UTEM TUTORING



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

UTeM-Tutoring

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DEDICATION

I would like to dedicate this Final Year Project to all those who had supported me during the development of this system. My honorable supervisor Dr. Norashikin Binti Ahmad who always gave me an idea and supported me to complete this project and all my friend that helped me all the time.



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I give thanks to the Almighty for His grace I managed to undergo my Final Year Project smoothly and successfully. All resources and efforts that have been made have brought results so satisfying to prepare a report entitled UTeM-Tutoring System. I also would like to extend my thankfulness to the most precious persons in my life, my father and mother for all their moral support, financial support and also to my friends for never ending reminding me to always be strong and patiently in doing my project. As for my supervisor from University Technology Malaysia Melaka, Dr. Norashikin binti Ahmad, indeed, her kindness is very invaluable and will always be remembered. Thanks also to the colleagues who helped me and spend their time for me to finish this project. Last but not least, I have learnt a lot of valuable things while doing my project. I realize that learning and teaching is never same when it comes to practice.

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ABSTRACT

Today, there are many teaching centers opened everywhere. Not enough, some also offer online teaching services. In UteM, there are no official learning platform among students and lectureres. Students in UTeM having a hard time to get the right answer for the question that they does not understand. They need to seek help from senior or lecturers to solve their question. By addressing the problem, UteM-Tutoring has been introduced to solve this problem. With this system, students and lecturers can easily share their knowledge about a subject, as it is an online platform. It's easy for UteM students and lecturers when there is an official learning platform where they can comfortably share their knowledges and asking question that they have problem with.

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ABSTRAK

Dewasa ini, terdapat banyak pusat pengajaran yang dibuka. Bukan setakat itu, ada juga yang menawarkan perkhidmatan pengajaran secara atas talian. Di UTeM, tidak terdapat sebarang platform pembelajaran rasmi di kalangan pelajar dan pensyarah. Pelajar di UTeM mempunyai masa yang sukar untuk mendapatkan jawapan yang tepat untuk soalan yang mereka tidak faham. Mereka perlu mencari bantuan daripada para pelajar yang lain atau pensyarah untuk menyelesaikan persoalan mereka. Untuk mengangani masalah ini, Sistem "UTeM-Tutoring" telah diperkenalkan untuk menyelesaikan masalah ini. Dengan sistem ini, para pelajar dan pensyarah dapat berkongsi pengetahuan dengan lebih mudah mengenai subjek kerana ia merupakan platform atas talian.

> اويونرسيتي تيڪنيڪل مليسيا ملاك UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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CHAPTER I

INTRODUCTION

1.1 **Project Background**

UTeM-Tutoring is a learning platform for UTeM students and lecturer. This system is to ease student learning process by providing a platform that makes the student interact with other students or lecturers. In UTeM, there are no official student learning platform among other students or lecturers. Students in UTeM having a hard time to get the right answer for the question that they does not understand. They need to seek help from senior or lecturers to solve their question.

So, this system provides a solution for the students. In this system, students can ask a question based on the subject and other students or lecturers can answer the question. Students may ask question just by entering or choosing the subject that want to ask question. They only need to register to the system and can start asking or posting question. Then, other students or lecturers can see their question and answer or post any comment regarding the question asked. When the students that asked the question found the best answer for their question, they may close the question and choose the best answer as the right answer. Users also can share the notes that they have based on the subjects. After they register, they can share any study material or notes that they have on the system. Other students can download and see the material or notes that they shares.

If the students wanted further understanding, an appointment can be made through this system to set a schedule for the meet-up with other users. This system allow students to make an appointment with other users to discuss further about the subject or their studies. They just need to set an appointment by entering the date, time and place for meet-up and waits for the confirmation of the other users.

Users also can make a class that other users can attend. Users can make a helping class based on subjects or any other studies. All the students or lecturers using this system can attend the class that the users have made and the attendance list will be shown to the creator of the helping class.

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1.2 Problem Statement

Some of the problems are:

i. **Does not have official studies platform.**

Students does not have an official studies platform for they to discuss about their studies with other students. They also have a hard time to come up with the right answer for their question.

ii. Does not have additional studies material.

Students does not have enough studies material based on the subject that they have taken. They only have the notes that their lecturer provide that may not have explained other problem.

iii. Difficult to set up an appointment with other students or lecturers.

Students have a hard time to set up a meet-up with other students to discuss about

their studies problem. They also does not know who to meet that can answer their

question based on the subjects.

1.3 Objectives

This project embarks on the following objectives:

- i. To provide an official studies platform for students and lecturers.
- ii. To provide a platform for student to gather and get studies material or notes.
- iii. To provide a system that can ease student studies by setting up an appointment with other students or lecturers.
- 1.4 Scope The scope of this system are focuses on two major points that are module that will be developed and the target user.
 1.4.1 Module Login VERSITI TEKNIKAL MALAYSIA MELAKA

Enable administrator, students or lecturers to log into the system and use other functionality.

1.4.1.2 Registration

Students or lecturers need to sign up first by entering their detail information in the system if they want to use the system.

1.4.1.3 Ask/Answer Question

Students or lecturers can ask or post any question based on the subjects that they wanted to ask. Other students or lecturers can view all the question that have been asked and post a suitable answer for the question.

1.4.1.4 Share Material

Students or lecturers can share any studies material that they have on the systems. Other students or lecturers can view and download their material for their additional studies material.

1.4.1.5 Appointment

Students or lecturers can make an appointment with other students or lecturers for a meet-up to discuss about their studies or other problems that they encountered. The appointment will be confirmed by the other students or lecturers.

1.4.1.6 Helping Class

Students or lecturers can make a helping class in the system. Other students and lecturers can view the description of the helping class and attend the class. The system will record all the students or lecturers attendance for the helping class.

1.4.1.7 Messaging

Students or lecturers can messages other users using this system to discuss about their appointment or any studies problem.

1.4.2 Target User

There are two type of target users which are administrator and students/lecturers.

- Admin Administrator need to log in to the system using a secured password.
 Administrator jobs is to monitor the system from any negative posts.
 Administrators also can update or delete any posts that the students or
 lecturers have posted. All the helping class and notes shared will be check and confirmed by the administrators.
- Students / Lecturers Students or lecturers may post a question regarding the subjects that they chose. Other students or lecturers that see the question posted can view and answer the question. They also can post any comment for the answers that have been posted. Students or lecturers also can make an appointment with other students or lecturers for a meet-up to discuss their problem or studies. Helping class also can be made by any students or lecturers using this system. They also can share any notes or studies material based on any subjects

Table 1.1 shows the relationship between the target user and the module. This table will

describe details function of module required for the target users.

| Module Target users | Ask / Question Module | | | | | | re Matei | rial Mod | lule | Appointment Module | | | | |
|---------------------------|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------|--------|--------------|--------------|--|
| | Add | Update | Delete | View | Search | Add | Update | Delete | View | Add | Update | Delete | View | |
| Administrator | | | \checkmark | \checkmark | \checkmark | | | \checkmark | \checkmark | | | | \checkmark | |
| Students/Lecturers | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | | \checkmark | \checkmark | |

Table 1.1: Target users related to module

Planning is one of the important factors of this system development. Planning and designing is one of the core to keep the system development running smoothly.

By developing UTeM-Tutoring, it will benefit both the students and lecturers.

Students and lecturers can discuss about student studies problem further in this official studies platform for students in UTeM. They also can share any notes that are useful for students that are needed for extra or additional notes and studies material. Appointment also can be made to understand the problem that students are facing further by setting up a meet-up with other students or lecturers.

1.5 Project Significance

The significance of this system is that student's studies will be more productive and easier. This system provide learning platform that make students can ask or answer question based on a subjects. Students can gain more knowledge and get extra notes for their studies.

1.6 Conclusion

In conclusion, the development of UTeM-Tutoring System shall eliminate few of the problems and difficulties that the students are facing. UTeM-Tutoring System shall be the official studies platform for UTeM students and lecturers to discuss further about their studies.

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CHAPTER II

PROJECT METHODOLOGY AND PLANNING



2.1

This chapter provides an overview of development plans that is being used to make and develop this system more efficiently and meet the user requirement. Planning plays an important role in this system development. The method is use to achieve the objective of this system. The selection of the module should be emphasized so that it complies with the system development criteria and does not cause any problems. This development planning also requires an effective strategy and follow-up action to overcome the problems that arise during the developed system such as the use of appropriate software and hardware requirements. For this project, the methodology based on System Development Life Cycle (SDLC) is used.

2.2 Project Methodology

For this system, Waterfall methodology is being used as a System Development Life Cycle (SDLC) approach. Waterfall Model is a traditional model and it always seen as flowing downwards like a waterfall.



The waterfall through many different phases such as Requirement Gathering, Feasibility Study/Analysis, Design, Coding, Testing, Installation and Maintenance. Waterfall methodology also allows for departmentalization and control. Schedule can be set with deadlines for each stage of development and a system can proceed through the development process model phases one by one by turn. Every next phase is only begin once the previous phase is completed. This methodology is prefered in projects where quality is more important as compared to schedule or cost. This methodology is best suitable for short term projects.

(1) Implementation

In the implementation stage, first, the installation of Oracle 11g is conducted. Then, Data Definition Language (DDL) is used to create the database and all the tables that are needed. Finally, Data Manipulation Language (DML) are used to insert data to make sure the database is working perfectly. The programming language and software that are used to develop the interface is using PHP and Atom.

(2) Testing

There are two type of testing that are unit testing and system testing. Unit testing will be conducted to each subsystem seperately which include Login, Registration, Ask/Answer Question, Share Material, Appointment, Helping Class and Messaging. Unit testing conducted in this system by inputting sample data to the subsystem to the the connection between the interface and database. If the database implementation fails to meet the system's evaluation requirement, several options will be considered to enhance the system. The option such as follows:

- Designer must consider tuning specific system and DBMS configuration parameters.
- Modify and update the logical design.
- Upgrade the DBMS software or hardware

As for system testing, all the modules will be integrated to one system. System testing will be conducted to a whole system to test whether the data can be transferred from one database to another using different platform.

(3) Maintenance

At maintenance stage, this system will be put into practical use. There might be a problem that will arise that were not discovered in the early stages. Therefore, maintenance involve correcting all errors that occurred, improving the implementation of the system and enhancing the system's services as new requirement are provided.



Figure 2.2: Database Methodology

2.4 Database Methodology

Figure 2.2 shows the DBLC that will be used on this system such as database initial study, database design, implementation and loading, testing and evaluation, operation, maintenance and evolution. Below are the description of each phase: -

2.4.1 Database Initial Study

This phase is when the examination of the current system's operation and determine how and why the current system fails. Firstly, analyse the company situation. The company situation describes the general conditions in which a company operates, its organizational structure, and its mission. To analyse the company situation, the database designer must discover what the company's operational components are, how they function, and how they interact.

Secondly, after analysing the company situation, the designer should has both formal and informal sources of information. The process of defining problems might initially appear to be unstructured. Company end users are often unable to describe precisely the larger scope of company operations or to identify the real problems encountered during company operations. After that, a proposed database system must be designed to help solve at least the major problems identified during the problem discovery process.

2.4.2 Database Design

In the conceptual database design phase, the model of the data to be used independent of all physical considerations is to be constructed. The model is based on the requirements specification of the system. In the logical database design phase, the model of the data to be used is based on a specific data model, but independent of a particular database management system is constructed. This is based on the target data model for the database e.g relational data model. In the physical database design phase, the description of the implementation of the database on secondary stage is created. The base relations, indexes, integrity constraints, security, etc. are defined using SQL language.

2.4.3 Implementation and Loading

The implementation phase is where THE installation of the DBMS on the required hardware, optimize the database to run best on that hardware and software platform, and create the database and load the data. The initial data could be either new data captured directly or existing data imported from an Oracle database or another DBMS. Establishing database security are also required in this phase and give the various users that been identified access applicable to their requirements.

2.4.4 Testing and Evaluation

In this phase, the database that had been implemented on the previous phase is then tested. After the testing completed and no problem arises, the evaluation of the database and its application programs is then proceed. The database is then used to produce the required information flow to continue.

2.4.6 Maintenance and Evolution

The maintenance and evolution process is the process of monitoring and maintaining the database system. Maintenance means that the performance of the system is observed. If the performance of the system falls below an acceptable level, tuning or reorganization of the database may be required. Evolution means that, when new requirements arise, the new development lifecycle will be done.



2.5

The requirements of database system development are divided to two categories that is software requirements and hardware requirements. Software requirement UNIVERSITI TEKNIKAL MALAYSIA MELAKA described the software that are used to develop the system and hardware requirement describe the hardware used to support the system.

2.5.1 Software Requirement

Listed below are the requirement and specification of the software components, which has been used in UTeM-Tutoring. There are:

a) Oracle 11g

Oracle 11g is the database that are used in developing this system. Oracle database provides efficient, reliable and secure data management.

b) Windows 8.1

Windows is the platforms that are used in developing this system. Windows is a very famous platform that is frequently used by people.

c) XAMPP Server

XAMPP is the server that is used in developing this system. It acts as a server for the system and database connection.

