### BORANG PENGESAHAN STATUS TESIS^

JUDUL: <u>E-HOUSING SYSTEM</u>
SESI PENGAJIAN: <u>2005</u>
Saya NORASYIKIN BINTI NOOR AZAM 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 Kolej Universiti Teknikal Kebangsaan Malaysia.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membua
salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membua
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
Stulen
(TANDATANGAN PENULIS) (TANDATANGAN PENYELIA)
Alamat tetap: NO 01-06, Hosp. Sultan Ismail, PUAN AZLIANOR ABD. AZIZ
Tmn. Mount Austin, Pers. Emas Utama, J.B, Johor. Nama Penyelia
Tarikh: 24/11/2005 Tarikh:
CATATAN: ** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada
pihak berkuasa.

^ Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM)

raf

HD1379 .N68 2005

E-housing system / Norasyikin Noor Azam.

### **E-HOUSING SYSTEM**

### NORASYIKIN BINTI NOOR AZAM

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

FACULTY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA **OCTOBER 2005** 

## **DECLARATION**

# I hereby declare that this project report entitled E-HOUSING SYSTEM

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

STUDENT	:_	Stulin	Date: 24/11/2009
		(NORASYIKIN BINTI NOOR AZAM)	
SUPERVISOR :	≀:_		Date :
		(MADAM AZLIANOR BINTI ABD. AZI	Z)

# **DEDICATION**

To my beloved parents for their love and supports...

#### ACKNOWLEDGEMENT

Assalamualaikum....

During this period of developing E-Housing System, I have encountered lots of problems and obstacles. I felt so lucky to have overcome it with the help of many people. Hence, I would like to express my appreciations to whom that have contributed to the successful of this project.

First of all, I would like to take this opportunity to send my heart felt thanks to my supervisor, Madam Azlianor Binti Abd. Aziz for her valuables suggestion and guidelines in supervising me. The patience and generosity in guiding me through are much welcomed and appreciated.

Last but not least, thank you too to my family and friends. In particular, to all friends who are also doing their PSM project, whether in the same course or not. The support and the spirit you all have given me will not be forgotten.

Lastly for those who had been involved either directly or indirectly during the PSM period, words of thanks from me.

#### ABSTRACT

Nowadays, information system had been increasingly important to the organization. It can be used in decision-making process, planning, increasing production and reducing expenditures. Accuracy and correct information is necessary. Currently, there is a lot of housing estate company that still using old day system, which was controlled manually and mostly, does not have online information system. A housing estate company is one of the interesting organizations to develop information system because of all house buying data are controlled on paper and unsystematically filed. The online information system on this research will control the management of housing information especially in registration path, house buying process and house booking application. Target users of this system are the staff of the housing company and also the users who had registered. E-Housing System importance's is to overcome existing problems that occurred during the manual system usage. Object Oriented Analysis Design (OOAD) is chose as a methodology in developing this system. The system can alert the members on any matters related to their house booking application status. Besides that, the system also will send the short messages system (SMS) to the members to remind them about the house booking validity date. Furthermore, developing system with short messages system (SMS) services will be an alternative than the normal system. Staff and registered users share a secure Internet system so everyone can access the important information they need, when they need it. They have to register their account so that they can use the system. With everything from the online enrollment, house booking status checked, members and administrators profile view according to their level, main menus and also the announcements by E-mail and also short messages system (SMS). Finally, it is hoped that this system meets all the requirements and will be enhanced as a future expansion.

