BORANG PENGESAHAN STATUS TESIS

JUDUL: KEY AND LOCK SYSTEM FOR MARAK STRATEGI SDN BHD

SESI PENGAJIAN: 2007/2008

Saya MUHAMMAD KHAIRI BIN AMAIRUDDIN

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

1. Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat
salinan untuk 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 berdjarah
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: NO 35 JLN MELATI 6
TAMAN MELATI, 53100 SETAPAK
KUALA LUMPUR.

Tarih: 25/06/08

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

(TANDATANGAN PENYELIA)

PUAN AZLIANOR BINTI
ABDUL AZIZ

Tarih: 25/6/2008

© Universiti Teknikal Malaysia Melaka
KEY AND LOCK SYSTEM FOR MARAK STRATEGI SDN BHD

MUHAMMAD KHAIRI BIN AMAIRUDDIN

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

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2008
DECLARATION

I hereby declare that this project report entitled

KEY AND LOCK SYSTEM FOR MARAK STRATEGI SDN BHD

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

STUDENT : ___________________________ Date : 25/6/08
(MUHAMMAD KHAIRI BIN AMAIRUDDIN)

SUPERVISOR : ___________________________ Date : 25/6/2008
(PUAN AZLIANOR BT ABDUL AZIZ)
DEDICATION

Dedicated to my beloved parents,
HJ. Amairuddin Bin. Zainoon and Jamilah Binti Mohammad

To lectures and supervisor, Puan Azlianaor Binti Abdul Aziz at Universiti Teknikal
Malaysia Melaka, UTeM

Last but not least to all my beloved friends that gave me motivation, encouraged,
inpired, and guided me.
ACKNOWLEDGEMENTS

Firstly, it is the responsibility for me to express my greatest graceful to almighty Allah subhanauwataa’la because of his honors and blesses to complete my Projek Sarjana Muda (PSM). It is also give me a spirit to push me to do my best effort to finishing the documentation.

For my beloved parent thank you for your responsible to give me the advice and be more patient. I give you all the best that I can do in this PSM. You are the best parent that there is no replacing by the other.

Special thanks go to Puan Azlianor Bt Abdul Aziz because of your guidance and patient to me to complete the PSM. There are a lot of helping from Puan Azlianor Bt Abdul Aziz especially in the developing the Key and Lock System application for my final project.

Beside of all that I am also thanks to Encik Khaidzir Bin Amairuddin, managing director of Marak Strategi Sdn Bhd who has give the important information about the flow system from beginning and finish. The information is the important requirement to make the system application more reliable and useful.

May Allah subhanahuwataa’la bless all of us.
ABSTRACT

Key and Lock System application is to help Marak Strategi SDN BHD to manage inventory in the systematic ways. The main objective of the system is to help the company in managing their business process in all aspects. Because this company is a new company, it uses manual form for their business process. The current system that is used by the company cannot handle arrange big amount of data efficiently. The Key & Lock system is developed objectively to overcome that problem and also to improve the efficiency and reliability in managing the business process. Basically this system use staff to handle product. Staff will selected suitable product for customer. If customer satisfied, it will proceed with the order. The selector decisions check the description product and compare with the price. The system also improving in secure level which is multi level user can retrieve some page. Restrict page is using for admin page. This system also provide with some maintenance, which is backup and recovery database. In admin page area, Key and Lock System also created form staff maintenance. Where company can easy store information about staff or hired new staff. This system also provide with page leave which are staff can apply leave for emergency case. However this system needs some improvement in future to make it more efficient.
ABSTRAK

# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>SUBJECT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DECLARATION</td>
<td>i</td>
</tr>
<tr>
<td></td>
<td>DEDICATION</td>
<td>ii</td>
</tr>
<tr>
<td></td>
<td>ACKNOWLEDGMENTS</td>
<td>iii</td>
</tr>
<tr>
<td></td>
<td>ABSTRACT</td>
<td>iv</td>
</tr>
<tr>
<td></td>
<td>ABSTRAK</td>
<td>v</td>
</tr>
<tr>
<td></td>
<td>TABLE OF CONTENTS</td>
<td>vi</td>
</tr>
<tr>
<td></td>
<td>LIST OF TABLES</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>LIST OF FIGURES</td>
<td>xii</td>
</tr>
</tbody>
</table>