2.5.2 Hardware Requirement

The hardware that is used for this project is shown on table 2.1

Table 2.1

| | 4 4 W | |
|-----|-------------------|--------------------|
| No. | Hardware | " Description |
| | UNIVERSITI TEKNIK | AL MALAYSIA MÉLAKA |
| 1 | Processor | Dual Core |
| | | |
| 2 | Memory | 4GB DDR 3 |
| | | |
| 3 | Hard Disk | 1 Terabyte |
| | | |

2.6 Project Management

The process of the system development is shown on table 2.2

| Activity / week | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 1 | 1 2 | 1 3 | 1 4 | 1 5 |
|--|------|---|-----|-----|----------|-------|----|----|-----|--------|----|--------|--------|--------|-----|
| Planning | | | | | | | | | | | | | | | |
| Research Project planning Brainstorming | | | | | | | | | | | | | | | |
| Analysis | | | | | | | | | | | | | | | |
| Requirements | | | | | | | | | | | | | | | |
| gathering Gather the system requirement Analyze the requirement Do the documentation for conclusion phase | | | | | | | | | | | | | | | |
| System proposal • Study requirement | | | | | | | | | | | | | | | |
| and structure | Y 65 | | | | | | | | | | | | | | |
| Make plan to acquire any hardware | | 4 | 8. | | | | | | | | | | | | |
| software necessary to | | | E. | | | | | | | | | | | | |
| build system Make proposal | | | K N | | | | | | | | | | | | |
| Send proposal to supervisor | | | | | | | | | | | V | | | | |
| Design | | | | | | | | | | | | | | | |
| Design decomposition | | - | | | | - | | | | | | | | | |
| diagram • Design flow chart • Design ERD | | 1 | 1. | | . | .2 | | | - | | ** | | | | |
| Design context diagram | | | 5 | | - | | | | 5. | U | 7. | 2 | | | |
| Design interface | - | | -12 | | | | | | | | | 1.0.10 | | | |
| Implementation NIVER | 311 | | EN | NIP | AI | - IVI | AL | AT | SIA | . IVIE | LA | KA | | | |
| Produces lines of | | | | | | | | | | | | | | | |
| code to creates a | | | | | | | | | | | | | | | |
| Find the solution for | | | | | | | | | | | | | | | |
| error | | | | | | | | | | | | | | | |
| Testing and | | | | | | | | | | | | | | | |
| Maintenance | | | | | | | | | | | | | | | |
| Test the system by | | | | | | | | | | | | | | | |
| form | | | | | | | | | | | | | | | |
| Maintain the system | | | | | | | | | | | | | | | |
| Documentation | | | | | | | | | | | | | | | |
| Presentation | | | | | | | | | | | | | | | |
| Demo system | | | | | | | | | | | | | | | |
| Make a report | | | | | | | | | | | | | | | |



2.7 Conclusion

As a conclusion, every project will have a different methodology that is being used to make the project successful and working well. Selecting System Development Life Cycle (SDLC) approach could be tricky if it is not suitable. Thus, this SDLC is the suitable for my project as it has to be test out several times.

With appropriate steps and methodology, any process of completing the project can be managed wisely and will be make a good result.



CHAPTER III

ANALYSIS

3.1 Introduction

This chapter will discuss the analysis phase and requirement analysis. The analysis process is important step in order to create a good and efficient system. By doing the analysis to the current system and proposed system, we will get some information about the system so that the proposed system can be developed successfully and meet the user requirement perfectly.

Firstly, the analysis will discover the problems that are faced within the current system. This is important step because it will give the developer useful information to develop a good system hence overcome the problems faced by the current system.

Then, the analysis of a new system that will be developed will be implemented. This will be done by representing the diagrams which show the flow of data within the new

system. Some explanation also will be provided to give brief information about the new proposed system.

3.2 Project Analysis

3.2.1 Background of current system

Currently in Universiti Teknikal Malaysia Melaka (UTeM), there are no official learning platform that is exist to assist among students and lecturers to communicate efficiently to discuss about their studies hence resulted in difficulty of asking a question regarding particular subjects, getting an extra notes and studies material, setting an appointment with other students or lecturers to discuss further about studies and advertising any helping class that may help other students which are attending.

From the student perspective, students find it difficult to get a right answer for a particular question if they have problem with the question. They does not know where and **UNVERSITIEEXNIKAL MALAYSIA MELAKA** who to ask question to if they have problems with their studies. They also does not know where to find and acquire a few additional or extra studies material based on the subjects that they have taken or wanted to learn. Students also have a hard time to set up an appointment with other students that are more understand with the problems that their faces.

Furthermore, students also does not know if there are any helping class available for their weakest subject because there is no official advertising place. Lecturer or any students should always be connected and be able to communicate easily to help with their studies. Figure 3.1 shows the flowchart of current system.



Figure 3.1: Flowchart of current system
3.3 The Proposed Improvement/ Solutions

UTeM-Tutoring System is a studies platform where students and lecturer use the system to help with their studies. UTeM-Tutoring system is a system that are developed for UTeM students and lecturers.

This system may help students in their studies. Students can ask question based on the subject that they choose and other students or lecturers can answer their question. This system will make it easier to students because it provide an online platform for asking question around UTeM students and lecturers. They also can share their notes material for an extra study notes based on subject.

Furthermore, students and lecturers also can post an intensive class as an extra class through the system. Other users can view the class details and may attend the class. With this module, students can easily be aware if there are extra class that they may be interested to join.

Other than that, this system provide meet-up appointment request module. With this, users can request for meet-up with other users to discuss about studies problem. Users just need to enter the appointment details and the other users will be notified. Messaging module are included to ease users communicated with each other.

3.4 Requirement Analysis

Data requirement, functional requirement, non-functional requirement and other requirements will be cover in requirement analysis. Context diagram and data flow of the system will be included in functional requirement. Software requirement, hardware requirement and network requirement will be state in other requirements.

3.4.1 Data Requirement

In this section, the data that are required to be used in the system will be explained. The attributes are the fields in the table. Data requirements of UTeM-Tutoring are described in more detail as below.

i. Usersversiti teknikal malaysia melaka

تيكنيكل ملىسىا ملا

There are two roles in user's table. The two roles are students, lecturers and admin. Students can ask or answer question based on a subject, attend helping class, make an appointment, message other people, share notes material and post comment on a question or notes. Admin can give authorities to other users to be an admin. Admin can delete comments, question, notes and subject.

ii. Subject

Subject are categorized by their course name. Each course has many subject. By using this subject, students and lecturers can ask or answer question and share notes material.

iii. Question

Question table are the question that users post based on subjects. All the information about question are stored in question table. If the question is answered and the owner of the question is satisfied, the question will be closed and no further answer can be posted.

iv. Answer

Answer table are the answer that users posted based on a question. If the answer is chosen as the correct answer, the users will gain marks for their profile.

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v. Answer Vote

All the answer that has been posted by users can be voted by other users. For each answer, all users can vote whether the answer is good or bad.

vi. Answer Comment

All answer that has been posted also can be commented by other users. Users can comment all answer to ask or verify the answer.

vii. Class

Class table are used to store helping class that are created by users. Users can post helping class program to help other users for their studies. Other users can view the class available and the information of the class.

viii. Attendance

Attendance data are required to store the data of the users that wanted to attend a class. All users can view available class and proceed to attend the class.

ix. Appointment

Users can make an appointment with other users for meet-up. This may help them understand their studies problem further by meeting up with other users. They can choose their desired time and venue for the meeting.

x. Notes

All users can share their studies notes material based on a subject. Other users can view their notes, comment and vote the notes.

ever, w

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ale

xi. Messages

Messages table are used to store the message that has been sent by users to other users.

3.4.2 Functional Requirement

Data Entry

- Enter the detail of new users
- Enter the detail of new question and answer
- Enter the detail of subjects
- Enter the detail of appointments
- Enter the detail of new helping class
- Enter messages

Updating and Deleting Data

- Update and delete question
- Update and delete notes
- Update and delete appointment
- Update and delete helping class
- Update and delete subject

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Data Queries

- List detail of users based on username.
- List detail of questions based on subject id.
- List detail of answers based on question id.
- List detail of notes based on subject id.
- List detail of all classes
- List detail of appointment based on username
- List all messages based on username
- List detail of comments based on answer and question.

3.4.2.1 Context Diagram

Context Diagram show the interaction between a system and process which the system is designed through interface. Figure 3.1 shows the Context Diagram for the UTeM-Tutoring System.



3.4.2.2 Data Flow Diagram (DFD)

Figure 3.2 shows the DFD level 0 for UteM-Tutoring System. This figure describes the data flow of each module in system.



Figure 3.3: Data Flow Diagram of UTeM-Tutoring System

3.4.2.3 UTeM-Tutoring System Process Description

Table 3.1 shows the UTeM-Tutoring System process description based on DFD Level-0 in Figure 3.3. This table describes each of the following process in the system.

| Table 3.1: UTeM-Tutorin | ng System Process | Description |
|-------------------------|-------------------|-------------|
|-------------------------|-------------------|-------------|

| Process | UTeM-Tutoring System Process | | |
|------------|---|--|--|
| Purpose | Process of whole UTeM-Tutoring System | | |
| | 1. Login Process for user to log into the system based on | | |
| Definition | | | |
| | their email and password. | | |
| | 2. Register | | |
| KIIIP | Process for user to register into the system Ask/Answer Question | | |
| 11 III60 | Users ask and answer question based on | | |
| | subject | | |
| 2) | ويبو مسيني سي 4. Share Notes Material | | |
| UNI | NIVERSITI • EUsers share notes material based on subject | | |
| | 5. Appointment | | |
| | • Users request meet-up appointment with other | | |
| | users | | |
| | 6. Helping Class | | |
| | • Users post helping class for other users to | | |
| | attend. | | |
| | 7. Messaging | | |

| | • Users send message to other users through the | |
|----------------|---|--|
| | system | |
| Responsibility | User: Students, Lecturers and Administrator | |

3.4.2.4 Data Flow Diagram Level-1

Data Flow Diagram Level-1 for Login process is shown in Figure 3.4. The flow of data of is been described in the figure.



Table 3.2 shows the Login process description based on DFD Level-0 in Figure 3.4. This table describes each of the following process in the system.

| Process | UTeM-Tutoring System Process | | |
|----------------|---|--|--|
| Purpose | Process of Login of UTeM-Tutoring System | | |
| | 1. Login | | |
| Definition | • User log into the system using email and | | |
| | password | | |
| | | | |
| Responsibility | User: Students, Lecturers and Administrator | | |

UNIVERSITI Table 3.2: Login Process SIA MELAKA

Data Flow Diagram Level-1 for Register process is shown in Figure 3.5. The flow of data of is been described in the figure.



Figure 3.5: Data Flow Diagram of Register Process

Table 3.5 shows the Login process description based on DFD Level-0 in Figure 3.3. This table describes each of the following process in the system.

| WALAYSIA | | | |
|-----------------------------|---|--|--|
| Table 3.3: Register Process | | | |
| 3 | | | |
| Process | UTeM-Tutoring System Process | | |
| Purpose | Process of Register of UTeM-Tutoring System | | |
| | 1. Register | | |
| Definition 4 | User register by inputting full name, username, | | |
| UNI | VERSITI Temail address and password MELAKA | | |
| Responsibility | User: Students, Lecturers and Administrator | | |
| | | | |

Data Flow Diagram Level-1 for Ask/Answer process is shown in Figure 3.6. The flow of data of is been described in the figure.



Figure 3.6: Data Flow Diagram of Ask/Answer Question Process

Table 3.4 shows the UTeM-Tutoring System process based on DFD Level-1 in Figure 3.6. This table describes each of the process.

| Process | UTeM-Tutoring System Process | | |
|---|--|--|--|
| Purpose | Process of Ask/Answer Question of UTeM-Tutoring System | | |
| | 2. Ask Question | | |
| Definition | • User ask question based on chosen subject | | |
| | 3. View Question | | |
| | • Other users can view the question that has been | | |
| | posted. | | |
| | 4. Answer Question | | |
| | • Other users can answer the question that has | | |
| and the second se | not been closed. | | |
| TEK) | 5. View Answer | | |
| 11100 | • Other users may view all the answer that has | | |
| | been posted. | | |
| لاك | ويتوم سيتي نيڪنيڪ 6. Vote Answer | | |
| UNI | VERSITI • EUsers may vote the answer whether good or | | |
| | bad. | | |
| | 7. Choose Correct Answer | | |
| | • The owner of the question may choose the | | |
| | correct answer. | | |
| | 8. Close Question | | |
| | • The owner of the question may close the | | |
| | question and all users can no longer post an | | |
| | answer. | | |
| 1 | | | |

Table 3.4: Ask/Answer Question System Process

| Responsibility | User: Students, Lecturers and Administrator |
|----------------|---|
| | |

Data Flow Diagram Level-1 for Share Notes Material process is shown in Figure 3.7. The flow of data of is been described in the figure.



Figure 3.7: Data Flow Diagram of Share Notes Material Process

Table 3.5 shows the Login process description based on DFD Level-0 in Figure 3.7. This table describes each of the following process in the system.

| Process | UTeM-Tutoring System Process | | |
|----------------|---|--|--|
| Purpose | Process of Share Notes Material of UTeM-Tutoring System | | |
| | 1. Share Notes | | |
| Definition | • User may share their extra notes material by | | |
| | entering the notes title and description with or | | |
| | without attachment | | |
| | 2. View Notes | | |
| | • Other users can view the notes that has been | | |
| T TEKING | posted. 3. Comment Notes | | |
| 100 | • Other users can comment the notes that has | | |
| A | been posted. | | |
| | 4. Vote Notes | | |
| UNI | VERSIT • Other users may votes the notes whether it s | | |
| | good or bad. | | |
| Responsibility | User: Students, Lecturers and Administrator | | |

Table 3.5: Share Notes Material Process

Data Flow Diagram Level-1 for Login process is shown in Figure 3.8. The flow of data of is been described in the figure.



Figure 3.8: Data Flow Diagram of Appointment Process

Table 3.8 shows the Login process description based on DFD Level-0 in Figure 3.6. This table describes each of the following process in the system.

| Process | UTeM-Tutoring System Process | | |
|---|--|--|--|
| Purpose | Process of Make Appointment of UTeM-Tutoring System | | |
| | 1. Make Appointment | | |
| Definition | • User may make an meet-up appointment with | | |
| | other users by inputting the appointment title, | | |
| | description, venue, date and time. | | |
| | 2. View Appointment | | |
| | • The requested users can view the appointment | | |
| | that has been made and will be notified. | | |
| and the second se | 3. Accept/Reject Appointment The user can accept or reject the appointment. | | |
| TEKA | | | |
| LIGO | 4. Complete Appointment | | |
| | • After the appointment, the appointment can be | | |
| لاك | اوىيۇم سىتى تېھىيە set to complete. | | |
| UNI | VERSITI TEKNIKAL MALAYSIA MELAKA | | |
| Responsibility | User: Students, Lecturers and Administrator | | |

Table 3.6: Appointment Process

Data Flow Diagram Level-1 for Login process is shown in Figure 3.9. The flow of data of is been described in the figure.