#### **ABSTRAK**

Dalam meniti era globalisasi kini, sistem maklumat atau informasi menjadi bertambah penting dalam sesuatu organisasi. Ia mungkin boleh digunakan untuk perjalanan proses, perancangan dan peningkatan produksi serta maklumat yang tepat amat penting dalam sesuatu sistem. Dewasa ini, kebanyakan syarikat perumahan masih lagi menggunakan cara lama dalam pengurusan maklumat – maklumat yang mana dikawal secara manual dengan cara penyimpanan melalui fail-fail kertas yang tidak begitu sistematik. Sistem maklumat secara online ini boleh mengawal pengurusan maklumat di syarikat perumahan tersebut terutama pada bahagian pendaftaran ahli, proses pembelian dan tempahan rumah. Selain itu ahli-ahli yang telah membuat tempahan rumah, dapat mengetahui pengumuman dengan lebih cepat melalui E-mel atau sistem pesanan ringkas (SMS) mengenai status ahli yang telah membuat tempahan rumah, samada status mereka diterima ataupun ditolak. Mereka juga akan menerima sistem pesanan ringkas (SMS) dua hari sebelum tarikh tutup tempahan rumah. Pengguna sistem ini adalah tertumpu kepada staf yang bekeria di syarikat serta pengguna yang ingin membuat pembelian rumah secara online. Dalam proses pembangunan sistem ini, metodologi yang menjadi panduan ialah Object Oriented Analysis Design(OOAD). Melalui sistem maklumat secara online ini, staf dan ahli yang mendaftar berkongsi sistem sekuriti Internet, jadi pengguna sistem boleh menggunakan sistem pada bila-bila masa. Ahli yang mendaftar boleh membuat tempahan rumah secara online. Sebagai kawalan, pengguna dan staf dikehendaki mendaftar akaun sendiri sebelum dapat menggunakan sistem maklumat ini sepenuhnya. Secara keseluruhannya, E-Housing System menyediakan perkhidmatan pendaftaran secara online, semakan status tempahan rumah, paparan maklumatmaklumat staf dan ahli mengikut tahap pengguna, menu-menu umum serta pengumuman melalui E-mel dan sistem pesanan ringkas SMS kepada ahli. Akhirnya, adalah diharapkan sistem ini dapat memenuhi kehendak pengguna dan memberi idea kepada kemajuan sistem informasi di sesebuah syarikat perumahan untuk masa hadapan.

# TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	DEDICATION	iii
	ACKNOWLEDGEMENTS	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF FIGURES	viii
	LIST OF TABLES	xiv
CHAPTER I	INTRODUCTION	
1 175 19	1.1 Project Background	1
	1.2 Problem Statements	2
	1.3 Objectives	3
	1.4 Scopes	3
	1.5 Project Significance	5
	1.6 Expected Outputs	6
	1.7 Conclusions	6
CHAPTER II	LITERATURE REVIEW and PROJECT	
	METHODOLOGY	1
	2.1 Introduction	7
	2.2 Fact and Finding	8
-	2.3 Project Methodology	11

	2.4 Project Requirements	14
	2.4.1 Software Requirement	14
	2.4.2 Hardware Requirement	17
	2.4.3 Other Requirements	17
	2.5 Project Schedule and Milestone	17
	2.5.1 Project Plan	17
	2.6 Conclusion	19
CHAPTER III	ANALYSIS	
	3.1 Introduction	20
	3.2 Problem Analysis	21
	3.2.1 Background of Current System	21
	3.2.2 Problem Statements	22
	3.3 Requirement Analysis	23
	3.3.1 Functional Requirement	23
	3.3.2 Software Requirements	62
	3.3.3 Hardware Requirements	62
	3.3.4 Network Requirements	62
	3.4 Conclusion	63
CHAPTER IV	DESIGN	329
	4.1 Introduction	64
	4.2 High-Level Design	65
	4.2.1 Raw Data	65
	4.2.2 High-Level Logical	66
	View/Architecture	- far
	4.2.3 User Interface Design	70
	4.2.3.1 Navigation Design	70
	4.2.3.2 Input Design	72
	4.2.3.3 Output Design	78
	4.2.4 Database Design	80
	4.2.4.1 Logical Database Design	80
FIFTH CHEST	4.2.4.2 Business Rules	80

	4.2.4.3 Description of Entities	82
	4.3 Detailed Design	84
	4.3.1 Software Specification	84
	4.3.2 Deployment View	105
	4.3.3 Physical Database Design	105
	4.3.3.1 Data Dictionary	105
	4.4 Conclusion	114
CHAPTER V	IMPLEMENTATION	
	5.1 Introduction	115
	5.2 Software Development Environment	115
	Setup	
	5.3 Software Configuration Management	117
	5.3.1 Configuration Environment Setup	117
	5.3.2 Version Control Procedure	119
	5.4 Implementation Status	120
	5.4.1 User Interface	121
	5.5 Conclusion	128
CHAPTER VI	TESTING	
	6.1 Introduction	129
	6.2 Test Plan	130
	6.2.1 Test Organization	130
	6.2.2 Test Environment	130
	6.2.3 Test Schedule	131
	6.3 Test Strategy	142
	6.3.1 Classes of Tests	143
	6.4 Test Design	143
	6.3.2 Test Description	143
	6.3.3 Test Data	148
	6.5 Test Results and Analysis	155
	6.6 Conclusion	160
CHAPTER VII	CONCLUSION	