## CHAPTER I  
INTRODUCTION

1.1 Project Background  
1.2 Problem Statements  
1.3 Objective  
1.4 Scope  
1.5 Project Significance  
1.6 Expected Output  
1.7 Conclusion  

## CHAPTER II  
LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction  

© Universiti Teknikal Malaysia Melaka
CHAPTER III ANALYSIS

3.1 Introduction 27
3.2 Problem analysis 27
3.3 Requirement analysis 30
  3.3.1 Data Requirement 30
  3.3.2 Functional Requirements 33
  3.3.3 Non-Functional Requirement 39
  3.3.4 Other Requirement 40
3.4 Conclusion 43

CHAPTER IV DESIGN

4.1 Introduction 44
4.2 High-Level Design 44
  4.2.1 System Architecture 45
  4.2.2 User Interface Design 46
    4.2.2.1 Navigation Design 56
    4.2.2.2 Input Design 57
    4.2.2.3 Output Design 59
  4.2.3 Conceptual and Logical database design 60
4.3 Detail Design 68
CHAPTER V  IMPLEMENTATION

5.1 Introduction 79
5.2 Software Development Environment 80
   Setup
5.3 Database Implementation 84
5.4 Software Configuration Management 86
   5.4.1 Configuration Environment 86
      Setup
   5.4.2 Version Control Procedure 87
5.5 Implementation Status 89
5.6 Conclusion 89

CHAPTER VI  TESTING

6.1 Introduction 90
6.2 Test Plan 91
   6.2.1 Test Organization 91
   6.2.2 Test Environment 92
   6.2.3 Test Schedule 94
6.3 Test Strategy 95
   6.3.1 classes of tests 96
6.4 Test Design 97
   6.4.1 Test Description 98
   6.4.2 Test Data 102
6.5 Test Result and Analysis 109
6.6 Conclusion 114