Figure 3.9: Data Flow Diagram of Helping Class Process

Table 3.7 shows the Login process description based on DFD Level-0 in Figure 3.9. This table describes each of the following process in the system.

| Process | UTeM-Tutoring System Process | | |
|----------------|---|--|--|
| Purpose | Process of Helping Class of UTeM-Tutoring System | | |
| | 1. Make Helping Class | | |
| Definition | • User may post a helping class. | | |
| | 2. View Helping Class | | |
| | • Other users can view the class that has been | | |
| | posted. | | |
| | 3. Attend Class | | |
| | • Other users can attend the class. | | |
| Kuller | 4. Vote Class | | |
| ANT TE | • Other users may vote the class whether it is good or bad. | | |
| Responsibility | User: Students, Lecturers and Administrator | | |
| | اويورسيني بيست السيسية الم | | |

Table 3.7: Helping Class Process

Data Flow Diagram Level-1 for Login process is shown in Figure 3.10. The flow of data of is been described in the figure.



Figure 3.10: Data Flow Diagram of Message Process

Table 3.8 shows the Login process description based on DFD Level-0 in Figure 3.10. This table describes each of the following process in the system.

| Process | UTeM-Tutoring System Process | | |
|----------------|---|--|--|
| Purpose | Process of Message of UTeM-Tutoring System | | |
| | 1. Send Message | | |
| Definition | • User can send messages to other users through | | |
| | the system and other users can view the sent | | |
| | messages. | | |
| Responsibility | User: Students, Lecturers and Administrator | | |

Table 3.8: Message Process

3.4.3 Functional Requirement (Process Model)

WALAYSI

- 1. Can login and register.
- 2. Can ask a question based on subjects.
- 3. Can answers a question.
- 4. Can comment on an answers and class. MALAYSIA MELAKA
- 5. Can create helping class.
- 6. Can make an appointment.
- 7. Can send a messages.

3.4.4 Non-functional Requirement

i) Performance

The system must be able to respond in short time and can meet the highest expectation based on requirements. Therefore, the system must respond fast enough when users perform any process.

ii) Security

All the data in UTeM-Tutoring is restricted and protected. It will provides users verification that enable data entry controls to certain users and secure the data.

iii) Reliability

UTeM-Tutoring system need to work with a minimum breakdown for 24 hours per day. Any process that are conducted in the system should not take more than 2 seconds.

اونيونر,سيتي تيڪنيڪل مليسيا ملاك 3.4.5 System Requirement

System requirement focused on technical requirement that are always disclose to software, hardware and network requirements to develop this subjects.

| NFR No. | Туре | Software | Description |
|------------|--|-----------------------|---|
| 110. | | | |
| SR_00 | Platform/Oper | 1) Microsoft | Operating system as a platform |
| 1 | ating System | Windows 8.1 | where the system will be uses. |
| SR_00 | Databasa | 2) Oracle | Oracle database may support |
| 2 | Database | 2) Oracle | PL/SQL. |
| | ALAYS/A | | The Apache HTTP Server is a |
| SR_00 3 | Web Server Extension | 3) Apache | web server which is can support programming language originally of PHP and MySQL database. |
| SR_00_ | Client-Side NIVERSITI 1 Technology | EK4) PHPL N | originally designed for producing dynamic web pages. |
| SR_00 5 | Web Browser | 5) Mozilla Firefox | Used as web browser to use the website. |

| Table 3.9 Descri | ntion of Software | Requirements |
|------------------|-------------------|----------------|
| Table 5.7 Deseri | phon of boltware | , Keyun ements |

| NFR No. | Hardware | Description |
|-----------|-----------|------------------------------|
| | Lanton | To be able to view the web |
| 11K_001 | Царюр | based system. |
| | Memory | Need to make the system |
| HR_002 | 512 | operate easily and smoothly. |
| | Hard Disk | Need to large storage to use |
| HR_003 | 5gb | this e-learning. |
| M. Martin | Prive | |

Table 3.10 Description of Hardware Requirement

| 3453 | Network | Reo | miremen | ł |
|---------|----------|-----|-----------|---|
| 3.4.3.3 | TICLWUIK | ILU | un cincin | ł |

Table 3.11 Description of Network Requirement

| NFR No. | Requirement | Description |
|---------|-------------------|-----------------------|
| NR_001 | Cable RJ-45 | As connector to cable |
| LINIVE | RSITI TEKNIKAL MA | LAYSIA MELAKA |

3.5 Conclusion

In conclusion, this chapter explains how is the current system operate and what method used in order to make sure the future system will overcome the problem occur. Besides that, in this chapter explains briefly about how the data flow for each of the process including requirement needed such as functional, non-functional and others requirement.

As for the next chapter which design, this chapter will explain briefly about the proposed design for the system.

CHAPTER IV

DESIGN

4.1 Introduction

Design is the most crucial and important phase of system development. This include conceptual design, logical design and physical design. Conceptual design will describe the relationships of Entity Relationship Diagram (ERD) in form of business rules. As for the logical design, data dictionary will be included and validate the conceptual design. Whereas for the physical design will describe briefly on the selection of DBMS.

This chapter is divided into three designs that is system architecture design, database design and graphical user interface. Each of this design process is important in order to develop a system according to the user requirements.

4.2 High Level Design

High level Design are the full scale system design that covers the interface and database design.

4.2.1 System Architecture

Figure 4.1 shows the system architecture for UTeM-Tutoring system.



Figure 4.1: System Architecture

There are seven module involve in UTeM-Tutoring system which are Login Module, Registration Module, Ask/Answer Question Module, Share Material Module, Appointment Module, Helping Class Module and Messaging Module. The users for this system are students and lecturer that can ask or answer question, post notes material, make an appointment, post and attend a helping class, message other users while Administrator responsible in managing the subject and comment section from bad behaviour.

4.3 Graphical User Interface (GUI) Design

This module that will be used in the interface will explain detail in this section. Some of the function includes in the system are login and other will be explain.

Figure 4.2 shows the main page interface of UTeM-Tutoring System.



Figure 4.3 shows the interface for users to log in to UTeM-Tutoring. User need to enter their email address and password to log in to the system.

| Log In | |
|--------------|------------|
| Email | |
| Email addess | |
| Password | |
| ****** | |
| Log In | Register → |

Figure 4.3 Login interface

Figure 4.4 shows the registration form that users need to fill to register in UTeM-

Tutoring. User need to register to begin use the system. They need to enter their full name, email, username and password to register.

| 02 | |
|-------|---|
| AIN | Register |
| ملاك | ونيۇمرسىتى تيكنىكل ملىسىيا Full Name |
| UNIVE | R <mark>SITI[®]TEKNIKAL MALAYSIA</mark> MELAKA |
| | Email |
| | Email addess |
| | Username |
| | Username |
| | Password |
| | ****** |
| | |

Figure 4.4 Register interface

Figure 4.5 show the list of subject that are available for users to ask/answer questions. First,

user need to choose the subject that they want to ask or view question.



Figure 4.6 Subject question/notes selection interface

Figure 4.7 shows the list of question based on subjects. If the question is closed, the question title will be coloured orange and will be coloured green if the question still open.



Figure 4.8 Notes list interface

| Muhammad | <pre>PHP Coding</pre> | | |
|------------|------------------------------|------------------|----|
| | Comment | Delete Notes | |
| | | | |
| l Comments | | | |
| Nur Khai | Very useful and informative. | | |
| E | Figure 4.9 Answers que | estion interface | Y/ |

Figure 4.9 shows the notes and comment posted by users.

Figure 4.10 shows the profile interface for users. In this interface, user can view all his followers, appointment completed, question answered and notes that has been shared.

UTeM-TutoringRSITI TEKNIKAL MALSUBJECT ACLASSEL 42 KAMMUHAMMADMMS-





Figure 4.11 shows all question that have been posted by certain users.

| | | My Question | | | Î |
|---------------------|---------------------------------------|---|---------------------|--------------|---|
| 20:36 15/04/2018 | BITP 3223- Database Programming | How to create table For oracle 11g. | @ 2 | • | 0 |
| 22:17 05/04/2018 | BITP 1332- Programming II | PHP Need Help | 3 | • | • |
| 20:34 06/04/2018 | BITP 2332- Database | How to create MYSQL Database For group project. | <u>s</u> 2 | • | • |
| Figure 4.12 sl | hows the questi | Figure 4.11 My Question into on detail that are posted by certa QUESTION DE | erface in users. | اونيو ۸KA | |
| PHP Need Help | | | | | |
| Attachment: | mg2.jpg | | | | |
| Delet | e | Edit Close Question | Oper | n Question | |

Figure 4.12 Edit question interface

Figure 4.13 shows the answer that have been posted by certain users.

| | | My Answer | | |
|---------------------|---|--------------|---|---|
| 02:24 21/05/2018 | BITP 3123 - Database Administration | Login as sys | 0 | 0 |

Figure 4.13 My Answer interface

Figure 4.14 shows the detail of user information.

| MALAYSIA |
|-------------------------------------|
| My Account |
| ullName |
| Auhammad |
| |
| |
| |
| nmunanmaamms@gmail.com |
| |
| Isérname unula Sin in in raine |
| nmuhammadmms |
| 1 ⁴ |
| UNIVERSITI TEKNIKAL MALAYSIA MELAKA |
| BITD |
| |
| |
| assword |
| |
| |

Figure 4.14 My Account interface

Figure 4.15 shows the modal box for requesting appointment with other users. Users need to fill the appointment details to request the appointment.



Figure 4.16 shows list of appointment made by certain users.



Figure 4.16 My Appointment interface

Figure 4.17 shows the interface of class that have been posted by certain user.



Figure 4.18 Make class modal



Figure 4.19 shows the messaging interface between other users.

4.4 Database Design

Database design are divided into conceptual model, logical model and physical model. Example of conceptual model are the Entity Relationship Diagram while data dictionary are the example of logical model. Lastly, physical model are the interface of the system.

4.4.1 Conceptual Design

The conceptual design will explain on how the system should work based on the requirements. It is important in order for the system to meet the user and performance requirements. Figure 4.20 is the Entity Relationship Diagram (ERD) for UTeM-Tutoring.



Figure 4.20: UTeM-Tutoring Entity Relationship Diagram (ERD)

Business Rule

- One user may or may not ask many question while one question only will be asked by one user.
- 2) One Question has no or many answer while one answer is only for one question.
- One answer has no or many answer vote while one answer vote is for only one answer.
- 4) One answer has no or many comment while one comment is for only one answer.
- 5) One user may or may not post many comment while one comment is only for one user.
- One user may or may not advertise many class advertisement while one class advertisement is advertised only by one user.
- 7) One class advertisement may or may not attended by many user while one attendance is only for one class advertisement.
- 8) One user may attend many attendance while one attendance is only for one user.
- One user may or may not set many appointment while one appointment is only appointed for one user.
- One user may or may not shares many notes while one notes is shared by only one users.
- One subject may or may not contain many notes while one notes contain only one subject.
- One subject may or may not has may question while one question is for only one subject.
- 13) One user may or may not give many rating while one rating is only for one user.
In this section, it will describe the data dictionary for the system. The data dictionaries of UTeM-Tutoring are described in more detail the table below. Other tables refer to Appendix.

| Attribute name | Content | Data | Format | Req | PK/FK | Example |
|-----------------|---------------|---------|--------|------|-------|----------|
| | ALAYSIA MA | type | | uire | | |
| KULL | LAKA | | | d | | |
| Table : Subject | | | 172 | | | |
| SubjectID | Subject ID | varchar | XXXX | Y | PK | BITP323 |
| -Me | In Lindo L | 2 (10) | XX | | اەنىم | 3 |
| SubjectName | Subject Name | varchar | Xxxxxx | 0 | 1.1 | Database |
| UNIV | ERSITI TEKNIK | 2 (50) | LAXSIA | MEL | AKA | |
| SubjectCategory | Subject Email | varchar | Xxxxx | | | FTMK |
| | | 2 (100) | @xxxx | | | |
| | | | XX | | | |

4.4.3 Physical Design

The physical design is about the selection of Database Management System (DBMS). The DBMS choose for this system is ORACLE. This DBMS support PL/SQL programming language. This ORACLE Application Express has a graphical user interface which easy for developer to perform database tasks.

The DBMS used is to design a coding for database task as the planning system. The coding construct on the DBMS such as simple database coding (insert), trigger and stored procedure. The coding built in ORACLE can show either have any error or problem at the interface. It also can show the success coding built by showing the output at the interface.

The function of stored procedure is to manage and maintain data easily. It has productivity and ease to use while it has a powerful database application. Stored procedure coding's built in ORACLE is connected with the PL/SQL language that will make the language easy to gain data from the database by using a simple query.

The trigger functions almost same as stored procedure but it will run as a unit. Moreover, trigger also function to atomicity generate derived column values. Please refer to appendix.

4.5 Conclusion

This chapter discussed more about how design of the system is being built which include all type of design such as conceptual design, logical, physical and user interface. Each type provide different structure and function but with the same objectives. All the design type is related to each other to make the system work. The design is construct and being implement to make it real and can be used by targeted user.



CHAPTER V

IMPLEMENTATION

5.1 Introduction

In this chapter, it will discuss about the usage of two sections which is the framework advancement and the system database execution. System development environment will be explained on how the software installation tutorial, assign an admin login, and starting the Oracle database service. Other than that, it also explains about creating the database instance and database object. For the database implementation, it includes the DDL and DML statement in the chosen DBMS that is ORACLE on WAMP Server. It also includes the main process such as stored procedures and trigger by using PLSQL programming language.

5.2 Software Development Environment Setup



Below table are the minimum requirements of the hardware configuration: -

| Table 5.1: | Hardware Configuration |
|------------|------------------------|
|------------|------------------------|

| Item | Requirement | Minimum Configuration |
|----------------------------|-------------|-----------------------|
| Lenovo G-500 series laptop | Processor | Pentium Dual Core |
| | Memory | 1 GB |
| | RAM | 6 GB |

The software that are being used to set up this web development is:

1. Adobe Dreamweaver CS6 and Atom 1.32.1 Text Editor

Adobe Dreamweaver CS6 are the tools used to develop UTeM-Tutoring. It is a closed-source web development tool that is created originally by Macromedia. The tools provide a solution and subsequent version that are more compliant with W3C. It also can support scripting languages such as PHP. Atom text editor also provide good environment to write code. This software is commonly used in web development and design which are more suitable for this system development because it provide visual with more sophisticated features such as checking coding syntax and generating code hints that may assist user to write codes and decrease spelling and syntax error. Both of this software also facilitates with rapid layout design and good code generation that allow users write code quickly.

