



Faculty of Computer Science and Information Technology

Asset Management System for Sakura College

NURUL NAJIHAH BINTI ZULKIFLEE

Bachelor of Computer Science with Honours (Software Engineering)

2019

Asset Management System for Sakura College

NURUL NAJIHAH BINTI ZULKIFLEE

This project is submitted in partial fulfilment of the
requirements for the degree of
Bachelor of Computer Science with Honours

SOFTWARE ENGINEERING

Faculty of Computer Science and Information Technology

UNIVERSITI MALAYSIA SARAWAK

2019

UNIVERSITI MALAYSIA SARAWAK

THESIS STATUS ENDORSEMENT FORM

TITLE ; ASSET MANAGEMENT SYSTEM FOR SAKURA COLLEGE

ACADEMIC SESSION: 16/17

(CAPITAL LETTERS)

hereby agree that this Thesis* shall be kept at the Centre for Academic Information Services, Universiti Malaysia Sarawak, subject to the following terms and conditions:

1. The Thesis is solely owned by Universiti Malaysia Sarawak
2. The Centre for Academic Information Services is given full rights to produce copies for educational purposes only
3. The Centre for Academic Information Services is given full rights to do digitization in order to develop local content database
4. The Centre for Academic Information Services is given full rights to produce copies of this Thesis as part of its exchange item program between Higher Learning Institutions [or for the purpose of interlibrary loan between HLI]
5. ** Please tick (✓)

CONFIDENTIAL (Contains classified information bounded by the OFFICIAL SECRETS ACT 1972)

RESTRICTED (Contains restricted information as dictated by the body or organization where the research was conducted)

UNRESTRICTED

Najihah

(AUTHOR'S SIGNATURE)

Validated by



(SUPERVISOR'S SIGNATURE)

Permanent Address
POS 4A, PARIT SATU, KAMPUNG
PATAH PEDANG, 83030,
BATU PAHAT, JOHOR

Date: 4/8/2020

Date: 12/08/2020

Note * Thesis refers to PhD, Master, and Bachelor Degree documents from relevant organizations / authorities

** For Confidential or Restricted materials, please attach relevant

Declaration

I, Nurul Najihah Binti Zulkiflee declare that project report entitled Asset Management System for Sakura College is done by me under guidance of Madam Norazian Binti Mohamad Hamdan and not copied from any other student's work or from any other sources except where due reference or acknowledgement is not made explicitly in the text, nor has any part had been written for me by another person.

.....
(NURUL NAJIHAH BINTI ZULKIFLEE)

(11 DECEMBER 2019)

Acknowledgement

First of all, thank The Almighty, who has given me strength and ability to complete this project on time. I would like to deliver my deepest gratitude to my supervisor, Madam Norazian Binti Mohamad Hamdan, who had offered continuous guidance, support and advice during my Final Year Project. Next, thank you to my examiner, Dr Azman bin Bujang Masli, who gave constructive comments and feedbacks regarding my Final Year Project. I am also like to give my appreciation to Professor Dr Wang Yin Chai, coordinator of Final Year Project, who gave useful guidelines to complete this Final Year Project.

Special thanks to my parents for continuous support and encouragement all the way through my Final Year Project. Furthermore, big thank to everyone who have been involved whether directly and indirectly in order to complete my project.

Abstract

Universiti Malaysia Sarawak (UNIMAS) was officially established on 24 December 1992. Sakura College is located at the UNIMAS West Campus and it is the only college that houses female students. It began operating and housed by students on 30 December 2005. The internet development in Malaysia has risen from year 1983. The college use manual method which is paper-based method. The staff will write the detail of asset transaction on the paper. The staff and the student facing problem during the process to use Sakura College's asset. During the manual method, the student needs to recheck the asset availability at the office and memo form status that already being send to the principal. Student only can check during office hour and it produce problem for the student that have pack class schedule. The staff also faced some problem which is does not know the asset quantity and cannot confirm the availability of the asset. The staff needs to check some paper to confirm the availability. Thus, by creating a system can help to smooth the process to use the asset.