CHAPTER VII  PROJECT CONCLUSION

7.1 Observation on Weakness and Strength 115
7.2 Proposition for improvement 116
7.3 Contribution 116
7.4 Conclusion 117

REFERENCES 118
BIBLIOGRAPHY 119
APPENDICES 120
<table>
<thead>
<tr>
<th>TABLE</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>List of hardware and requirement</td>
<td>25</td>
</tr>
<tr>
<td>2.2</td>
<td>Project schedule</td>
<td>26</td>
</tr>
<tr>
<td>3.1</td>
<td>Data Requirement for Key &amp; Lock System</td>
<td>30</td>
</tr>
<tr>
<td>3.2</td>
<td>Software Requirement for Key &amp; Lock System application</td>
<td>40</td>
</tr>
<tr>
<td>3.3</td>
<td>Hardware Specification</td>
<td>42</td>
</tr>
<tr>
<td>3.4</td>
<td>Network Requirement</td>
<td>43</td>
</tr>
<tr>
<td>4.1</td>
<td>3-Tier System Architecture</td>
<td>45</td>
</tr>
<tr>
<td>4.2</td>
<td>Input design</td>
<td>57</td>
</tr>
<tr>
<td>4.3</td>
<td>Output Table</td>
<td>59</td>
</tr>
<tr>
<td>4.4</td>
<td>Data Dictionary for table SALES</td>
<td>62</td>
</tr>
<tr>
<td>4.5</td>
<td>Data Dictionary for table PRODUCT</td>
<td>62</td>
</tr>
<tr>
<td>4.6</td>
<td>Data Dictionary for table STAFF</td>
<td>63</td>
</tr>
<tr>
<td>4.7</td>
<td>Data Dictionary for table CUSTOMER</td>
<td>63</td>
</tr>
<tr>
<td>4.8</td>
<td>Data Dictionary for table PAYMENT</td>
<td>64</td>
</tr>
<tr>
<td>4.9</td>
<td>Data Dictionary for table REPORT</td>
<td>65</td>
</tr>
<tr>
<td>4.10</td>
<td>Data Dictionary for table ORDER</td>
<td>65</td>
</tr>
<tr>
<td>4.11</td>
<td>Data Dictionary for table LEAVE</td>
<td>66</td>
</tr>
<tr>
<td>4.12</td>
<td>DBMS for MySQL Database</td>
<td>67</td>
</tr>
<tr>
<td>5.1</td>
<td>Version release list for Key and Lock System</td>
<td>88</td>
</tr>
<tr>
<td>5.2</td>
<td>Implementation Status Schedule</td>
<td>89</td>
</tr>
<tr>
<td>6.1</td>
<td>User and Task for the Testing Phase</td>
<td>91</td>
</tr>
</tbody>
</table>
6.2 Environment Setup Specification
6.3 Key and Lock System application Environment
6.4 System Software Environment
6.5 System Hardware Environment
6.6 Test Schedule for Key and Lock System Testing
6.7 Test Specification for white box and black box
6.8 Authentication module testing
6.9 Staff module testing
6.10 Product module testing
6.11 Order module testing
6.12 Payment module testing
6.13 Payment module testing
6.14 Selling module testing
6.15 Report module testing
6.16 Staff module test data
6.17 Authentication module Test Data
6.18 Product module Test Data
6.19 Selling module Test Data
6.20 Order module Test Data
6.21 Payment module Test Data
6.22 Leave module Test Data
6.23 Report module Test Data
6.24 Test Data for System Usability
6.25 Test Result and Analysis for Authentication
6.26 Test Result and Analysis for Staff Module
6.27 Test Result and Analysis for Product module
6.28 Test Result and Analysis for Order module
6.29 Test Result and Analysis for Statistic of Payment
6.30 module Test Result and Analysis for Leave module
6.31 Test Result and Analysis for Selling module
6.32 Test Result and Analysis for Report module
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Interface of ESMS</td>
</tr>
<tr>
<td>2.2</td>
<td>Interface of manual form order Marak Strategi, SDN BHD</td>
</tr>
<tr>
<td>2.3</td>
<td>Interface of <a href="http://www.hotfrog.com.my">www.hotfrog.com.my</a>, Locksmiths</td>
</tr>
<tr>
<td>2.4</td>
<td>Main components of a Decision Support System, DSS</td>
</tr>
<tr>
<td>2.5</td>
<td>The Software Development Life Cycle, SDLC</td>
</tr>
<tr>
<td>2.6</td>
<td>The mechanism of Database life cycle</td>
</tr>
<tr>
<td>3.1</td>
<td>Context Diagram for Manual System Data Flow</td>
</tr>
<tr>
<td>3.2</td>
<td>DFD level 0 for Manual System</td>
</tr>
<tr>
<td>3.3</td>
<td>Context diagram for to-be system, Key &amp; Lock System</td>
</tr>
<tr>
<td>3.4</td>
<td>DFD level 0 for to-be system, Key &amp; Lock System</td>
</tr>
<tr>
<td>3.5</td>
<td>DFD level 1 for User Registration Module</td>
</tr>
<tr>
<td>3.6</td>
<td>DFD level 1 for Product list Module</td>
</tr>
<tr>
<td>3.7</td>
<td>DFD level 1 for User Authentication Module DFD</td>
</tr>
<tr>
<td>3.8</td>
<td>DFD level 1 for order process</td>
</tr>
<tr>
<td>3.9</td>
<td>DFD level 1 for customer module</td>
</tr>
<tr>
<td>3.10</td>
<td>DFD level 1 for Sales Record Data</td>
</tr>
<tr>
<td>3.11</td>
<td>DFD level 1 for Report Data</td>
</tr>
<tr>
<td>4.1</td>
<td>3-Tier System Architecture Product interface</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>4.2</td>
<td>Log In interface</td>
</tr>
<tr>
<td>4.3</td>
<td>Staff interfaces</td>
</tr>
<tr>
<td>4.4</td>
<td>Staff payment interfaces</td>
</tr>
<tr>
<td>4.5</td>
<td>Staff Leave interfaces</td>
</tr>
<tr>
<td>4.6</td>
<td>Product interfaces</td>
</tr>
<tr>
<td>4.7</td>
<td>Sales interfaces</td>
</tr>
<tr>
<td>4.8</td>
<td>Customer interfaces</td>
</tr>
<tr>
<td>4.9</td>
<td>Order Process interfaces</td>
</tr>
<tr>
<td>4.10</td>
<td>Report interfaces</td>
</tr>
<tr>
<td>4.11</td>
<td>Navigation Design Diagram</td>
</tr>
<tr>
<td>4.12</td>
<td>Entity Relationship Diagram</td>
</tr>
<tr>
<td>4.13</td>
<td>User View for Key and Lock System</td>
</tr>
<tr>
<td>4.14</td>
<td>Backup.sql</td>
</tr>
<tr>
<td>5.1</td>
<td>Software Environment Development Setup</td>
</tr>
<tr>
<td>5.2</td>
<td>Start the Database Service Setup</td>
</tr>
<tr>
<td>5.3</td>
<td>Restrict Level User</td>
</tr>
<tr>
<td>5.4</td>
<td>Configuration Environment Setup</td>
</tr>
<tr>
<td>5.5</td>
<td>Flow to Version Control Procedure</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