Introduction	161
7.1 Observation on Weaknesses and	162
Strengths	
7.2 Propositions for Improvement	163
7.3 Contribution	164
7.4 Conclusion	167
References	168

# LIST OF FIGURES

FIGURE	TITLE	PAGE
Figure 3.1	E-Housing System Business Flow (Current System)	21
Figure 3.2	Overview of E-Housing System	25
Figure 3.3	E-Housing System Business Flow (New System)	26
Figure 3.4	Global view of use-case model	27
Figure 3.5	Authenticate User Sequence Diagram	29
Figure 3.6	New Member Registration Sequence Diagram	31
Figure 3.7	New Administrator Registration Sequence Diagram	33
Figure 3.8	Update Profile Sequence Diagram	36
Figure 3.9	Add Client's Qualification Sequence Diagram	38
Figure 3.10	Add New Housing Lots Sequence Diagram	40
Figure 3.11	Add New Phase Sequence Diagram	43
Figure 3.12	Add New Type of Houses Sequence Diagram	45
Figure 3.13	Approve/Rejecting Client's Qualification Sequence Diagram	47
Figure 3.14	Cancel Booking Sequence Diagram	50
Figure 3.15	Checking Application Status Sequence Diagram	52
Figure 3.16	House Booking Application Sequence Diagram	54

Figure 3.17	View House Balances Sequence Diagram	56
Figure 3.18	View Registered Member Lists Sequence Diagram	58
Figure 3.19	View Company Information Sequence Diagram	60
Figure 4.1	Examples of data collection	65
Figure 4.2	Three-Tier E-Housing Service Model	66
Figure 4.3	E-Housing packages	67
Figure 4.4	Class Diagram for Register Member	69
Figure 4.5	Navigation Design for Administrators	70
Figure 4.6	Navigation Design for Members	71
Figure 4.7	Class Diagram:Logical View/Main	84
Figure 4.8	Class Diagram:Design Model/Architecture Layer	84
Figure 4.9	Class Diagram:Design Model/Key Abstraction	85
Figure 4.10	Class Diagram:Registration/Main	85
Figure 4.11	Class Diagram: Company Artifact/Main	86
Figure 4.12	Class Diagram:Product Catalog System/Main	87
Figure 4.13	Class Diagram:Billing System/Main	87
Figure 4.14	Class Diagram:House Order ApplicationMain	87
Figure 4.15	Class Diagram:Database Management System/Main	88
Figure 4.16	Class Diagram: Use Case Realization (view company information)	89
Figure 4.17	Class Diagram: Use Case Realization(send feedback)	90
Figure 4.18	Class Diagram: Use Case Realization (order house)/Main	91
Figure 4.19	Class Diagram: Use Case Realization (search house information)/Main	92
Figure 4.20	Class Diagram: Use Case Realization (update profile)/Main	93
Figure 4.21	Class Diagram: Use Case Realization (view down line list)/Main	94
Figure 4.22	Class Diagram:Use Case Realization(register new admin)/Main	95

Figure 4.23	Class Diagram: Use Case Realization (add new category)/Main	96
Figure 4.24	Class Diagram:Use Case Realization(add new house)/Main	97
Figure 4.25	Class Diagram:Use Case Realization(remove category)/Main	98
Figure 4.26	Class Diagram: Use Case Realization (search admin information)/Main	99
Figure 4.27	Class Diagram: Use Case Realization (view monthly sales report)/Main	100
Figure 4.28	Class Diagram: Use Case Realization (change admin's password)/main	101
Figure 4.29	Class Diagram: Use Case Realization (view receipt information)/Main	102
Figure 4.30	Class Diagram: Use Case Realization(register become member)	103
Figure 4.31	Class Diagram:Use Case Realization(remove item)	104
Figure 4.32	Deployment View of E-Housing System	105
Figure 5.1	Environtment Architecture (Star Topology)	116