2. XAMPP Server Version 3.0.6

WAMP Server is used to store the system database and local server. It contains UNIVERSITITEKNIKAL MALAYSIA MELAKA several packages that are configured after installation. Those packages includes Apache, MySQL database, PHP, and others. XAMPP is a free and open source cross-platform web server that consist mainly of the Apache HTTP Server and MySQL databases. The interpreters used for scripts are written in PHP and Perl programming languages. Other package provided like phpMyAdmin in XAMPP is required to build the system database. The database is stored in local server for implementation.

5.2.1 Software Development Setup

The software that will be used for the development process of UTeM-Tutoring are Adobe Dreamweaver CS6 by using the PHP programming language. As a database management platform, Oracle and WAMP Server will be used to store all the required data for the system. Lastly, Wamp server will be functioning as a server to integrate between the oracle database and the system interfaces.

5.2.1.1 Software Development Setup Server

For the server of the system, users need to enter "http://localhost" in their web browser such as Mozilla Firefox or Google Chrome. The web browser will then display the main page of the WAMP Server. Then, user need to create a folder that will store the entire interface of the system and the PHP coding scripts in the folder "C:\wamp\www" so that the users can view the interface that are opened using their web browser.

Step 1 : Downloading XAMPP

To install XAMPP Server, user need to download the installation from https://www.apachefriends.org/download.html. The website will provide an option whether to choose between 32-bit or 64-bit environment depending on users computer configuration. In addition, it will also provide an automatic installation that are easier to install.

Step 2: Install the software

| i bitnami | Setup | Setup - XAMPP Welcome to the XAMPP Setup Wizard. | - | × |
|------------------|------------|---|---|---|
| | 12 hitaami | | | |

Figure 5.2: X

XAMPP setup window wizard

After downloading the setup, user need to open the installer. After opening, the welcome installation window will appears. Then, user need to click the 'Next >' button.

| 0 | Installation folder | NAL MALAT | |
|---|--|---------------|--------|
| | Please, choose a folder to install XAMPP Select a folder C:\xampp | | |
| | | | |
| | | | |
| | | | |
| | XAMPP Installer | < Back Next > | Cancel |

Figure 5.3: Selection component of XAMPP setup

Then, the installation will then ask for an installation folder. User need to choose where they wanted to install it. In default, the installation will be installed at 'C:\xampp'. After choosing the installation directory, click the 'Next >' button.

Step 4: Installation Setup



Figure 5.5 shows the extraction of the installation to complete the installation. User need to wait for

the installation to be finished that may take a few minutes.LAYSIA MELAKA

Step 6: Complete setup XAMPP server



Figure 5.5: Installation complete

Figure 5.6 shows the complete installation window of XAMPP. Click the Finish button and XAMPP

control panel will be launched automatically.

Step 7: XAMPP control panel

| | Control Panel | v3.2.1 [Compile | d: May 7th 2013] | | | | _ | | × |
|--|--|--|--|------------|----------|---------|------|-------|--------|
| ខ | XAI | MPP Contro | ol Panel v3 | .2.1 | | | | 🕜 Co | onfig |
| Modules Service | Module | PID(s) | Port(s) | Actions | | | | 🍥 Ne | tstat |
| | Apache | () | | Start | Admin | Config | Logs | 2 S | hell |
| | MySQL | | | Start | Admin | Config | Logs | 🔁 Exp | plorer |
| | FileZilla | | | Start | Admin | Config | Logs | 🦻 Sei | vices |
| | Mercury | | | Start | Admin | Config | Logs | 0 H | lelp |
| | Tomcat | | | Start | Admin | Config | Logs | | Quit |
| 10:22:10 A 10:22:10 A 10:22:10 A 10:22:10 A 10:22:10 A 10:22:10 A 10:22:10 A | M [main] M [main] M [main] M [main] M [main] M [main] | Checking for pr All prerequisite Initializing Mod Starting Check Control Panel P | ation Directory: ¹ rerequisites is found lules Timer Ready | c:\xampp\" | | | | | ~ |
| LEVE | | Figure | e 5.6: | ХАМРІ | P contro | l panel | | | |

| After that | , the XAMPP | Control F | Panel win | dow will be | opened an | d ready to | use. User ne | ed to click on |
|-------------|----------------|-----------|------------|-------------|-----------|------------|--------------|----------------|
| | _/ | | | | | S. | 10.2.2 | |
| the 'Start' | ' button for A | pache se | rver for t | he remote s | erver. | 10 | | |
| | LIMP | VERS | ITI TE | KNIKAL | MALA | VSIA N | IEI AKA | |

5.2.1.2 Software Development Setup - Database Server

Database server refers to the back-end system in the client or server architecture. Database server functions are to perform task such as data analysis, data storage and data manipulation. It is related to the database management system (DBMS). DBMS is a collection of program that enables users to extract the information they need from the database. This DBMS that been used in this system is Oracle Database 11g. This DBMS has been chosen because it is the most reliable way to perform complicated tasks such as retrieving, creating, updating and deleting database objects. It also can runs and SQL and PLSQL statements and scripts to debug and manipulate data.

Step 1: Obtain a copy of Oracle 11g by downloading



Figure 5.7: Website to download Oracle 11g package.

To obtain a copy of Oracle 11g, user need to download it from https://www.oracle.com/technetwork/database/enterprise-edition/downloads/112010win64soft-094461.html. The website will provide an option of whether to download between 32-bit or 64-bit environment depending on user's computer configuration. First, users need to accept the license agreement to get access to the download pages. All files are in the zip format. After downloading, users need to unzip both files to the same directory. This package also provide the installation guides and general Oracle Database 11g documentation for users as a reference. If users does not have an Oracle account, users need to click the "Sign Up" link to create a new account. If users already have an Oracle account, users need to log into their account and then choose the location of where they want to download the zip files.



Figure 5.9: System Class

After downloading the Oracle database 11g, user need to uncompressed it. User will then need to start the installation process. User need to double click the Setup => Yes => choose "I wish to receive security updates via My Oracle Support" => Next => Yes => Choose "Skip software updates" => Next => Choose "Create and configure a database." => Choose "Desktop class".



Figure 5.10: Typical Install Configuration

Then, the Typical Install Configuration windows will appears. Change the global database name to orcl. Then, enter the Administrative password as "root". This password will be used later to log into administrator account such as SYS and SYSTEM. Click Next.



Lastly, the prerequisite checks will be performed and a summary windows will appears. User need to review the settings and confirm by click Install. The progress windows will then appears. The Database Configuration Assistant will then create the database. After that, the Finish window will appears and user need to click Close to exit the Oracle Universal Installer.

5.2.2 Database Creation and Database Objects

In Oracle, "Create Database" statement is used to create a database. This is the most fundamental step user need to do before creating other database objects such as views, tables, triggers, stored function and procedure and others. Database objects can be created swiftly by using Graphical User Interface (GUI) or by simply execute the Structured Query Language (SQL) statements. The most fundamental features and functionality of the databases are created during the developments of UTeM-Tutoring. Below are the database objects:



5.3 Database Implementation

In this database implementation phase, Data Definition Language (DDL), triggers, and stored procedures will be explained in detailed manner in order to demonstrate the functionality of this system.

5.3.1 Data Definition Language

Data Definition Language (DDL) is used primarily by Database Administrator during the development phase of the database. Below are the example of DDL that are used in UTeM-Tutoring systems.

5.3.1.1 Create Database

'Create Database' command is used to create database the database before creating the database objects. The name of the database is UTeM Tutoring.



5.3.1.2 Data Definition Language

The 'CREATE TABLE' command are used to create table and its attributes including the data type, the field lengths, the default values for the attributes and the constraints. Primary key and foreign key also will be used to prevent redundancy and anomaly. The example of create table is in Table 5.3 and the others will be include in Appendix C.





5.3.1.3 Create Trigger

Trigger in the database are execute automatically when there are data manipulation event that had happen such as Data Manipulation Language (DML). By using database trigger, it is guaranteed that the defined operation will be performed before or after the main action is performed based on the users wanted to. Table 5.4 shows trigger example. The other example will be can be refer on Appendix D.

| create trigger trg_users_id |
|--|
| before insert on users |
| for each row |
| begin |
| <pre>select 'UID' to_char(users_seq.nextval,'FM0000')</pre> |
| into :new.userid |
| from dual; |
| end; WALAYSIA |
| |
| |
| اونيۈم,سيتي تيڪنيڪل مليسيا ملاك |
| |

Table 5.4:Create Trigger

A procedure is a group of PL/SQL statements that can be named. It is a batch of SQL statement that can be executed in couple of ways. Most Database Management System support stored procedures. This stored procedures will accept or not accept input parameters so that a single procedure can be used over the network by user using different parameters that they submitted. Stored procedure will also reduce the network traffic and increase the database performance.

^{5.3.1.4} Create Stored Procedure EKNIKAL MALAYSIA MELAKA

The following shows example of stored procedure used in UTeM-Tutoring. Table 5.5 shows the procedure example. Other stored procedure example can be refer on Appendix E.

 Table 5.5:
 Create Stored Procedures

```
CREATE OR REPLACE PROCEDURE inboxdetail
      mid IN VARCHAR2 , uid IN VARCHAR2 , ppic OUT VARCHAR2 ,
(
pname OUT VARCHAR2 , pdesc OUT VARCHAR2 , pdate OUT LONG ,
ptime OUT VARCHAR2 , pusername OUT VARCHAR2)
IS
BEGIN
      SELECT name, picture , username
      INTO pname , ppic , pusername
      FROM users
      where userid = mid;
      select
      INTO pdesc , pdate , ptime
                                  MALAYSIA MELAKA
      from
       ( select messagedesc , to char( messagedate ,
'DD/MM/YYYY') , to char(messagetime, 'HH24:MI' ) from
      messages where toid IN ( uid , mid )
      AND userid IN ( uid , mid)
      ORDER BY messagetime DESC
      )
      where ROWNUM <= 1;
END;/
```

5.3.2 Data Loading

Data loading is a process of copying and loading data from the system source file or database. The functional of data loading in UTeM Tutoring are used in:

- i. The data can be used in UTeM-Tutoring on user interface.
- ii. The data can be used in Oracle 11g.

AALAYS/A

5.4 Conclusion

The implementation phase is the final phase that are moving the development phase to the production phase. The UTeM-Tutoring is using Apache server as a server-side script language and Oracle Database 11g as the database to keep and store the data.

The next phase is the testing phase. This phase will be tested by the user to validate and verify the requirements as well to find out the error of UTeM-Tutoring. This phase will be explained in Chapter 6 and involving the test plan, test design, test strategy, test results and test analysis.

CHAPTER VI

TESTING

6.1 Introduction

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In this section, it will discuss about the testing activity and period of UTeM-Tutoring system. Testing is a procedure of identifying issues in the system or software with the objectives to know the quality level that fulfill all the user needs. This testing has been conducted on UTeM-Tutoring to verify and validate the system so that it meet the requirements of the proposed system. This system testing is important to avoid mistakes that are visible to the end users.

Testing process not just limited to the implementation of the system, but it is used to finding defects on the systems. During the testing phase, there are test plan, test strategy, test design, test results and analysis process. Software testing can be effective and efficient by picking suitable set of test methods. This phase will increase the confidence that the system will work more smoothly and free from any errors in the future.

The strategy of doing this system testing is for the students and lecturers of UTeM act as the real user of the system.

6.2 Test Plan

Test plan is a set of document that contains all the detailed procedures that determine the scope, resources, approach and schedule of all the testing activities that will be conducted. This test plan is used to help the testing activities and to check the efficiency of the system.

6.2.1 Test Organization

On this section, it will explain about the people that are involved during the testing phases. This group will be responsible in managing, checking and executing the test. The developer will lead the testing process and the main predominant in testing the system. The end users also will aid to the testing group of system functionalities. Below are the detail about the person who are involved during this testing phase.

| Tester ID | Name | Roles | Responsibilities |
|-----------|-------------|-----------|---|
| Ū. | Muhammad | System | Responsible in executing the integration and |
| | bin Sapardi | Developer | testing the components. |
| | Dr. Safiza | Software | - Analyse and review the functionality of the |
| | Suhana Bt. | Tester | requirements. |
| | Kamal | | - Monitoring the system performance. |
| | Baharin | | |
| | Muhammad | Client | - Responsible in testing this system as student |
| | Faizal bin | | user. |
| | Ayub | | |

Table 6.1 Test Organization

In this section, it will explain about the system configuration that been chosen to conduct this tests.

| System Configuration | Specification |
|------------------------------|---|
| Operating System | Windows 10 |
| Database | Oracle 11g |
| Server MALAYSIA | Xampp v3.0.12 |
| Web browser | Google Chrome and Mozilla Firefox |
| System/ Programming Language | Hypertext Preprocessor (PHP), Hyper Text Markup Language (HTML), Ajax, |
| كل مليسيا ملاك | jQuery and Javascript |
| UNIVERSITI TEKNI | KAL MALAYSIA MELAKA |

Table 6.2:Environment Setup Specification

6.2.3 Test Schedule

Test schedule is a record of the testing time table made to test the system. All testing are made based on the module state for the system. This testing schedule consists of module, testing type, start/end date and the duration takes to complete the tests. Table below describe the process in details.

| Activities | Description | Start Date | End Date | Durat |
|--------------|------------------------------|------------------|----------------|--------|
| | | | | ion |
| Unit Testing | Used to test functions and | 10 | 15 | 5 days |
| | code module. | November | November | |
| | | 2018 | 2018 | |
| Integration | Used to test integrated | 18 | 22 | 4 days |
| Testing | module and verify | November | November | |
| | combined functionality | 2018 | 2018 | |
| | after integration. | | | |
| System | Evaluate system | 22 | 25 | 3 days |
| Testing | compliance with its specific | November | November | |
| LIGH | requirements. | 2018 | 2018 | |
| Acceptance | Test completed system to | 27 | 31 | 4 days |
| Testing | end user. كالما | November | November | |
| UNI | VERSITI TEKNIKAL I | 2018 MALAYSIA | 2018 MELAKA | |

| Table 6.3: | Test Schedule | Detail |
|------------|---------------|--------|
| | | |