1.1 Project Background

Lock and key, fastening fitted to an entryway, such as a gate or door, or a container, such as a cabinet, drawer or safe, to keep it closed and or prevent unauthorized access or use. A lock may be opened by a mechanical, magnetic, electric, electronic, or electromechanical key or by employing a code or sequence of numbers or letters.

In this project, the developer would like to propose to develop one computer system web based which is called Key & Lock system. Key & Lock system is referring to system’s characteristics which to provide efficiency dealing with customer as easy and friendly and every customer like family. With all those great characteristics, it can be surely confirmed that the system can help to improve the management of the company. Key & Lock system is the process of managing the key and lock stock and selecting the suitable product to the customer.

Basically, Key & Lock system is going to be developed for one company which is named as Marak Strategi SDN BHD. Marak Strategi SDN BHD is a new company that provide full service Lock Company specializing in commercial and industrial security. Marak Strategi SDN BHD supplies, installs and services all types of locks and hardware, as well as safes. It specializes in access control, as well as
door closers and also offer key control systems that prevent unauthorized key duplication. This company supplies their product to both government and private sector.

The main objective of the system is to help the company in managing their business process in all aspects. Because this company is a new company, it uses manual form for their business process. The current system that is used by the company cannot handle arrange big amount of data efficiently. The Key & Lock system is developed objectively to overcome that problem and also to improve the efficiency and reliability in managing the business process.

1.2 Problem statements

The problems arise from the current The Key & Lock system is identified as follow:

1.2.1 The system that is currently used by the company is a conventional system and not secure.

The company used a manual form to record their business information and it cannot store or support big record in future.

1.2.2 The security level of the current system used by this company is low.

The current computer system that is used by this company is simple and not emphasize in security level because the system does not have backup and recovery and also user privileges.
1.2.3 The current system used by the company to manage their business is hard to be maintained.

The current system used by the company is no more suitable to use nowadays because it used manual form.

1.3 Objective:

1.3.1 To provide a secure system application

The system that will be developed will provide high security level because it has several function such as password authentication, user privileges, and also backup and recovery.

1.3.2 To provide a systematic key and lock inventory

The system that we are going to develop is easy to use and can be used to manage business process systematically. It also safely saves all the information about the company.

1.3.3 To replace the current system with modern system that is more reliable.

To replace current system used by the company that is no more suitable to use nowadays because it used manual form. Also provide to replace old fashioned system that looks bore.
1.3.4 **To help company increase business efficiency and manage their business easily**

The system that we are going to develop is multifunction system and will record all necessary information about the company so then the company can easily monitor all information that is involved within the company hence make it easier to manage and increase efficiency.

1.3.5 **To provide the company a system that easy to be maintained**

The system that will be developed is easy to be maintained because it used the latest technology in software such as database MYSQL, Microsoft Window XP Professional Service Pack 2 as platform and I.E internet explorer as web browser.

