# HOSPITAL JASIN PATIENT MANAGEMENT

NURUL LYANA BT ZAID

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**BORANG PENGESAHAN STATUS TESIS**

JUDUL: HOSPITAL JASIN PATIENT MANAGEMENT (HJPM)

SESI PENGAJIAN: 2011 /2012

Saya NURUL LYANA BT ZAID
(HURUF BESAR)

mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan (/)

| | |
|---|---|
| _____ SULIT | (Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972) |
| _____ TERHAD | (Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan) |
| /_____ TIDAK TERHAD | |

(TANDATANGAN PENULIS)

Alamat tetap: C-3-02

Quaters Hospital Jasin,

77000 Jasin Melaka.

Tarikh: 11/07/2011

(TANDATANGAN PENYELIA)

Sek Yong Wee

Nama Penyelia

Tarikh: 11/7/2011

CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)
** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

# HOSPITAL JASIN PATIENT MANAGEMENT

NURUL LYANA BT ZAID

This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2011

## DEDICATION

To my beloved family, I love you all. To my supervisor, thank you so much for the assist and help.

# DECLARATION

I hereby declare that this project entitled

**HOSPITAL JASIN PATIENT MANAGEMENT**

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : _____ Date : 11/7/2011
(NURUL LIYANA BT ZAID)

SUPERVISOR : _____ Date : 11/7/2011
(MR SEK YONG WEE)

## ACKNOWLEDGEMENTS

Alhamdullillah, firstly I would like to thank to Allah because without his blessing I will not finished my PSM II successfully. I am also would like to thank to my supervisor, Mr. Sek Yong Wee for his encouragement guidance, advices, critics, help and many more. Without his support, my PSM II documentation would not have been the same as presented here.

As for my Academic Advisor, Dr. Sabrina Ahmad, i want to thanks for all her effort, caring and advises she has gave to me. She has done his duty very well and take a good care of me from the beginning until now. May Allah bless her.

I am also very thankful and i want to give my special appreciation to Dr. Mohd Khanapi Abd. Ghani for supplying many relevant materials and helps in giving valuable information that used in my documentation. It was fully helpful. My sincere appreciation also extends to all my colleagues especially Siti NorFaeza Pajar, Ahmad Zaki Ibrahim and others who provided assistance during finishing this project. Their opinions, tips and helps are highly appreciated. Not forgotten to my family members especially my father, Zaid bin Md Jadi, my mother, Rohana bt Abu and my all friends for the supports and motivations.

## ABSTRACT

Nowadays, computer system is part of our life. Most of us depend on our computer to solved problem and complete a task. It also helps us to communicate with others around in the world. Computerized system becomes very familiar today. This is because it very helpful to help human perform task easier and become efficiency. Time is gold, computerized system definitely fetish our time. Hospital Jasin Patient Management (HJPM) developed to replace the current system which is manually. With this new system make people job become easier and faster. Especially at hospital, it is synonymous as a place to save human life. HJPM consist six main modules, there are login for staff, doctor and pharmacist, patient registration by a staff, retrieve patient information by a staff and doctor, added prescription by doctor, and pharmacist able to receive latest patient information and then print the information. This system is very suitable for patient management. It also can be access anytime since it web based system. This system use SDLC as a methodology during its development. The tools that use to develop this system are Adobe Dreamweaver, WampServer, Microsoft Visio, Microsoft Word and laptop. Programming language is PHP, CSS, JavaScript and SQL Query.

# ABSTRAK

Pada masa kini, komputer menjadi suatu keperluan dalam kehidupan manusia. Kebanyakkan dari kita menggunakan komputer untuk melakukan tugas seharian. Ianya juga dapat membantu manusia untuk berkomunikasi diantara satu sama lain. Kebanyakkan manusia telah biasa dengan kewujudan dan penggunaan sistem komputer ini. Mereka menggunakannya kerana ia banyak membantu manusia dan sekaligus menyenangkan tugas manusia. Masa itu emas, sistem komputer ini banyak membantu dan menjimatkan masa. Hospital Jasin Patient Management (HJPM) telah dibangunkan untuk mengantikan sistem yang sedia ada iaitu manual. Dengan adanya sistem ini, tugas manusia menjadi lebih mudah dan cepat. Lebih-lebih lagi di hospital, ianya amat sinonim bahawa hospital menjadi tempat untuk menyelamatkan nyawa manusia. HJPM mempunyai 6 modul penting iaitu kata masuk untuk pekerja, doktor, dan ahli farmasi, pendaftaran pesakit, mencari maklumat pesakit, memberi preskripsi oleh doktor, dan ahli farmasi menerima maklumat lengkap pesakit dan mencetaknya. Sistem ini amat bersesuaian untuk mengendalikan pesakit di hospital. Ianya juga boleh diakses dimana sahaja kerana ianya sistem web. Sistem ini dibangunkan dengan menggunakan kaedah SDLC. Alat-alat yang digunakan adalah Adobe Dreamweaver, WampServer, Microsoft Visio, Microsoft Word dan laptop. Pengaturcaraan yang digunakan ialah PHP, CSS, JavaScript dan SQL Query.