6.3 Test Strategy

In UTeM-Tutoring, Dynamic Testing will be used to test this system. In Dynamic Testing, the execution of the software of a system is involved. Dynamic Testing is divided into two methods that is Black Box Testing and White Box Testing.Black Box Testing is a behavioural testing which focus on system design while White Box Testing test and examine the internal structure of the program. Table below describe in details about this two approaches.

| Approaches | Explanations |
|-------------------|---|
| White Box Testing | Test that been conducted to evaluate the internal structure of the system through developer using |
| | the program code. |
| Black Box Testing | Test that been conducted to test the system |
| | through their functional or non-functional |
| | without references to the internal structure of the |
| | system. |

Table 6.4:White Box and Black Box Testing



This section will explain the test that had been conducted for each module stated in the

system requirement. Below table will describe all the test description in detail according to

the modules of the system.

i. Login Test

Login process is an important to authorized users. User that are involve in this module is UTeM students and lecturers. User need to enter their email and password to log into the system. Below table will display the login test case.

| Test Case | Test Case | Step to Execute | Expected Results |
|-----------|---------------------------|-------------------------|-----------------------|
| ID | MALAYSIA 40 | | |
| TC0001_01 | Check all text, input and | Check all page content. | UI should not have |
| | button | | any errors. |
| TC0001_02 | Check when inputting | 1. Enter invalid email | User will be showed |
| | incorrect email | 2. Enter the correct | with the proper error |
| | کل ملیسیا ملاک | password | message. |
| | UNIVERSITI TEKNI | 3. Enter 'Login' button | LAKA |
| TC0001_03 | Check when inputting | 1. Enter invalid email | User will be showed |
| | incorrect email and | and password | with the proper error |
| | password | 2. Enter 'Login' button | message. |
| TC0001_04 | Check by keeping email | 1. Leave email input | User will not be able |
| | blank | blank | to login and proper |
| | | 2. Enter correct | error message will |
| | | password | be shown |
| | | 3. Enter 'Login' button | |

| Table 6.5: | Login | Test | Descri | ption |
|------------|-------|------|--------|-------|
| | | | | |

| TC0001_05 | Check when leaving | 1. Leave email and | User will not be able |
|-----------|--------------------------|--------------------------|-----------------------|
| | email and password input | password input blank | to login and will be |
| | blank | 2. Click 'Login' button | shown proper error |
| | | | message. |
| TC0001_06 | Check by inputting | 1. Input correct email | User will be able to |
| | correct email and | and password | login into the |
| | password | 2. Click 'Login' button | system. |
| TC0001_07 | Check by inputting | 1. Input incorrect email | User will be shown a |
| | incorrect email syntax | address syntax | proper error |
| | MALAYSIA | 2. Click 'Login' button | message. |
| | | | |

ii. Registration Test Description

Registration process is important to make the user enable to access the system. User that are involve in this module is UTeM lecturers and students. They need to enter their full name, email address, username and password. Below table will display the registration test UNIVERSITITEKNIKAL MALAYSIA MELAKA case.

| TC0002_01 | Check pages spelling and | 1. Check all page content | Page should not |
|-----------|---|---------------------------|-----------------------|
| | input format | | contain any error. |
| TC0002_02 | Check by leaving all the | 1. Leave all the input | User will be shown a |
| | input fields blank | field blank. | proper error |
| | | 2. Enter 'Register' | message. |
| | | button | |
| TC0002_03 | Check by only inputting | 1. Input only on one of | User will not be able |
| | one of the required field | the field. | to register and will |
| | MALAYSIA 4 | 2. Leave all other field | be shown proper |
| | ALL | blank. | error message. |
| | | 3. Click 'Register' | |
| | Frada Alling | button. | V |
| TC0002_04 | Check by inputting | 1. Input 'Full Name', | User will not be able |
| | incorrect email syntax | 'Username' and | to register and will |
| | UNIVERSITI TEKNI | 'Password' field with | be shown proper |
| | | correct values. | error message. |
| | | 2. Input incorrect email | |
| | | syntax at 'Email' field. | |
| | | 3. Click 'Register' | |
| | | button | |
| TC0002_05 | Check by inputting | 1. Input symbols or | User will not be able |
| | numbers or symbols into | numbers on 'Full Name' | to register and will |
| | the 'Full Name' field. | field. | |

| Table 6.6: | Registration | Test Description |
|------------|--------------|------------------|
|------------|--------------|------------------|

| | | 2. Input correct values | be shown proper |
|-----------|--------------------------|-------------------------|-----------------------|
| | | on other field. | error message. |
| | | 3. Click 'Register' | |
| | | button. | |
| TC0002_06 | Check by inputting | 1. Input existing email | User will not be able |
| | existing email or | on 'Email' field or | to register and will |
| | username | existing username on | be shown proper |
| | | 'Username' field. | error message. |
| | | 2. Input correct values | |
| | MALAYSIA | on other field. | |
| | St and | 3. Click 'Register' | |
| | TEKI | button. | |
| | Y SUBAININ | | VI |
| iii. | Ask/Answer Question Test | رسيتي تيڪنيھ | اونيوم |

Ask and answer question module is used for students or lecturers to ask question based on subject. Other students or lecturer can share their answer based on the question. Voting for the correct and usable answer will be available. Below table will display the ask/answer question test case.

| TC0003_01 | Check pages spelling and | Check pages content | Pages should not |
|-----------|--|--------------------------|-----------------------|
| | input format | | have any errors. |
| TC0003_02 | Check ask question by | 1. Leave question title | User will not be able |
| | leaving 'Question Title' | and question description | to post question and |
| | and 'Question | blank. | proper error message |
| | Description' field blank. | 2. Click 'Post Question' | will be shown. |
| TC0003_03 | Check ask question by | 1. Input question title | User will not be able |
| | only inputting 'Question | with correct value. | to post question and |
| | Title' WALAYSIA | 2. Leave question | proper error message |
| | AL AND | description blank. | will be shown. |
| | | 3. Click 'Post Question' | |
| TC0003_04 | Check ask question by | 1. Input question | User will not be able |
| | only inputting 'Question | description with correct | to post question and |
| | Description' | value. | proper error message |
| | UNIVERSITI TEKNI | 2. Leave question title | will be shown |
| | | blank. | |
| | | 3. Click 'Post Question' | |
| TC0003_05 | Check ask question by | 1. Input correct values | User will be able to |
| | inputting 'Question Title' | on question title and | post the question. |
| | and 'Question | question description | |
| | Description' without | field. | |
| | attaching files | 2. Click 'Post Question' | |

Table 6.7: Ask/Answer Question Test Description

| TC0003_06 | Check ask question by | 1. Input correct values | User will be able to |
|-----------|--------------------------|---------------------------|-----------------------|
| | inputting all field with | on all values. | post the question. |
| | attached files. | 2. Attach files by | |
| | | clicking 'Browse' | |
| | | button. | |
| | | 3. Click 'Post Question' | |
| TC0003_07 | Check answer question | 1. Input correct values | User will be able to |
| | by inputting answer | on user answer. | post an answer to the |
| | without attachment | 2. Click 'Post Answer' | question. |
| TC0003_08 | Check answer question | 1. Input correct values | User will be able to |
| | by inputting answer with | on user answer. | post an answer to the |
| | attachment | 2. Attach files by | question. |
| | List | clicking 'Browse' | V |
| | Ann | button. | |
| | كل مليسيا ملاك | 3. Click 'Post Answer'. | اونيوم |
| TC0003_09 | Check answer question | 1. Leave all field blanks | User will not be able |
| | by not inputting any of | when answering | to post an answer |
| | the fields. | question. | and proper error |
| | | 2. Click 'Post Answer' | message will be |
| | | | shown. |
| TC0003_10 | Check answer question | 1. Input symbols or | User will be able to |
| | by inputting symbols and | numbers on user answer | post an answer to the |
| | numbers | field. | question. |
| | | 2. Click 'Post Answer' | |

iv. Share Material Test

Share material module is for lecturer or student to share their studies notes or material on the system. Other users can view, comment and vote their shared notes. Below table will display the share material test case.

| TC0004_01 | Check pages spelling | Check pages content | Pages should not |
|-----------|--|---------------------------|-----------------------|
| | | | have any spelling |
| | | | errors. |
| TC0004_02 | Check by leaving 'Notes | 1. Leave notes title and | User will not be able |
| | Title' and 'Notes | notes description blank. | to post notes and |
| | Description' field blank. | 2. Click 'Post Notes' | proper error message |
| | Line and the second sec | UIEI | will be shown. |
| TC0004_03 | Check by only inputting | 1. Input notes title with | User will not be able |
| | کل ملی 'Notes Title | correct value. | to post notes and |
| | UNIVERSITI TEKNI | 2. Leave notes | proper error message |
| | | description blank. | will be shown. |
| | | 3. Click 'Post Notes' | |
| TC0004_04 | Check by only inputting | 1. Input notes with | User will not be able |
| | 'Notes Description' | correct value. | to post notes and |
| | | 2. Leave notes title | proper error message |
| | | blank. | will be shown |
| | | 3. Click 'Post Notes' | |

| Table 6.8: Share Material Test Description | on |
|--|----|
|--|----|

| TC0004_05 | Check by inputting | 1. Input correct values | User will be able to |
|-----------|----------------------------|--------------------------|----------------------|
| | 'Notes Title' and 'Notes | on notes title and notes | post the notes. |
| | Description' without | description field. | |
| | attaching files | 2. Click 'Post Notes' | |
| TC0004_06 | Check by inputting all | 1. Input correct values | User will be able to |
| | field with attached files. | on all values. | post the notes. |
| | | 2. Attach files by | |
| | | clicking 'Browse' | |
| | | button. | |
| | WALAYSIA | 3. Click 'Post Notes' | |

v. Appointment Test

Appointment module are for users to meet-up with other users. They can request for an appointment by entering the title, description, time and date and venue for the appointment. Below table will display the appointment test case.

| Table 6.9: | Appointment Test Description |
|-------------------|------------------------------|
| 1 able 6.9: | Appointment Test Description |

| TC0005_01 | Check pages spelling and | Check pages content | Pages should not |
|-----------|---|---|--|
| | input format | | have any errors. |
| TC0005_02 | Check by leaving all | 1. Leave all field blanks | User should not be |
| | field blanks | 2. Click 'Request Meet- | able to request an |
| | | up' | appointment. |
| | | 1 | 11 |
| TC0005_03 | Check by only inputting | 1. Input title and | User should not be |
| TC0005_03 | Check by only inputting 'Title' and 'Description' | 1. Input title and description field with | User should not be able to request an |
| TC0005_03 | Check by only inputting 'Title' and 'Description' field | 1. Input title and description field with correct values. | User should not be able to request an appointment. |

| | | 2. Leave other field | |
|-----------|-------------------------|----------------------------|----------------------|
| | | blank. | |
| | | 3. Click 'Request Meet- | |
| | | up' | |
| TC0005_04 | Check by only inputting | 1. Input on time field | User should not be |
| | 'Time' field | 2. Click 'Request Meet- | able to request an |
| | | up' | appointment. |
| TC0005_05 | Check by only inputting | 1. Input on date field | User should not be |
| | 'Date' field | 2. Click 'Request Meet- | able to request an |
| | MALAYSIA | up' | appointment. |
| TC0005_06 | Check by only inputting | 1. Input on venue field | User should not be |
| | 'Venue' field | 2. Click 'Request Meet- | able to request an |
| | Line and | up'JE | appointment. |
| TC0005_07 | Check by inputting all | 1. Input correct values to | User should be able |
| | ڪل مليسيا مالان | all field رسيتي تي | to request the |
| | UNIVERSITI TEKNI | 2. Click 'Request Meet- | appointment. |
| | | up' | |
| TC0005_08 | Check by inputting | 1. Input correct values to | User should not be |
| | 'Date' field lower than | all field. | able to request an |
| | present date. | 2. Input date field lower | appointment and |
| | | than present date. | proper error message |
| | | 3. Click 'Request Meet- | will be shown. |
| | | up' | |

vi. Helping Class Test

| TC0006_01 | Check pages spelling and | Check pages content | Pages should not |
|-----------|--------------------------|----------------------------|-----------------------|
| | input format | | have any errors. |
| TC0006_02 | Check by leaving all | 1. Leave all field blank | User should not be |
| | field blank | 2. Click 'Make Class' | able to post a class. |
| TC0006_03 | Check by only inputting | 1. Input correct values | User should not be |
| | on one field | on any one field. | able to post a class. |
| | NALAYSIA HA | 2. Click 'Make Class' | |
| TC0006_04 | Check by inputting all | 1. Input correct values to | User should be able |
| | field without attachment | all field. | to post the class. |
| | No. and Anna | 2. Click 'Make Class' | |
| TC0006_05 | Check by inputting all | 1. Input correct values to | User should be able |
| | field with an attachment | all field. | to post the class. |
| | UNIVERSITI TEKNI | 2. Attach files by SIA ME | LAKA |
| | | clicking 'Browse' button | |
| | | 3. Click 'Make Class' | |
| TC0006_06 | Check by inputting date | 1. Input correct values to | User should not be |
| | lower than present date | all field. | able to post a class |
| | | 2. Input lower date than | and a proper error |
| | | the present date on the | message will be |
| | | date field. | shown. |
| | | 3. Click 'Make Class' | |

Table 6.10: Helping Class Test Description

| TC0006_07 | Check by inputting | 1. Input correct values to | User should not be |
|-----------|--|----------------------------|-----------------------|
| | symbols or letters on | all field. | able to post a class |
| | 'Fees' field | 2. Input symbols or | and a proper error |
| | | letters on fees field. | message will be |
| | | 3. Click 'Make Class' | shown. |
| TC0006_08 | Check by attending class | Click 'Attend Class' | User should be able |
| | that are not in full | | to attend the class |
| | capacity. | | |
| TC0006_09 | Check by attending class | View the class pages | User should not be |
| | that are full in capacity. | | able to click attend |
| | ser and | | class button and will |
| | LEK! | | be shown proper |
| | | | message |
| | in the second se | | |
| vii. | کل ملیسیا ملاک Messaging Test | رسيتي تيڪنيد | اونيوم |
| | | IZAL MAL AVOIA DE | 1 417 4 |