# LIST OF TABLES

TABLES	TITLE	PAGE
Table 2.1	RUP's activity phases	13
Table 2.2	Project Plan	17
Table 3.1	Software Requirements	62
Table 3.2	Network Requirements	63
Table 4.1	Description of Entities	82
Table 5.1	Version Control Procedure	119
Table 5.2	Implementation Status	120
Table 6.1	Test Environment	130
Table 6.2	Unit Test for Login Admin	131
Table 6.3	Unit Test for Login Member	132
Table 6.4	Unit Test for Register Profile	133
Table 6.5	Unit Test for Update Profile	134
Table 6.6	Unit Test for Apply Deleting Profile	135
Table 6.7	Unit Test for Approving Delete Profile Request	136
Table 6.8	Unit Test for View Lists	137
Table 6.9	Unit Test for Add New House	138
Table 6.10	Unit Test for Add New House's Picture	139
Table 6.11	Unit Test for House Booking	140

Table 6.12	Unit Test for Approving House Booking Application	141
Table 6.13	Login Admin	143
Table 6.14	Login Member	144
Table 6.15	Register Profile	144
Table 6.16	Update Profile	145
Table 6.17	Apply Deleting Profile	145
Table 6.18	Approving Delete Profile Request	146
Table 6.19	View Lists	146
Table 6.20	Add New House	147
Table 6.21	Add New House's Picture	147
Table 6.22	House Booking	147
Table 6.23	Approving House Booking Application	148
Table 6.24	Admin Login test data	148
Table 6.25	Member Login test data	148
<b>Table 6.26</b>	Admin Register test data	149
<b>Table 6.27</b>	Member Register test data	149
<b>Table 6.28</b>	Admin Update test data	149
Table 6.29	Member Update test data	150
Table 6.30	Admin's Status Update test data	151
<b>Table 6.31</b>	Member's Status Update test data	151
Table 6.32	Admin's Status Update test data	152
Table 6.33	Member's Status Update test data	152
Table 6.34	Admin's view list test data	153
Table 6.35	Member's View Lists test data	153
Table 6.36	Add New House test data	153
Table 6.37	Add New House's Pic test data	154
<b>Table 6.38</b>	Member's House Booking Test data	154
<b>Table 6.39</b>	Approving House Booking Test data	155
<b>Table 6.40</b>	Login Test Administration Summary	155

<b>Table 6.41</b>	Test Data Validate Administration Summary	156
Table 6.42	Login Test Member Summary	156
Table 6.43	Test Data Validate Member Summary	156
Table 6.44	Test Data Register for Admin and Member	157
Table 6.45	Test Data Update for Admin and Member	157
Table 6.46	Test Data Update for profile status	157
Table 6.47	Test Data Update for profile status	158
<b>Table 6.48</b>	Test Data View User's Lists	158
<b>Table 6.49</b>	Test Data Add New House's Details	158
Table 6.50	Test Data Add New House's Details	159
<b>Table 6.51</b>	Test Data House Booking Application	159
Table 6.52	Test Data House Booking Application	159

# LIST OF ATTACHMENTS

ATTACHMENT	TITLE
1	Proposal Form
2	Gantt Chart
3	User Manual

# CHAPTER I INTRODUCTION

#### 1.1 Project Background

For the PSM project, I would like to develop a web-based system called E-Housing. This project is done for METACORP Company, which is one of the companies that conducting the house buying in Malacca. E-Housing is a web-based system that can be used by everyone, where they can browse the website to know and get more information in buying a house provided, according to the housing lots.

The development of this E-Housing is meant to ease the users who are interested in buying houses but do not have the time or inconvenient to go to the show houses to get more information about the houses. Thus, the users just have to log on to the net and do the booking for the house that that wanted to buy.

The importance of this E-Housing is to offer an environment to perform the transaction with no geographical and time boundaries.

There are three types of users, which are registered user, non-registered user and admin. The registered user is user that wanted to do the booking for the

house provided. They can do the booking for the house according to the user's category, which is Bumiputera and Non-Bumiputera nationality. The non-registered user is user, which is, can view the information about the houses only. They can't do the booking activity. While, for the admin, they can get the reports of the balances of the houses according to the housing estate, phase and type of houses.