# TABLE OF CONTENTS


| CHAPTER | SUBJECT | | PAGE |
|---|---|---|---|
| | **DECLARATION** | | **i** |
| | **DEDICATION** | | **ii** |
| | **ACKNOWLEDGEMENTS** | | **iii** |
| | **ABSTRACT** | | **iv** |
| | **ABSTRAK** | | **v** |
| | **TABLE OF CONTENTS** | | **vi** |
| | **LIST OF TABLES** | | **x** |
| | **LIST OF FIGURES** | | **xii** |
| | **LIST OF ABBREVIATIONS** | | **xiii** |
| | **LIST OF ATTACHMENTS** | | **xiv** |
| **CHAPTER I** | **INTRODUCTION** | | |
| | 1.1 | Project Background | 1 |
| | 1.2 | Problem Statements | 2 |
| | 1.3 | Objectives | 3 |
| | 1.4 | Scopes | 4 |
| | 1.5 | Project Significance | 6 |
| | 1.6 | Expected Output | 6 |
| | 1.7 | Conclusion | 6 |
| **CHAPTER II** | **LITERATURE REVIEW AND PROJECT METHODOLOGY** | | |
| | 2.1 | Introduction | 7 |
| | 2.2 | Facts and Findings | 8 |

| | | | |
|---|---|---|---|
| | 2.2.1 | Domain | 8 |
| | 2.2.2 | Existing System | 8 |
| 2.3 | Project Methodology | | 12 |
| 2.4 | Project Requirements | | 14 |
| 2.5 | Project Schedules and Milestones | | 15 |
| 2.6 | Conclusion | | 18 |
| **CHAPTER III** | **ANALYSIS** | | |
| 3.1 | Introduction | | 19 |
| 3.2 | Problem Analysis | | 20 |
| | 3.2.1 | Current System Analysis | 20 |
| | 3.2.2 | Detailed Problem Statement | 21 |
| 3.3 | Requirement Analysis | | 30 |
| | 3.3.1 | Data Requirements | 30 |
| | 3.3.2 | Functional Requirements | 31 |
| | 3.3.3 | Non-functional Requirements | 33 |
| 3.4 | Conclusion | | 36 |
| **CHAPTER IV** | **DESIGN** | | |
| 4.1 | Introduction | | 37 |
| 4.2 | High-Level Design | | 38 |
| | 4.2.1 | System Architecture | 38 |
| | 4.2.2 | User Interface Design | 41 |
| | 4.2.2.1 | Navigation Design | 41 |
| | 4.2.2.2 | Input Design | 43 |
| | 4.2.2.3 | Output Design | 45 |
| | 4.2.3 | Database Design | 46 |
| | 4.2.3.1 | Conceptual and Logical Database Design | 46 |
| | 4.2.3.2 | Data Dictionary | 50 |
| 4.3 | Conclusion | | 55 |

**CHAPTER V IMPLEMENTATION**

5.1 Introduction 56
5.2 Software Development Environment setup 57
5.3 Software Configuration Management 59
5.3.1 Configuration environment setup 59
5.3.2 Version Control Procedure 67
5.4 Implementation Status 70
5.5 Human Interface Design 71
5.6 Conclusions 74

**CHAPTER VI TESTING**

6.1 Introduction 75
6.2 Test Plan 76
6.2.1 Test Organization 76
6.2.2 Test Environment 76
6.2.3 Test Schedule 77
6.3 Test Strategy 78
6.3.1 Classes of test 78
6.4 Test Design 80
6.4.1 Test Description 81
6.4.2 Test Data 83
6.5 Test Result and Analysis 84
6.6 Conclusion 91