1.4 **Scope:**

1.4.1 **User**

User is the person who interacts to the system.

1.4.1.1 **Employee**

Employee can manage customer, order, sales and product. As example employee can add, delete and update data such as to change information about product.
1.4.1.2 Manager

Manager can manage all records including sales, product and staffs records. As example manager can add, delete and update data such as to change about information staffs and order.

1.4.2 Function:

1.4.2.1 Password authentication

The user will enter the valid password before they can use the system. This module provides a different level of access to the information stored in database. This can be done by separate the users to manager level and staffs level.

1.4.2.2 Search record

System records can be search easily by search function. All record can select by select their code.

1.4.2.3 Employee Modules

The modules contain all the information about employee. This module manages account of each Marak Strategi SDN BHD staff such as their personal information, their group information and the address of the premises.
1.4.2.4 Product Modules

The modules contain all the information about product. This module contains record the product that sells to the customer. Give the quantity of type of key and lock that more frequently buy by the customer.

1.4.2.5 Customer Modules

The modules contain all the information about customer. This module contains customer personal information and the address of the premises that they must checks.

1.4.2.6 Sales Modules

The modules contain all the information about sales. All order record is store in this module.

1.4.2.7 Order Modules

The modules contain all the information about orders. Record the orders that sell to the customer.

1.4.2.8 Payment Modules

The modules contain all the information about staff payment. All record staff payment and staff contract store in this module.
1.4.2.8.1 Leave Modules

The Modules contain information staff leave. Staff can request leave in this modules.

1.5 Project significance

By creating this system, it will replace the conventional system which is used a lot of paper with the modern system which is more systematically and fully computerized. It will give a company a systematically way to manage their business process and solve the problem as stated above. By creating this system also it can help the company to manage their business easily and increase efficiency in their company. The company also no need to worry about the safety of the data because the system provide several high security functions. By using this system, the company can increase their efficiency and compete with other companies. The company also can be as most success company in Malaysia with the help of this system.

1.6 Expected Output

Key & Lock System for Marak Strategi SDN BHD is concern the delivery of system functional for the first priority to be handled. The functions that involve in this system are authentication, retrieve data, insert, update, delete data and search data is can be works successfully.

The system provides high security database with password authentication which some privileges is only can authorize by manager. Manager can handle all record included staff record. Employee is given privileges as to manage record of order, customer and view sales, and product.

The system use GUI (graphic user interface) to interact with users. The interface provides some function that can easily to use to retrieve data. The
interfaces divide into two (2) categories which are admin and main menu. The admin contains staff record, leave record, product and payment. Otherwise the main menu contains customer record, sales record, report, product record and order.

1.7 Conclusion

Key & Lock System that will be developed will overcome the problems in the current system which is less efficient. Problems cause by current system is the system cannot handle big amount of data efficiently and hard to search and retrieve required data that will be solve after Key & Lock System being developed. Also the system will provide an easier way to keep the information up-to-date. There are five (5) objectives will be achieve to make the system is successfully implementation. The objectives are listed according from the core of the system application that wanted to achieve first. Scope of this system application is the boundary to guide the system development to reduce the unnecessary process before it occurs. The scopes are divided to two (2) categories. These categories are the limit of the development can achieve. There are system function and users. Project significance is describing for the advantage of the key and lock system application when it is to be implemented. The expected result of this system is the successful of the all modules can be implementing and all objectives can been achieved.
CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

Literature review is useful to improve the functionalities and smoothen up the implementation of Key & Lock System. Several case studies are done in order to collect relevant information. Advantages and disadvantages from case studies also will be studied to work up Key & Lock System as a proper system. The source of research can be referring to the journal, paper work, websites and reference book.

System Development Life Cycle (SDLC) and Database Life Cycle (DBLC) is chosen as the approach used in developing Key & Lock System, project. SDLC act as a guide for system and DBLC acts as a mean to guide in the Analysis phase of the database system. DBLC is subject to six phase and all the steps in DBLC will be followed.

The remaining of the chapter will list out the hardware requirement and software requirement as well as planning for the project.