#### 1.2 Problem Statement

As we can see, the house buying process is done manually. Below are the problem statements that exist in the manual house buying process. There are:

- 1. Shorter and specific business house
  - The clients can only make house-buying process during business hours. This cause problem because by the time they reach the show houses after they working time, it is closed.
  - They have to make an appointment with the METACORP's staffs in order to have proper buying process for the house.
- 2. Lack of medium to promote the houses
  - METACORP still promotes the houses through pamphlet or agents. So, the promotion done to sell house is limited and might not be effective.
- 3. House buying process is done manually
  - The clients have to come to the show houses or METACORP's office to know the vacancy of the houses that they interested to buy from the staffs.

 The admins can know the report of the house's balances automatically.

### 1.3 Objectives

The E-Housing system is build to fulfill the objectives in this project. The objectives are as the following:

- 1. To provide a web-based house buying application
- 2. To provide a secure house buying management system by using a security system with different level of authentication
- 3. To enable the admin to view the report of house's balances
- 4. To aid in automating the following activities during house buying application processes:
  - a. Clients can know the total of house's price according to the client's category (Bumiputera / Non-Bumiputera)
  - Admin can know the balances of houses according to the housing lots, phases and type of houses
- 5. To easier the clients in order to buy house.

### 1.4 Scope

This is an e-commerce website, all users who is interested in buying house can browse through the website. Besides that, this system is build

especially for METACORP to manage the clients in term of house buying application.

- 1. Focus on house buying application
  - Customer can do the house booking after doing the registration. After registered, they can choose which housing lot, phase and type of house to do the booking.
  - If they confirmed to buy the house, they have to fill in the application form provided. Then the admin will examine the qualification to buy the house.
- 2. To provide an information system that can automate the house buying application process.
  - To calculate the total of house's payment according to the customers nationality (Bumiputera / Non-Bumiputera)
  - To calculate the balances of houses according to the housing lots, phase and type of house
- 3. To provide a security in this system
  - Only authorized users can access specific page. For example, registered users cannot access the administrator pages.
  - For the administrators, they will be given a new account and will not share with other administrator.
- 4. Generate monthly sales report.
  - Monthly sales report will be generated and shown to the administrator such as total of houses sold according to the housing lots, phase and type of houses.

#### 1.5 Project Significance

From this system, it is hoped that it may benefit the users in order to make them easier in buying house. This is because, they can do the house buying through online. This will save their time to go to the show houses to know the information about the houses. Besides that, it also saves time for METACORP's staffs to get the reports for the house's balances. This system will do this for them. From this system, they can know the balances of they houses according to the housing lots, phase and the type of house.

Furthermore, by using this system, the users can view and get more information about the houses that they are interested to buy. They can view the models of the houses according to the type of houses in image type and get the information about the houses too. If they interested with the house, they can do the booking and know the price of the house according to the client's category applied (Bumiputera / Non-Bumiputera).

For the client who did the house booking, they will receive SMS to remind them about the booked house, 2 days before the booking time validity closed. If the client did not do the buying, the booked house will be opened to other clients. The client who is confirmed to buy the house, they have to add more personal information and the admin will examined the client's qualification in order to buy the house. When the qualification is accepted, they will receive SMS to inform them that their application is approved. For the client who is the qualification is not acceptable, they will receive SMS about the rejected application.

#### 1.6 Expected Output

The expected output from this system is, the system should be able to store a lot of application data and the data can be influenced based on the certain functions. This system is able to allow users make house booking before buying the house.

Besides that, by using this system, the administrators can get the monthly reports according to the houses sold. They can know which housing lots are fully sold out or not. With this, they can do planning to do promotion in order to sell their houses.

#### 1.7 Conclusion

With this system, METACORP Company will have an E-Housing system in the future that is more efficiency than a manual system. It will benefit all of users, such as the non-registered users, registered users and administrators to achieve the objectives in this project.

The next step to be taken is doing a research on literature review to understand the system concept. So it will help in the next phase, which is the requirement analysis. The studies on Literature review will be explain in the chapter.