**CHAPTER VII PROJECT CONCLUSION**

7.1 Observation of Weakness and Strength 92
7.2 Proposition for Improvement 94
7.3 Conclusion 95

**REFERENCES** 96

**ATTACHMENTS** 97

# LIST OF TABLES


| TABLE | TITLE | PAGE |
|---|---|---|
| 2.1 | Software Requirement | 14 |
| 2.2 | Milestone for Projek Sarjana Muda | 16 |
| 3.1 | Actors of HJPM | 24 |
| 3.2 | Functional Requirement | 31 |
| 3.3 | Non-Functional Requirement (i) | 33 |
| 3.4 | Non-Functional Requirement (ii) | 34 |
| 3.5 | Non-Functional Requirement (iii) | 34 |
| 3.6 | Non-Functional Requirement (iv) | 35 |
| 3.7 | Non-Functional Requirement (v) | 35 |
| 4.1 | Table Patient_Record | 43 |
| 4.2 | Table Doctor | 43 |
| 4.3 | Table Pharmacist | 44 |
| 4.4 | Table Staff | 44 |
| 4.5 | Output Design System | 45 |
| 4.6 | Data Dictionary for data_patient table | 51 |
| 4.7 | Data Dictionary for login_doctor table | 52 |
| 4.8 | Data Dictionary for login_pharmacist table | 52 |
| 4.9 | Software Database Design | 54 |
| 5.1 | Client, Server and Hardware Requirement | 59 |
| 5.2 | Version1.0 | 68 |
| 5.3 | Version2.0 | 69 |
| 5.4 | Implementation Status | 70 |
| 6.1 | Test Schedule | 78 |
| 6.2 | Test Description for Staff Module | 81 |
| 6.3 | Test Description for Doctor Module | 81 |
| 6.4 | Test Description for Pharmacist Module | 82 |

| | | |
|---|---|---|
| 6.5 | HJPM Interface Unit Testing | 82 |
| 6.6 | User Acceptance and Unit Testing | 83 |
| 6.7 | Module 1 Test Case Result | 85 |
| 6.8 | Module 2 Test Case Result | 86 |
| 6.9 | Module 3 Test Case Result | 87 |
| 6.10 | Module 4 Test Case Result | 88 |
| 6.11 | Module 5 Test Case Result | 89 |
| 6.12 | Module 2 Test Case Result | 90 |

# LIST OF FIGURES


| FIGURE | TITLE | PAGE |
|---|---|---|
| 2.1 | The Interface of Smart Clinic System (SCS) | 9 |
| 2.2 | Hospital Management System (HMS) | 10 |
| 3.1 | Previous Use Case Diagram | 24 |
| 3.2 | Propose Use Case Diagram | 25 |
| 3.3 | Activity Diagram between Staff, Doctor, Pharmacist | 26 |
| 3.4 | Sequence Diagram for Staff Operation | 27 |
| 3.5 | Sequence Diagram for Doctor Operation | 28 |
| 3.6 | Sequence Diagram for Pharmacist Operation | 29 |
| 4.1 | HJPM System Architecture | 39 |
| 4.2 | Navigation Design for HJPM | 42 |
| 4.3 | ERD for HJPM | 48 |
| 5.1 | Software Development Environment | 58 |
| 5.2 | The Dynamic code is represented in Design View | 61 |
| 5.3 | The PHP code is processed by the web server | 62 |
| 5.4 | The phpMyAdmin main screen | 62 |
| 5.5 | Limit the MySQL user account to a specific database | 64 |
| 5.6 | User Privileges for a web application | 65 |
| 5.7 | The data from the database is displayed in Live View | 67 |
| 6.1 | Login Fail Test | 84 |
| 6.2 | Login Successfully Test | 84 |

## LIST OF ABBREVIATIONS

| | | |
|---|---|---|
| HJPM | - | Hospital Jasin Patient Management |
| PHP | - | Pre Hypertext Processor |
| ICT | - | Information and Communication Technology |
| HTML | - | HyperText Markup Language |
| CSS | - | Cascading Style Sheet |
| GUI | - | Graphical User Interface |
| SSADM | - | Structured Systems Analysis and Design Method |
| SDLC | - | Software Development Life Cycle |
| DBLC | - | Database Life Cycle |
| LAN | - | Local Area Network |
| ERD | - | Entity Relationship Diagram |
| HLD | - | High Level Design |
| SQL | - | Structured Query Language |

# LIST OF ATTACHMENTS


| ATTACHMENTS | TITLE | PAGE |
|---|---|---|
| 1.1 | Gantt Chart | 98 |
| 1.2 | Software Requirement Specification | 100 |
| 1.3 | Vision and Scope | 131 |
| 1.4 | Business Rules | 140 |
| 1.5 | User's Manual | 143 |

# CHAPTER I

# INTRODUCTION

## 1.1 Project Background

Recently, Hospital Jasin Melaka facing problem to manage their patient record. Hospital Jasin Patient Management (HJPM) is a computerize system invented to replace the current system. In addition, the current system is quite tedious and time consume. Failure to manage patient will made their flow become unsystematically.

Hospital Jasin Patient Management (HJPM) system is to manage the patient record systematically. With this system staff can manage patient more efficient and can retrieve old record easily.

