta.					
ages	 All e.g. 1-5, 8, 11-13 	CLIENT IN syikin	FORMATION				
		Туре	Description	Quantity.	Unit Price	Sub	
yout	Portrait 👻	Treatment	Complete Denture	1	RM 100	RM 100	
		Treatment	Oral Prophylaxis(Cleaning)	1	RM 200	RM 200	
More sett	ings	Treatment	Oral Prophylaxis(Cleaning)	1	RM 200	RM 200	
		Treatment	Complete Denture	1	RM 100	RM 100	
		Treatment	Complete Denture	1	RM 100	RM	
		Medicine	This medication is a periolitin-type antibiotic. It works by stopping the growth of bacteria. This antibiotic treats only bacterial infections	1	RM 20.00	RM 20	
		Medicine	Clarithromycin is a prescription drug. It?s available as an oral tablet, extended-release oral tablet, and oral suspension.	1	RM 20.00	RM 20	
				Total Amou	unt : RM :	40	
				Tax : RM :64.4	(6% 05	т)	
			BILL	MOUNT : I	RM :784	.4	
		Reminder: 1. This re	ceipt can be print out.				

This is a receipt that can be printed.

Patient Module:		
Dental Clinic Management System	m(DCMS)	e Logout
Search Q	Registration	
Patient Information		
Appointment	Please fill-in the information below	
Medical Report	Name	
املاك	Van Noraqian	
	23	
UNIVER	SALTI TEKNIKAL MALAYSIA MELAKA	
	Female	
	Contact Number	
	0123344567	
	Address	
	Bukit Beruang Bestari, Melaka	
	Street	
	bukit beruang	
	Postcode	
	35900	
	City	
	Johor Bahru	
	State	
	Jahor Bahau	
	Joho Bahu	
	Email	
	wan@gmail.com	
	email@example.com	
	Save	

This is a registration page on patient module. This page enable patient to update or edit their personal information.

Appointment:

Date: 31-08-17				
Dental Clinic Management Syst	tem(DCMS)		Home	Logout
٩	Make an Appointment			
Patient Information	Please choose Date and Time			
Appointment	Date: dd/mm/yyyy Time: Time V Submit			
	Date	Status		
	07/09/2017 11:00 AM	pending		
	30/08/2017 04:00 PM	approve		
	29/03/2017 11:00 AM			
	23/03/2017 04:00 PM			

This is appointment page on patient module. Patient need to choose date and time and the chosen date and time will be displayed in the table with appointment status. Patient can also view their appointment status that has been approved or rejected by the dentist.

n(DCMS) Designed and Time	Make an Appointmen	اونيۇم	Home Logout
Patient syikin v NKAL MA	ALAYSIA M	ELAKA	
Date: 21/09/2017			
Time: 10:00am Submit Appointment List			
Date	Status	Action	
07/09/2017 11:00 AM	pending	Approve Reject	
21/09/2017 10:00 AM	approve		
20/09/2017 10:00 AM	approve		
02/09/2017 04:00 PM	approve		
01/09/2017 10:00 AM	reject		
	Date Submit 07/09/2017 11:00 AM 21/09/2017 10:00 AM 02/09/2017 10:00 AM 02/09/2017 10:00 AM	Pease choose Date and Time Pease choose Date and Time Pe	Action 1009/2017 11:00 AM approve 2109/2017 11:00 AM approve 2009/2017 10:00 AM approve

This is appointment page on dentist module. Dentist need to choose patient name, date and time. Requested appointment will be displayed in the table including appointment that has been requested by the patient and the dentist need to approve or reject the appointment.