UNIVERSITI TEKNIKAL MALAYSIA MELAKA Messaging module is used so that users can interact with other users within the

system. User just need to find the profile of the person they want to contact and send the message. Below table will display the messaging test case.
| TC0007_01 | Check pages spelling and | Check pages content | Pages should not |
|-----------|--------------------------|-------------------------|----------------------|
| | input format | | have any errors. |
| TC0007_02 | Check by leaving | Click 'Send Message' by | User should not be |
| | messages field blank | leaving messages field | able to send the |
| | | blank | message. |
| TC0007_03 | Check by inputting | 1. Input messages on | User should be able |
| | messages | message field | to send the message. |
| | | 2. Click 'Send Message' | |
| TC0007_04 | Check by inputting | 1. Input messages by | User should be able |
| | symbols or number on | symbols or number | to send the message. |
| | messages field | 2. Click 'Send Message' | |

| Table 6.11: | Message Test Description |
|--------------------|--------------------------|
|--------------------|--------------------------|

اونيۈم سيتي تيڪنيڪل مليسيا ملاك st Data

6.4.2 Test Data UNIVERSITI TEKNIKAL MALAYSIA MELAKA

In UTeM-Tutoring, test data are used to make confirmation with the test plan in order to reach expected results. This confirmation are conducted by testing, validating and verifying the software behaviour.

i. Login Test Data

| Test Case ID | Attribute | Data |
|--------------|------------|------------------------|
| TC0001_01 | Nil | Nil |
| TC0001_02 | Email | Mmuhammadmms.com |
| | Password | Ms123 |
| TC0001_03 | Email | Mmuhammadmms.com |
| | Password | Abc123 |
| TC0001_04 | Email | - |
| Kuly | Password | Ms123 |
| TC0001_05 | Email | |
| SUBANIC | Password | |
| TC0001_06 | Email Line | mmuhammadmms@gmail.com |
| | Password | Ms123 |

Table 6.12:Login Test Data Description

ii. Registration Test Data

Table 6.13:Registration Test Data Description

| Test Case ID | Attribute | Data |
|--------------|-----------|------|
| TC0002_01 | Nil | Nil |
| TC0002_02 | Full Name | - |
| | Email | - |
| | Username | - |
| | Password | - |

| | Repeat Password | - |
|-----------|-----------------------|------------------------|
| TC0002_03 | Full Name | Muhammad bin Sapardi |
| | Email | - |
| | Username | - |
| | Password | - |
| | Repeat Password | - |
| TC0002_04 | Full Name | Muhammad bin Sapardi |
| | Email | Mmuhammad.com |
| | Username | Mmuhammadmms |
| MALAYS | Password | Ms123 |
| | Repeat Password | Ms123 |
| TC0002_05 | Full Name | Muhammad 123 |
| Star . | Email | mmuhammadmms@gmail.com |
| 5 Mal | Username | Mmuhammadmms |
| | Password | Ms123 |
| UNIVERSI | Repeat Password MALAY | Ms123 ELAKA |
| TC0002_06 | Full Name | Muhammad bin Sapardi |
| | Email | mmuhammadmms@gmail.com |
| | Username | Mmuhammadmms |
| | Password | Ms123 |
| | Repeat Password | Ms123 |

iii. Ask/Answer Question Test Data

Table 6.14: Ask/Answer Question Test Data Description

| Test Case ID | Attribute | Data |
|--------------|----------------------|--------------------|
| TC0003_01 | Nil | Nil |
| TC0003_02 | Question Title | - |
| | Question Description | - |
| | Attachment | - |
| TC0003_03 | Question Title | PHP Help |
| | Question Description | - |
| MALAYS | Attachment | - |
| TC0003_04 | Question Title | |
| | Question Description | PHP Help |
| Staning | Attachment | |
| TC0003_05 | Question Title | PHP Help |
| | Question Description | php echo "help;" ? |
| UNIVERSI | Attachment | SIA MELAKA |
| TC0003_06 | Question Title | PHP Help |
| | Question Description | php echo "help;" ? |
| | Attachment | help.php |
| TC0003_07 | Answer | php echo "help";? |
| | Attachment | - |
| TC0003_08 | Answer | php echo "help";? |
| | Attachment | Answer.php |
| TC0003_09 | Answer | - |

| | Attachment | - |
|-----------|------------|--------|
| TC0003_10 | Answer | 123123 |
| | Attachment | - |

iv. Share Material Test Data

Table 6.15:Share Material Test Data Description

| Test Case ID | Attribute | Data |
|------------------|-------------------|----------------|
| TC0004_01 | Nil | Nil |
| TC0004_02 MALAYS | Notes Title | - |
| KINA | Notes Description | |
| T M | Attachment | |
| TC0004_03 | Notes Title | PHP Notes |
| سا ملاك | Notes Description | او نوم ست |
| | Attachment | |
| TC0004_04 | Notes Title | SIA MELAKA |
| | Notes Description | PHP Notes Desc |
| | Attachment | - |
| TC0004_05 | Notes Title | PHP Notes |
| | Notes Description | PHP Notes Desc |
| | Attachment | - |
| TC0004_06 | Notes Title | PHP Notes |
| | Notes Description | PHP Notes Desc |
| | Attachment | PHP Notes.docx |

v. Appointment Test Data

Table 6.16:

Appointment Test Data Description

| Test Case ID | Attribute | Data |
|--------------|-------------------------|------------|
| TC0005_01 | Nil | Nil |
| TC0005_02 | Title | |
| | Description | |
| | Time | |
| | Date | |
| | Venue | |
| TC0005_03 | Title | PHP Help |
| | Description | Help desc |
| | Time | |
| Perning | Date | |
| سا ملاك | Venue Ma Si Coniconi | اونية رسية |
| TC0005_04 | Title | PHP Help |
| UNIVERSI | Description | SIA MELAKA |
| | Time | - |
| | Date | - |
| | Venue | - |
| TC0005_05 | Title | PHP Help |
| | Description | Help Desc |
| | Time | 15:00:00 |
| | Date | 16/11/2018 |
| | Venue | FTMK Lobby |

| TC0005_06 | Title | PHP Help |
|-----------|-------------|------------|
| | Description | Help Desc |
| | Time | 15:00:00 |
| | Date | 1/1/2018 |
| | Venue | FTMK Lobby |

vi. Helping Class Test Data

Table 6.17:Helping Class Test Data Description

| Test Case ID | Attribute | Data |
|--------------|-------------------|------------|
| TC0006_01 | Nil | Nil |
| TC0006_02 | Title | |
| 1111 1 | Class Description | |
| Stanno . | Time | |
| سا ملاك | Date Since | او نوم ست |
| 44 | Class Capacity | |
| UNIVERSI | Venue | SIA MELAKA |
| | Fees : RM | - |
| | Attachment | - |
| TC0006_03 | Title | PHP Class |
| | Class Description | - |
| | Time | - |
| | Date | - |
| | Class Capacity | - |
| | Venue | - |

| | Fees : RM | - |
|-----------|-------------------|-------------|
| | Attachment | - |
| TC0006_04 | Title | PHP Class |
| | Class Description | PHP & MySQL |
| | Time | 08:00:00 |
| | Date | 01/01/2019 |
| | Class Capacity | 30 |
| | Venue | FTMK Lobby |
| | Fees : RM | 20 |
| MALAYS | Attachment | - |
| TC0006_05 | Title | PHP Class |
| LE N | Class Description | PHP & MySQL |
| Statute - | Time | 08:00:00 |
| 5 Malu | Date | 01/01/2019 |
| | Class Capacity | 30 |
| UNIVERSI | VenueKNIKAL MALAY | FTMK Lobby |
| | Fees : RM | 20 |
| | Attachment | Poster.jpg |
| TC0006_06 | Title | PHP Class |
| | Class Description | PHP & MySQL |
| | Time | 08:00:00 |
| | Date | 01/01/2018 |
| | Class Capacity | 30 |
| | Venue | FTMK Lobby |

| | Fees : RM | 20 |
|-----------|-------------------|-------------|
| | Attachment | Poster.jpg |
| TC0006_07 | Title | PHP Class |
| | Class Description | PHP & MySQL |
| | Time | 08:00:00 |
| | Date | 01/01/2019 |
| | Class Capacity | 30 |
| | Venue | FTMK Lobby |
| | Fees : RM | abc |
| MALAY | Attachment | Poster.jpg |
| Star Star | CL PR | |

vii. Messaging Test Data

Table 6.18:

Messaging Test Data Description

| Test Case ID | Attribute du | Data او بیونہ سین |
|--------------|--------------|----------------------|
| TC0007_01 | | |
| TC0007_02 | Messages | |
| TC0007_03 | Messages | Hello |
| TC0007_04 | Messages | 123 |

6.5 Test Results and Analysis

Test results and analysis shows the results after using UTeM-Tutoring system in various test cases. In this results, each test case will be tested and the results will be shown on table below.

| Test Case ID | Test Identification | Result (Passed / Failed) | | |
|---------------------------------|--|----------------------------|--|--|
| TC0001 : Login Test Description | | | | |
| TC0001_01 | OK | Passed | | |
| TC0001_02 | ОК | Passed | | |
| TC0001_03 | ОК | Passed | | |
| TC0001_04 | OK | Passed | | |
| TC0001_05 | OK | Passed | | |
| TC0001_06 | ОК | Passed | | |
| TC0002 : Registration Test D | TC0002 : Registration Test Description | | | |
| TC0002_01 | تيڪنه٥٤ مليا | Passed | | |
| TC0002_02 | TI TEKNIKAL MALAY | Passed SIA MELAKA | | |
| TC0002_03 | ОК | Passed | | |
| TC0002_04 | ОК | Passed | | |
| TC0002_05 | ОК | Passed | | |
| TC0002_06 | ОК | Passed | | |
| TC0003 | | | | |
| TC0003_01 | ОК | Passed | | |
| TC0003_02 | ОК | Passed | | |
| TC0003_03 | ОК | Passed | | |
| TC0003_04 | ОК | Passed | | |

Table 6.19:Test Result

| TC0003_05 | ОК | Passed |
|----------------|-------------------|----------------|
| TC0003_06 | OK | Passed |
| TC0003_07 | ОК | Passed |
| TC0003_08 | ОК | Passed |
| TC0003_09 | ОК | Passed |
| TC0003_10 | ОК | Passed |
| TC0004 | | |
| TC0004_01 | ОК | Passed |
| TC0004_02 | ОК | Passed |
| TC0004_03 | OK | Passed |
| TC0004_04 | ОК | Passed |
| TC0004_05 | OK | Passed |
| TC0004_06 | ОК | Passed |
| TC0005 | | |
| TC0005_01 | OK. | Passed |
| TC0005_02/ERSI | TI TEKNIKAL MALAY | SIA MEL Passed |
| TC0005_03 | ОК | Passed |
| TC0005_04 | ОК | Passed |
| TC0005_05 | ОК | Passed |
| TC0005_06 | ОК | Passed |
| TC0006 | | |
| TC0006_01 | ОК | Passed |
| TC0006_02 | ОК | Passed |
| TC0006_03 | ОК | Passed |

| TC0006_04 | ОК | Passed |
|----------------|--------------|-------------|
| TC0006_05 | ОК | Passed |
| TC0006_06 | ОК | Passed |
| TC0006_07 | ОК | Passed |
| TC0006_08 | ОК | Passed |
| TC0006_09 | ОК | Passed |
| TC0007 | | |
| TC0007_01 | ОК | Passed |
| TC0007_02 | ОК | Passed |
| TC0007_03 | OK | Passed |
| TC0007_04 | ОК | Passed |
| The sealing | | e M |
| 6.6 Conclusion | تيكنيكل مليه | اونيۇمرسىتى |

As a conclusion, this chapter explains the method that been used to verify and validate UTeM-Tutoring system to make sure the quality and requirements of the project have been achieved. Testing must be planned and conducted thoroughly due to the cost of fixing one major defects can be very costly and time-consuming. Test plan consists of several test cases that are used to examine varies expect of the system. The next chapter will discuss about the project conclusion.

CHAPTER VII

CONCLUSION

7.1 Introduction

UTeM-Tutoring is a system developed for students and lecturers at UTeM that can make their studies much easier and saves more time and also this system will fulfil my qualifications to achieve Bachelor of Computer Science (Database Management).

However, this system also has a flaws but there are many advantages and it is can be upgraded for a long-term usage. During this system development, there are many knowledge that I have gained such as drafting the final report, designing the system flow data, test the system by using test cases and many more. This system development is the most challenging part throughout my studies in Universiti Teknikal Malaysia Melaka (UTeM).

In conclusion, this system has been developed 85% achieving the main objectives of the requirement despite of many shortcomings and failures in my part. I am quite proud of myself that I was able to develop this system.

7.2 Observation and Strength and Weakness

a) Strength

- Can easily ask/answer question related to subjects
- Can share studies material for other students
- Can easily create helping class for other students to attend.
- Can easily make appointment with other users for a meet-up
- Can send messages to other users easily



7.3 **Propositions of Improvement**

For the improvement of this system, it will be better if there is a backup and recovery procedure implemented in the system. This is important to ensure any misbehave on backend side and if there is data corruption or problems, all the data that has been backed up can be retrieved and recovered without having to worry about the loss of important data.

Other than that, it will be better if all the weakness in this system has been covered so that the systems can be more secure.

7.4 Contribution

UTeM-Tutoring is a web based system that has been develop for students and lecturers to help for their studies. This system provides user to ask or answer question based on the subjects that they have problem with. User can choose the subject and then proceed to ask a question or help other students by answering their questions. User also can share their study material based on the subjects. Every important notes or individual notes that they have, they can share it with other student. This is useful for other students to find extra study material based on the subject.

Moreover, this system also provide a appointment module that can make users make an meet-up appointment. This module ease users to set up an appointment with other users to discuss about their problem. The other users that have been requested for meet-up can also reject the appointment request if they are not available.

Besides that, UTeM-Tutoring also provide a messaging module that can make users easily interact with other users by using the system. They do not have to get other users contact information and can save their time by just using this messaging module. Students and lecturers also can create a helping class that may help students that are weak or having problem with their studies.