Abstrak

Universiti Malaysia Sarawak (UNIMAS) telah ditubuhkan secara rasmi pada 24 Disember 1992.

Kolej Sakura terletak di Kampus UNIMAS Barat dan merupakan satu-satunya kolej yang menempatkan pelajar wanita. Ia mula beroperasi dan ditempatkan oleh pelajar pada 30 Disember 2005. Perkembangan internet di Malaysia telah meningkat sejak tahun 1983. Kolej menggunakan kaedah manual yang merupakan kaedah berasaskan kertas. Kakitangan akan menulis butiran transaksi aset di atas kertas. Kakitangan dan pelajar menghadapi masalah semasa proses menggunakan aset Kolej Sakura. Semasa kaedah manual, pelajar perlu menyemak semula senarai kekosongan aset di pejabat dan status borang memo yang telah dihantar kepada pengetua kolej. Pelajar hanya boleh menyemak semasa pejabat beroperasi dan ia menghasilkan masalah untuk pelajar yang mempunyai jadual kelas padat. Kakitangan juga menghadapi masalah yang tidak mengetahui kuantiti aset dan tidak dapat mengesahkan kekosongan aset tersebut. Kakitangan perlu menyemak beberapa kertas untuk mengesahkan kekosongan itu. Oleh itu, dengan mewujudkan sistem boleh membantu melancarkan proses menggunakan aset tersebut.

Table of Contents

Declaration	iv
Acknowledgement.....	v
Abstract.....	vi
Abstrak.....	vii
CHAPTER 1 : INTRODUCTION	1
1.1 Introduction.....	1
1.2 Problem Statement	1
1.3 Aim and Objective	2
1.4 Methodology	3
1.4.1 Planning	3
1.4.2 Analysis.....	3
1.4.3 Design	3
1.4.4 Implementation	4
1.4.5 Maintenance	4
1.5 Scope.....	5
1.6 Significance of Project.....	5
1.7 Project Schedule.....	5
1.8 Expected Outcome	5
1.9 Thesis Outline	6
1.9.1 Chapter 1 : Introduction	6
1.9.2 Chapter 2 : Literature Review	7
1.9.3 Chapter 3 : Methodology	7
1.10 Summary	7
CHAPTER 2 : LITERATURE REVIEW	8
2.1 Introduction.....	8
2.2 Review on existing system.....	9
2.2.1 Current Method	9
2.2.2 Sistem Pemantauan Pengurusan Aset Universiti Malaysia Sabah	14
2.2.3 Inventory pro.....	16

2.2.4 Lend-item.....	18
2.3 Comparison among Existing System and Proposed System.....	21
2.4 Platform.....	21
2.5 Proposed system.....	22
2.6 Reviews on Tools and Technology Used.....	23
2.6.1 XAMPP.....	23
2.6.2 MySQL	23
2.6.3 PHP	23
2.6.4 CSS	24
2.7 Summary	24
CHAPTER 3 : METHODOLOGY	25
3.1 Introduction.....	25
3.2 Brief Methodology	26
3.2.1 Planning	26
3.2.2 Analysis.....	27
3.2.2.1 User Requirement Analysis	27
3.3 System Requirement Specification	39
3.3.1 Functional Requirement.....	39
3.3.2 Non Functional Requirement	42
3.4 Software Requirement Specification	43
3.5 Hardware Requirement Specification	44
3.6 System Design	44
3.6.1 Use Case Diagram.....	45
3.6.2 Use Case Diagram of Asset Management System for Sakura College.....	45
3.6.3 Sequence Diagram	55
3.6.4 Activity Diagram.....	63
3.6.5 Class Diagram.....	65
3.6.6 The Mockup Proposed System	66
3.7 Summary	80
CHAPTER 4 : IMPLEMENTATION.....	81
4.1 Introduction.....	81
4.2 Required component	81