Hospital Jasin Patient Management (HJPM) also developed for the doctor. With this system he or she can give patient prescription directly to the pharmacy. Then, all the prescription can be made faster. Previously, patient needs to bring the doctor prescription to the doctor. Then the pharmacist needs to provide the medicine. With the new system, all the management become systematic.

## 1.2 Problem Statements

Staff faced difficulties to retrieve patient record and only depend to the piece of paper also known as patient record card. Sometimes, the important record is missing. The current system is not secure because anybody can take the record card. This is not efficient, because as a doctor he or she must keep the patient personal. Through this new system, all the patient management can be arranged systematically, keep the record wisely and retrieve the record easily.

### 1.2.1 Paper-based application

Most of the documentation related about patient record are being made and applied using paper based (including printing version). Patients have come to hospital for treatment. Registration applied in a piece of paper. Sometimes, one patient comes few times. Patient record may hard to seek since there are many patients in a day. This traditional method is very much looks as want-to-be system technology to record the patient information for future references. Paper based application methods disallow the information from being updated and managed easily.

### 1.2.2 Patient treatment process

A patient will be treated by a doctor. After treatment doctor will record patient prescription for further references, especially for pharmacist. They will provide list of medicine based on doctor prescription. Usually, a pharmacist need time to seek the right medicine. For current system, the prescription will be bringing

by the patient and waiting for pharmacist to provide medicine. This is not effective because sometimes the record missing or messy.

### 1.2.3 Consume time

For manually system, registration will be done by using pen and paper. Staffs needs to fill up the form and then pass to the doctor. This method definitely consume a lot of time.

## 1.3 Objective

The objective of the Hospital Jasin Patient Management System (HJPM) listed as below:

### 1.3.1 To create a good information system

The usage of this system will be ensuring that every user levels provided with comprehensive information, depending on the user access level. Every user level will support the system by giving related information and responsive. The information also can be accessed via online using on any web browser platform.

### 1.3.2 Computerized record management

With the usage of this system, unnecessary usage of paper resource can be reduced. All the information can be stored on centralized database. Every user level can gain and access the information through the system. By computerizing record management, Hospital Jasin organization can also enhance their management in record keeping, where data can be reused for the future review.

## 1.4 Scope

Scope describes the limitation or boundaries for Hospital Jasin Patient Management System. The scope of the study for Hospital Jasin Patient Management System consists of data, functionality and target users. This system built for doctor, staff and pharmacist. All users have own responsibility. Staffs need to register patient, doctors need to add patient prescription after treatment. Then, the pharmacist will can receive all patient record.

### 1.4.1 Data

There are various types of data in this system which can be separate by user level. Staff will conduct the registration process. Doctor will retrieve patient information and added a related data. Pharmacist will receive the data in ascending order and provide medicine as soon as possible.

### 1.4.2 Functionality

#### 1.4.2.1 User friendly

The website content will be built with simply-looks but in corporate manner. English language will be mainly use as it will help user from any level to understand the system concept.

#### 1.4.2.2 Security

The website will be built with security with access level to hide private data and to make the system being confidential and secure to use.

### 1.4.3 Target User

The target user for this system can be divided into three categories:

- Staff
  Staff must login to the system
  Staff will conduct the registration process.

- Doctor
  Doctor must login to the system.
  Doctor will add patient prescription after treatment.

- Pharmacist
  Pharmacist must login into the system.
  Pharmacist will accept patient record.
  Pharmacist can print patient record.

## 1.5 Project Significance

This project purposely developed to establish a computerized system in Hospital Jasin. With current system, the process became unsystematically. With this new system, the process to manage patient become faster, systematic and secure.

## 1.6 Expected Output

The patient management will become systematic, faster, and secure. User can register patient into system where can be retrieve by IC number. This is because the IC number acts as unique ID. After the treatment, doctor can add the prescription. Then, pharmacist will receive the record in ascending order to avoid confusion.

## 1.7 Conclusions

This chapter has introduced the project background, problem statement, objective, scope, project significance and expected output from this project. It purposely to clarify the background for the project. Chapter II consists of literature reviews, fact and findings, project methodology and project requirement.

# CHAPTER II

# LITERATURE REVIEW AND PROJECT METHODOLOGY

## 2.1 Introduction

The objective of the literature review is to provide a general description of development of Hospital Jasin Patient Management System (HJPM) and to briefly outline the domain, fact finding, related existing system and modules needed in the development. All information was gathered literally and empirically to increase the understanding of user requirement.

The first section details the domain of a HJPM. The second provides an overview of the related existing system as the references of HJPM. The third section details the techniques used in this system. Next section describes the project methodology used in this system, while the project requirement will define needed software and hardware. This chapter also will provide the project schedule and milestones. Finally, the conclusion at the end of this chapter will explain the significance of each section.