7.5 Conclusion

The conclusion that can be concluded after completing this system, this system has been developed to ease student studies by providing an online study platform. Although the system has not met all the objectives, but it still can be used with just need a little improvement overtime. This system will be more reliable and secured if there is an improvement added to the system such as backup and recovery procedure, audit and other security features.



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 2018". [Online] Available from <u>http://www.ulearn.utem.edu.my/</u>



ATTACHMENT 1.1

APPENDIX A

a) Users

| CREATE TABLE USERS(|
|--|
| userID VARCHAR2(10) PRIMARY KEY, |
| NAME VARCHAR2(50), |
| EMAIL VARCHAR2(50), |
| PHONE NUMBER, |
| TYPE VARCHAR2(50), |
| ABOUT VARCHAR2(50), |
| ADDRESS VARCHAR2(100), |
| PICTURE VARCHAR2(50), |
| PASSWORD VARCHAR2(50), MALAYSIA MELAKA |
| username VARCHAR2(20), |
| role VARCHAR2(20) |
|); |

b) Subject

CREATE TABLE SUBJECT(

subjectID VARCHAR2(10) PRIMARY KEY,

subjectName VARCHAR2(50),

);

c) Question

| CREATE TABLE QUESTION(|
|---|
| QuestionID VARCHAR2(10) PRIMARY KEY, |
| QuestionDate DATE, |
| QuestionTime TIMESTAMP, |
| MALAYSIA |
| QuestionTitle VARCHAR2(50), |
| QuestionContent LONG, |
| QuestionStatus VARCHAR2(50), |
| QuestionAttach VARCHAR2(50), |
| وينور سيني تيڪنيڪ, Question View NUMBER(10) |
| subjectID REFERENCES SUBJECT(subjectID), |
| userID REFERENCES USERS(userID) |
|); |

d) Answer

CREATE TABLE ANSWER(

AnswerID VARCHAR2(10) PRIMARY KEY,

AnswerDate DATE,

AnswerTime TIMESTAMP,

AnswerContent LONG,

AnswerStatus VARCHAR2(50),

AnswerAttach VARCHAR2(50),

QuestionID REFERENCES Question(QuestionID),

userID REFERENCES USERS(userID)

);

e) AnswerVote



f) AnswerComment

CREATE TABLE ANSWERCOMMENT(

ANSWERcommentDate DATE,

ANSWERcommentTime TIMESTAMP,

ANSWERcommentContent LONG,

AnswerID REFERENCES ANSWER(AnswerID),

userID REFERENCES USERS(UserID),

ANSWERcommentStatus VARCHAR2(10),

PRIMARY KEY (ANSWERcommentDate , AnswerCommentTime , AnswerID,

UserID)

);

g) Class

| CREATE TABLE CLASS(| |
|---|--|
| ClassID VARCHAR2(10) PRIMARY KEY, | |
| ClassDate DATE, | |
| ClassTime TIMESTAMP, | |
| DateSchedule DATE, | |
| TimeSchedule TIMESTAMP, | |
| Capacity NUMBER, | |
| Venue VARCHAR2(50), | |
| اونيوم سيخ تنڪنيڪ ملسب Fees NUMBER | |
| ClassView NUMBER, | |
| UNIVERSITI TEKNIKAL MALAYSIA MELAKA userID REFERENCES USERS(userID), | |
| ClassTitle VARCHAR2(50), | |
| ClassContent LONG, | |
| ClassFile VARCHAR2(100), | |
| ClassStatus VARCHAR2(10) | |
|); | |

h) ClassVote

CREATE TABLE ClassVOTE(

ClassID REFERENCES Class(ClassID),

VoteType VARCHAR2(50),

userID REFERENCES UserS(UserID),

PRIMARY KEY (ClassID , userID , votetype)

);

i) ClassComment



j) Attendance

CREATE TABLE ATTENDANCE(ClassID REFERENCES CLASS(ClassID), userID REFERENCES USERS(userID),

);

j) Appointment

| CREATE TABLE APPOINTMENT(|
|--|
| AppointmentID VARCHAR2(50) PRIMARY KEY, |
| toID REFERENCES USERS(userID), |
| AppointmentTitle VARCHAR2(50), |
| AppointmentDesc VARCHAR2(100), |
| AppointmentDate DATE, |
| AppointmentTime TIMESTAMP, |
| AppointmentStatus VARCHAR2(50), |
| اونيوس سيتي تيڪنيڪل مليه,ScheduleDate DATE |
| ScheduleTime TIMESTAMP, |
| Venue VARCHAR2(50), |
| userID REFERENCES USERS(userID) |
|); |

CREATE TABLE NOTES(

NotesID VARCHAR2(10) PRIMARY KEY,

NotesDate DATE,

NotesTime TIMESTAMP,

NotesFile VARCHAR2(20),

NotesTitle VARCHAR2(50),

NotesContent LONG,

NotesView NUMBER,

SubjectID REFERENCES SUBJECT(SubjectID),

userID REFERENCES USERS(userID),

NotesStatus VARCHAR2(10)

);

1)

- اونيۇم,سيتي تيڪنيڪل مليسيا ملاك NotesVote
 - UNIVERSITI TEKNIKAL MALAYSIA MELAKA

CREATE TABLE NOTESVOTE(

NotesID REFERENCES Notes(NotesID),

VoteType VARCHAR2(50),

userID REFERENCES UserS(UserID),

PRIMARY KEY (NotesID , userID , votetype));

m) NotesComment

CREATE TABLE NOTESCOMMENT(

NOTEScommentDate DATE,

NOTEScommentTime TIMESTAMP,

NOTEScommentContent LONG,

NotesID REFERENCES NOTES(NotesID),

userID REFERENCES USERS(UserID),

NOTESSTATUS VARCHAR2(10),

PRIMARY KEY (NOTEScommentDate , NotesCommentTime , NotesID , userID)

);

n) Rating



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

o) Messages

CREATE TABLE MESSAGES(

messageID VARCHAR2(15) PRIMARY KEY,

toID REFERENCES USERS(userID),

messageDesc VARCHAR2(100),

messageDate DATE,

messageTime TIMESTAMP,

messageStatus VARCHAR2(15),

userID REFERENCES USERS(userID));

p) Follower

CREATE TABLE FOLLOWER(

userID REFERENCES USERS(userID),

followerID REFERENCES USERS(userID),

PRIMARY KEY (userID , followerID)

);

q) Notification

| CREATE TABLE NOTIFICATION |
|--|
| (userID references users(userID), noDate TIMESTAMP, |
| noType VARCHAR2(50), |
| اونيوم سيتي تيڪنيڪل (ferID VARCHAR2(50) |
| noRefer VARCHAR2(50), EKNIKAL MALAYSIA MELAKA |
| noStatus NUMBER(1), |
| PRIMARY KEY (userID , noDate)); |

APPENDIX B

a) User Sequence

CREATE SEQUENCE users_seq START WITH 1;

b) Question Sequence

CREATE SEQUENCE QUESTION_seq START WITH 1;

- c) Answer Sequence CREATE SEQUENCE ANSWER_seq START WITH 1; d) Class Sequence CREATE SEQUENCE CLASS_seq START WITH 1;
- f) Appointment Sequence

CREATE SEQUENCE APPOINTMENT_seq START WITH 1;

g) Notes Sequence

CREATE SEQUENCE NOTES_seq START WITH 1;

h) Rating Sequence

CREATE SEQUENCE RATING_seq START WITH 1;

i) Messages Sequence

CREATE SEQUENCE MESSAGES_seq START WITH 1;



APPENDIX C

a) Procedure Profile Detail

CREATE OR REPLACE PROCEDURE profiledetail

```
(uid IN VARCHAR2, p_name OUT VARCHAR2, p_type OUT VARCHAR2, p_follower OUT
NUMBER , p_appointment OUT NUMBER , p_answer OUT NUMBER , p_notes OUT NUMBER )
IS
BEGIN
       SELECT name, type
       INTO p_name , p_type
       from users
       where userid = uid;
       select count(*)
       into p_follower
       from follower
       where userID = uid ;
              UNIVERSITI
                               TEKNIKAL MALAYSIA MELAKA
       select count(*)
       into p_appointment
       from appointment
       where userID = uid
       AND AppointmentStatus = 'Complete';
       select count(*)
       into p_answer
       from answer
       where userID = uid
```

| | AND AnswerStatus = 'Yes'; |
|------|------------------------------|
| | |
| | select count(*) |
| | into p_notes |
| | from notes |
| | where userID = uid |
| | AND notesstatus != 'Delete'; |
| END; | |
| / | |
| | |

b) Procedure Subject Detail

| MALAYSIA L |
|---|
| CREATE OR REPLACE PROCEDURE subjectdetail |
| (sid IN VARCHAR2 , p_question OUT NUMBER , p_notes OUT NUMBER , p_comment OUT |
| NUMBER , p_VIEW OUT NUMBER) |
| IS |
| اونيومرسيتي تيڪنيڪل مليسيا ملاك |
| SELECT count(*) RSITI TEKNIKAL MALAYSIA MELAKA |
| INTO p_question |
| FROM question |
| WHERE subjectid = sid |
| AND questionstatus != 'Delete'; |
| |
| SELECT count(*) |
| INTO p_notes |
| FROM notes N |
| WHERE subjectid = sid |
| AND notesstatus != 'Delete'; |
| |

| | SELECT count(*) |
|-----------|---|
| | INTO p_comment |
| | FROM answercomment AC, answer A, question Q |
| | WHERE AC.answerid = A.answerid |
| | AND A.questionid = Q.questionid |
| | AND Q.subjectid = sid; |
| | |
| | select nvl(sum(questionview),0) |
| | INTO p_view |
| | FROM question |
| | WHERE subjectid = sid; |
| END; / | MALAYSIA MELTRA |

c) Procedure Question Detail

UNIVERSITI TEKNIKAL MALAYSIA MEL ٨

CREATE OR REPLACE PROCEDURE questiondetail

(qid IN VARCHAR2 ,p_uname OUT VARCHAR2, p_pic OUT VARCHAR2, p_view OUT

NUMBER, p_answer OUT NUMBER, p_comment OUT NUMBER, p_date OUT VARCHAR2, p_time

OUT VARCHAR2)

IS

BEGIN

SELECT to_char(questiondate , 'DD/MM/YYYY') , to_char(questiontime, 'HH24:MI')

INTO p_date , p_time

FROM question

where questionid = qid;

| | SELECT name, picture |
|------|---------------------------------|
| | INTO p_uname, p_pic |
| | FROM USERS U, question Q |
| | WHERE Q.userid = U.userid |
| | AND Q.questionid = qid; |
| | |
| | SELECT nvl(sum(questionview),0) |
| | INTO p_view |
| | FROM question |
| | WHERE questionid = qid; |
| | |
| | SELECT count(*) |
| | INTO p_answer |
| | FROM answer |
| | WHERE questionid = qid; |
| | |
| | SELECT count(*) |
| | اويور سيتي بيڪنيڪل مليسيا ملات |
| | FROM answercomment AC, answer A |
| | WHERE AC.answerid = A.answerid |
| | AND A.questionid = qid; |
| | |
| END; | |
| / | |
| | |



| | from answercomment |
|-----------|--|
| | where answerid = aid; |
| | select name, picture |
| | into pname, ppic |
| | from users U, answer A |
| | where U.userid = A.userid |
| | and A.answerid = aid; |
|) END; | SELECT to_char(answerdate , 'DD/MM/YYYY') , to_char(answertime, 'HH24:MI' |
| , | UNIVERSITI TERNIKAL MALATSIA MELAKA |
| / | |
| | |
| | |

e) Procedure Notes Detail


```
into pup
     from notesvote
     where notesid = nid
     and votetype = 'Up';
     SELECT count(*)
into vcountup
from notesvote
where notesid = nid
and userid = uid
and votetype = 'Up';
                    ALAYSI
SELECt count(*)
into vcountdown
from notesvote
where notesid = nid
and userid = uid
and votetype = 'Down';
IF vcountup = 1 THEN
                                  EKNIKAL MALAYSIA MELAKA
  pups := 'Yes';
  pups := 'No';
```

```
END IF;
```

ELSE

IF vcountdown = 1 THEN

pdowns := 'Yes';

ELSE

pdowns := 'No';

END IF;

END;

/



```
from class
        where classid = cid;
        SELECT count(*)
  into vcountup
  from classvote
  where classid = cid
  and userid = uid
  and votetype = 'Up';
  IF vcountup = 1 THEN
    pups := 'Yes';
  ELSE
    pups := 'No';
  END IF;
        select count(*)
        into vcount
        from attendance
        where classid = cid
                                     EKNIKAL MALAYSIA MELAKA
        and userid = uid;
        IF vcount = 1 THEN
                pattend := 'Yes';
        ELSE
                pattend := 'No';
        END IF;
END;
```

CREATE OR REPLACE PROCEDURE appointmentdetail

(appid IN VARCHAR2, userid IN VARCHAR2, tous OUT VARCHAR2, toname OUT VARCHAR2, topic OUT VARCHAR2, uname OUT VARCHAR2, upic OUT VARCHAR2, adate OUT VARCHAR2, atime OUT VARCHAR2, pdate OUT VARCHAR2, ptime OUT VARCHAR2, atitle OUT VARCHAR2, adesc OUT VARCHAR2, astatus OUT VARCHAR2, atype OUT VARCHAR2, avenue OUT VARCHAR2)

IS

vtoid VARCHAR2(15);

vuserid VARCHAR2(15);

vtemp VARCHAR2(15);

BEGIN

SELECT toid , userid INTO vtoid , vuserid FROM appointment WHERE appointmentid = appid; IF vuserid = userid THEN atype := 'right'; SELECT name , picture , username

INTO toname, topic, tous

FROM users

where userid = vtoid;

select name, picture

into uname, upic

from users

where userid = vuserid;

ELSE

atype := 'left';

SELECT name , picture , username

INTO toname, topic, tous

FROM users

where userid = vuserid;

select name, picture

into uname, upic

from users

where userid = vtoid;