4.2.1 Hardware used	81
4.2.2 Tools used	81
4.3 Implementation of proposed system	89
4.3.1 Home page	89
4.3.2 Register page.....	90
4.3.3 Login page	90
4.3.4 Homepage student.....	91
4.3.5 List asset page	91
4.3.6 Memo form page.....	92
4.3.7 Appeal form page.....	93
4.3.8 Update user profile page	93
4.3.9 Homepage staff	94
4.3.10 Asset page	94
4.3.11 Record transaction page	95
4.3.12 List appeal form page.....	96
4.3.13 Memo detail page.....	96
4.3.14 Update user profile page	97
4.3.15 Homepage Principal page	97
4.3.16 List memo page.....	98
4.3.17 List asset page	98
4.3.18 Update user profile page	99
4.3.20 Approval Detail.....	99
4.3.20 Logout.....	100
4.4 Summary	100
CHAPTER 5: TESTING	101
5.1 Introduction.....	101
5.2 Functionality testing.....	101
5.2.1 Overview.....	101
5.2.2 Functionality testing result.....	102
5.2.3 Discussion.....	112
5.3 Usability Testing.....	113
5.3.1 Overview.....	113

5.3.2 Usability testing result	113
5.4 Analysis of questionnaire.....	127
5.4.1 Question for Student	127
5.4.2 Question for Staff.....	131
5.4.3 Question for Principal	135
5.5 Discussion.....	138
CHAPTER 6: CONCLUSION.....	139
6.1 Introduction.....	139
6.2 Limitation.....	139
6.3 Future Work.....	140
Reference.....	141
Appendix	1
A) Gant chart.....	1
B) Questionnaire for student	2
C) Questionnaire for staff	5
D) Memo.....	8
E) Borang Pinjaman Kemudahan Kolej.....	9
F) Senarai peminjaman	10
G) Analysis questionnaire student	11
H) Analysis questionnaire staff.....	14
I) Analysis questionnaire principal	17

List of figure

Figure 2. 1 : Office hour for Sakura College office	10
Figure 2. 1 : Example of memo used to apply to use Sakura College's asset	10
Figure 2. 2 : Book to fill in the form about the event and user details	11
Figure 2. 3 : Book to record the assets used each categories is separate into different section and list of categories assets.	12
Figure 2. 4 : Interface for borrowed items detail	14
Figure 2. 5 : Interface for availability items detail	15
Figure 2. 6 : The form of lending item	15
Figure 2. 7 : The email notification from the staff	16
Figure 2. 8 : Interface of admin to edit the inventory list	17
Figure 2. 9 : Interface of admin can see the availability of stock	17
Figure 2. 10 : Interface for homepage Lend-Items	19
Figure 2. 11 : Interface of user lending the item	20
Figure 3. 1 : Agile Methodology activity	25

Figure 3. 2 : Role respondent	28
Figure 3. 3 : Result questionnaire question 2 for student	29
Figure 3. 4 : Result questionnaire question 3 for student	30
Figure 3. 5 : Result questionnaire question 4 for student	30
Figure 3. 6 : Result questionnaire question 5 for student	31
Figure 3. 7: Result questionnaire question 6 for student	32
Figure 3. 8 : Result questionnaire question 7 for student	32
Figure 3. 9 : Result questionnaire question 1 for staff	33
Figure 3. 10 : Result questionnaire question 2 for staff	34
Figure 3. 11 : Result questionnaire question 3 for staff	35
Figure 3. 12 : Result questionnaire question 4 for staff	35
Figure 3. 13 : Result questionnaire question 5 for staff	36
Figure 3. 14 : Result questionnaire question 6 for staff	36
Figure 3. 15 : Result questionnaire question 7 for staff	37

Figure 3. 16 : Result questionnaire question 8 for staff	37
Figure 3. 17 : Result questionnaire question 9 for staff	38
Figure 3. 18 : Flowchart of process flow of Asset Management	39
Figure 3. 19: Use case of Asset Management System for Sakura College	45
Figure 3. 20: Sequence diagram for register	55
Figure 3. 21: Sequence diagram for login	56
Figure 3. 22: Sequence diagram for logout	57
Figure 3. 23: Sequence diagram for Check Availability	58
Figure 3. 24: Sequence diagram for Submit Memo	59
Figure 3. 25: Sequence diagram for Approval Memo	59
Figure 3. 24: Sequence diagram for manage asset	60
Figure 3. 25: Sequence diagram for record transaction	62