END IF;

select scheduledate , scheduletime , venue into adate , atime , avenue from appointment where appointmentid = appid; SELECT to_char(appointmentdate , 'DD/MM/YYYY') , to_char(appointmenttime, 'HH24:MI') INTO pdate , ptime FROM appointment where appointmentid = appid; select appointmenttitle , appointmentdesc , appointmentstatus into atitle , adesc , astatus from appointment

where appointmentid = appid;

END;

/



```
IF vfromid = userid THEN
    ptype := 'left';
  ELSE
    ptype := 'right';
  END IF;
END;
i)
     Procedure Answer Detail
 create or replace PROCEDURE answerdetail
  (aid IN VARCHAR2, uid IN VARCHAR2, pup OUT NUMBER, pdown OUT
NUMBER, pcomment OUT NUMBER, pname OUT VARCHAR2, ppic OUT
VARCHAR2, pdate OUT VARCHAR2, ptime OUT VARCHAR2, pups OUT
                           EKNIKAL MALAYSIA MELAKA
VARCHAR2, pdowns OUT VARCHAR2)
IS
  vcountup NUMBER(5);
  vcountdown NUMBER(5);
BEGIN
  SELECT count(*)
  INTO pup
  FROM answervote
  WHERE votetype = 'Up'
```

AND answerid = aid;

SELECT count(*)

INTO pdown

FROM answervote

WHERE votetype = 'Down'

AND answerid = aid;

SELECT count(*)

into pcomment

from answercomment

where answerid = aid;

select name , picture into pname , ppic اوينون سيني نيڪنيڪل مليسيا ما from users U , answer A

where U.userid = A.userid

and A.answerid = aid;

SELECT to_char(answerdate , 'DD/MM/YYYY') , to_char(answertime, 'HH24:MI')

INTO pdate, ptime

FROM answer

where answerid = aid;

SELECT count(*)

```
into vcountup
  from answervote
  where answerid = aid
  and userid = uid
  and votetype = 'Up';
  SELECt count(*)
  into vcountdown
  from answervote
  where answerid = aid
                 MALAYSI,
  and userid = uid
  and votetype = 'Down';
  IF vcountup = 1 THEN
    pups := 'Yes';
                  ۵.
  ELSE
            UNIVERSITI TEKNIKAL MALAYSIA MELAKA
    pups := 'No';
  END IF;
  IF vcountdown = 1 THEN
    pdowns := 'Yes';
  ELSE
    pdowns := 'No';
 END IF;
END;
/
```



```
CREATE OR REPLACE PROCEDURE notificationdetail
      userid IN VARCHAR2, ptype IN VARCHAR2, prefer IN VARCHAR2, pdate IN
(
TIMESTAMP, pusername OUT VARCHAR2, pname OUT VARCHAR2, pmessage
OUT VARCHAR2, preferid OUT VARCHAR2, prefername OUT VARCHAR2,
pnotitime OUT VARCHAR2)
IS
BEGIN
      IF ptype = 'comment' THEN
            pmessage := ' commented on your class'
      ELS IF ptype = 'answer' THEN
            pmessage := ' answer your question'
      ELS IF ptype = 'reply' THEN
            pmessage := ' reply to your answer'
      ELS IF ptype = 'newclass' THEN
            pmessage := ' posted new class.'
                                                   SIA MELAKA
      ELS IF ptype = 'newquestion' THEN
            pmessage := ' posted new question.'
      ELS if ptype = 'newnotes' THEN
            pmessage := ' posted new notes.
      ELSE
END;
```

APPENDIX D

a) Trigger User ID

| create trigger trg_users_id |
|---|
| before insert on users |
| for each row |
| begin |
| select 'UID' to_char(users_seq.nextval,'FM0000') |
| into :new.userid |
| from dual; |
| end; |
| |
| |
| |
| alun |
| اونيۆم سيتي تيڪنيڪل مليسيا ملاك |

b) Trigger Question IDSITI TEKNIKAL MALAYSIA MELAKA

| create trigger trg_ANSWER_id |
|--|
| before insert on ANSWER |
| for each row |
| begin |
| select 'ANS' to_char(ANSWER_seq.nextval,'FM0000') |
| into :new.ANSWERid |
| from dual; |
| end; |
| MALAYSIA MELE |
| |
| اونيۆم سيتي تيڪنيڪل مليسيا ملاك |

d) Trigger Class ID RSITI TEKNIKAL MALAYSIA MELAKA

| create trigger trg_CLASS_id |
|---|
| before insert on CLASS |
| for each row |
| begin |
| select 'CLS' to_char(CLASS_seq.nextval,'FM0000') |
| into :new.CLASSid |
| from dual; |
| end;/ |
| |

| create trigger trg_APPOINTMENT_id |
|---|
| before insert on APPOINTMENT |
| for each row |
| begin |
| select 'APT' to_char(APPOINTMENT_seq.nextval,'FM0000') |
| into :new.APPOINTMENTid |
| from dual; |
| end; |
| MALAYSIA |
| |
| f) Trigger Notes ID |
| ويور سيني يكنيك ملي id مريو reate trigger trg_NOTES_id |
| before insert on NOTES |
| for each row |
| begin |
| select 'NTS' to_char(NOTES_seq.nextval,'FM0000') |
| into :new.NOTESid |
| from dual; |
| end; |
| / |
| |
| |

g) Trigger Rating ID

| create trigger trg_RATING_id |
|--|
| before insert on RATING |
| for each row |
| begin |
| select 'RTS' to_char(RATING_seq.nextval,'FM0000') |
| into :new.RATINGid |
| from dual; |
| end;/ |
| h) Trigger Message ID |
| before insert on MESSAGES |
| اونيۇىرسىتى تيكنىكل مليسيا ملاك for each row |
| begin UNIVERSITI TEKNIKAL MALAYSIA MELAKA |
| select 'MSG' to_char(MESSAGES_seq.nextval,'FM000000') |
| into :new.MESSAGEid |
| from dual; |
| end;/ |



| OPEN fcursor; | |
|---|--|
| LOOP | |
| FETCH fcursor | |
| INTO fid; | |
| EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; | |
| INSERT INTO notification VALUES (fid, sysdate, 'question', :new.userid, | |
| :new.questionid, 0); | |
| | |
| | |
| END LOOP; | |
| CLOSE fcursor; | |
| END; | |
| | |
| | |
| | |
| k) Trigger Answer Notification | |
| CREATE OR REPLACE TRIGGER answernoti | |
| | |
| AFTER INSERTON answer MIRAL MALATSIA MELARA | |
| FOR EACH ROW | |
| DECLARE | |
| qid VARCHAR2(10); | |
| fid VARCHAR2(10); | |
| questionuserid VARCHAR2(10); | |
| CURSOR fcursor IS | |
| SELECT DISTINCT followerid | |
| FROM follower | |
| | |

| where userid = :new.userid: |
|--|
| BEGIN |
| |
| SELECT userid |
| INTO questionuserid |
| FROM question |
| where questionid = :new.questionid; |
| |
| INSERT INTO notification VALUES (questionuserid , sysdate , 'answer', |
| :new.userid, :new.questionid, 0); |
| |
| OPEN fcursor; |
| LOOP |
| اونيومرسيتي تيڪنيڪل مليFETCH foursor |
| INTO fid; SITI TEKNIKAL MALAYSIA MELAKA |
| EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; |
| |
| IF fid != questionuserid THEN |
| INSERT INTO notification VALUES (fid, sysdate, 'answer', :new.userid, |
| :new.questionid, 0); |
| END IF; |
| END LOOP; |
| CLOSE fcursor; |
| END;/ |

CREATE OR REPLACE TRIGGER answercommentnoti

AFTER INSERT ON answercomment

FOR EACH ROW

DECLARE

qid VARCHAR2(10);

fid VARCHAR2(10);

questionuserid VARCHAR2(10);

answeruserid VARCHAR2(10);

vquestionid VARCHAR2(10);

vanswerid VARCHAR2(10);

CURSOR fcursor IS

SELECT DISTINCT followerid

FROM follower where userid = :new.userid;

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BEGIN

select userid, questionid

INTO answeruserid, vquestionid

from answer

where answerid = :new.answerid;

select userid

into questionuserid

from question

where questionid = vquestionid;

| INSERT INTO notification VALUES (questionuserid , sysdate , 'answercomment' |
|--|
| , :new.userid , :new.answerid , 0); |
| IF questionuserid != answeruserid THEN |
| INSERT INTO notification VALUES (answeruserid , sysdate , |
| 'answercomment', :new.userid, :new.answerid, 0); |
| END IF; |
| OPEN fcursor; |
| LOOP |
| FETCH fcursor INTO fid; |
| EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; |
| اونيوم سيتي تيكنيكل مليسيا ملاك |
| IF fid != questionuserid AND fid != answeruserid THEN |
| INSERT INTO notification VALUES (fid, sysdate, 'answercomment', |
| :new.userid, :new.answerid, 0); |
| END IF; |
| END LOOP; |
| CLOSE fcursor; |
| END; |
| / |
| |
| |



| ΙΟΟΡ | |
|---|--|
| | |
| FETCH fcursor | |
| | |
| | |
| EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; | |
| | |
| | |
| IF fid != notesuserid THEN | |
| INSERT INTO notification VALUES (fid_systate_'notescomment' | |
| insekt into notification values (ind, systate, notiseoniment, | |
| :new.userid, :new.notesid, 0); | |
| END IF: | |
| | |
| END LOOP; | |
| CLOSE fcursor; | |
| | |
| | |
| | |
| | |
| END; | |
| اونىۋەرسىتى تىكنىكل ملىستا ملاك 💦 | |
| | |
| UNIVERSITI TEKNIKAL MALAYSIA MELAKA | |



| OPEN fcursor; |
|--|
| LOOP |
| FETCH fcursor |
| INTO fid; |
| EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; |
| IF fid != answeruserid THEN |
| INSERT INTO notification VALUES (fid, sysdate, 'likeanswer', |

152

| new.user El | id , vquestionid , 0); ND IF; |
|----------------|-------------------------------------|
| E | VD LOOP; |
| Cl | LOSE fcursor; |
| END; | اونيوم سيتي تيكنيكل مليسيا ملاك |
| | UNIVERSITI TEKNIKAL MALAYSIA MELAKA |



| IOOP |
|---|
| |
| FETCH fcursor |
| |
| INTO fid; |
| EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; |
| |
| |
| IF fid != notesuserid THEN |
| |
| INSERT INTO notification VALUES (fid, sysdate, 'likenotes', |
| :new.userid, :new.notesid, 0); |
| END IF; |
| END LOOP; |
| MALAYSIA |
| CLOSE feursor; |
| |
| |
| |
| END: |
| |
| اويىۋىرسىتى ئىكتىكل مايسىيا ملاك |
| |
| UNIVERSITI TEKNIKAL MALAYSIA MELAKA |



| LOOP |
|---|
| FETCH fcursor |
| INTO fid; |
| EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; |
| |
| IF fid != classuserid THEN |
| INSERT INTO notification VALUES (fid, sysdate, 'likeclass', |
| :new.userid, :new.classid, 0); |
| END IF; |
| END LOOP; |
| CLOSE fcursor; |
| |
| |
| END; |
| اونيۈم سيتي تيڪنيڪل مليسيا ملاك ، |
| UNIVERSITI TEKNIKAL MALAYSIA MELAKA |

q) Trigger Class Comment Notification

CREATE OR REPLACE TRIGGER classcommentnoti AFTER INSERT ON classcomment FOR EACH ROW DECLARE qid VARCHAR2(10); fid VARCHAR2(10);



| INSERT INTO notification VALUES (fid, sysdate, 'classcomment', |
|--|
| :new.userid, :new.classid, 0); |
| END IF; |
| END LOOP; |
| CLOSE fcursor; |
| |
| |
| END; |
| |
| ALAYSIA |
| and the |

| r) Trigger Class Attendance Notification |
|---|
| CREATE OR REPLACE TRIGGER classattendnoti |
| AFTER INSERT ON attendance |
| اونيوس سيتي تيڪنيڪل مليسيا مارڪ |
| qid VARCHAR2(10); |
| fid VARCHAR2(10); |
| classuserid VARCHAR2(10); |
| CURSOR fcursor IS |
| SELECT DISTINCT followerid |
| FROM follower |
| where userid = :new.userid; |
| |
| BEGIN |

| select userid INTO classuserid from class where classid = :new.classid; |
|---|
| INSERT INTO notification VALUES (classuserid , sysdate , 'classattend' , :new.userid , :new.classid , 0); |
| OPEN fcursor; LOOP FETCH fcursor INTO fid; EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; UNIVERSITI TEKNIKAL MALAYSIA MELAKA IF fid != classuserid THEN INSERT INTO notification VALUES (fid_systate_'classattend' |
| :new.userid, :new.classid, 0); |
| END IF; |
| END LOOP; |
| CLOSE fcursor; |
| |
| END;/ |

| CREATE OR REPLACE TRIGGER meetupnoti |
|--|
| AFTER INSERT ON appointment |
| FOR EACH ROW |
| DECLARE |
| |
| BEGIN |
| |
| |
| INSERT INTO notification VALUES (:new.toid , sysdate , 'meetup' , :new.userid , |
| 'myappointment', 0); |
| |
| |
| END; |
| |
| |
| UNIVERSITI TEKNIKAL MALAYSIA MELAKA |

t) Trigger Class Notification

CREATE OR REPLACE TRIGGER classnoti

AFTER INSERT ON class

FOR EACH ROW

DECLARE

qid VARCHAR2(10);

| fid VARCHAR2(10); |
|--|
| CURSOR fcursor IS |
| SELECT DISTINCT followerid |
| FROM follower |
| where userid = :new.userid; |
| BEGIN |
| |
| |
| OPEN fcursor; |
| LOOP |
| FETCH fcursor |
| |
| |
| EXIT WHEN fcursor%NOTFOUND OR fcursor%NOTFOUND IS NULL; |
| INSERT INTO notification VALUES (fid, sysdate, 'class', :new.userid, |
| اونيوس سيني تيڪنيڪل مليسيا ملازر (new.classid , 0; 0 , 0 |
| UNIVERSITI TEKNIKAL MALAYSIA MELAKA |
| |
| END LOOP; |
| CLOSE fcursor; |
| END; |
| / |
| |
| |