Figure 3. 28: Activity diagram for Asset Management System for Sakura College	63
Figure 3. 26: Class diagram for Asset Management System for Sakura College	65
Figure 3. 30: Website of Asset Management System for Sakura College	66
Figure 3. 31: Registration page	67
Figure 3. 32: Login page	68
Figure 3. 33: Homepage for student	68
Figure 3. 34: Homepage for staff	69
Figure 3. 27 : Homepage for principal	69
Figure 3. 28: Memo form for student	70
Figure 3. 29 : Memo form status for principal	71
Figure 3. 38: Reason of rejection from the principal	72

Figure 3. 39 : Approval detail that is being auto generated from the system	73
Figure 3. 40 : Asset for student	74
Figure 3. 41 : Memo form	75
Figure 3. 42 : Appeal form	76
Figure 3. 43: Manage asset in Register Asset for staff	77
Figure 3. 44 : Manage asset in List asset for staff	78
Figure 3. 45 : Record transaction for staff	78
Figure 3. 46 : User account for staff , student and principal	79
Figure 4. 12 : Website Hosting(Hostinger)	82
Figure 4. 2 : Database application and file manager for code	82
Figure 4. 3 : PhyMyAdmin page	83
Figure 4. 4 : File Manager	83
Figure 4. 5 : database users	84

Figure 4. 6 : database transaction	85
Figure 4. 7 : database memo	86
Figure 4. 8 : database asset	87
Figure 4. 9 : database appeal	88
Figure 4.10 : Homepage for all user	89
Figure 4. 11 : Register for user	90
Figure 4. 12 : Register for all user	90
Figure 4. 13 : Homepage student	91
Figure 4. 14 : List Asset	91
Figure 4. 15: Memo form	92
Figure 4. 16: Appeal form	93
Figure 4. 17: Update user profile	93
Figure 4. 18: Homepage staff	94
Figure 4. 19: Asset	94
Figure 4. 20: Record transaction	95
Figure 4. 21: List appeal form	96
Figure 4. 22: Memo detail	96
Figure 4. 23: Update user profile	97
Figure 4. 24:Homepage Principal	97
Figure 4. 25: List memo	98
Figure 4. 26: List asset	98
Figure 4. 27: Update user profile	99

Figure 4. 28: Approval Detail	100
Figure 4. 29: Logout	94
Figure 5.1: Pie chart for Question 1	127
Figure 5.2: Pie chart for Question 2	127
Figure 5.3: Pie chart for Question 3	128
Figure 5.4: Pie chart for Question 4	128
Figure 5.5: Pie chart for Question 5	129
Figure 5.6: Pie chart for Question 6	129
Figure 5.7: Pie chart for Question 7	130
Figure 5.8: Pie chart for Question 1	131
Figure 5.9: Pie chart for Question 2	131
Figure 5.10: Pie chart for Question 3	132
Figure 5.11: Pie chart for Question 4	132
Figure 5.12: Pie chart for Question 5	133
Figure 5.13: Pie chart for Question 6	133
Figure 5.14: Pie chart for Question 7	134
Figure 5.15: Pie chart for Question 1	135
Figure 5.16: Pie chart for Question 2	135
Figure 5.17: Pie chart for Question 3	136
Figure 5.18: Pie chart for Question 4	136
Figure 5.19: Pie chart for Question 5	137
Figure 5.20: Pie chart for Question 6	137

List of table

Table 2. 1 : Comparison of the current method, existing system and proposed system	21
Table 3. 1: Student activity	41
Table 3. 2: Staff activity	41
Table 3. 3 : Principal activity	42
Table 3. 4 : Software Requirement Specification	43
Table 3. 5: Hardware Requirement Specification	44
Table 3. 6: Use case diagram for Register	46
Table 3. 7: Use case diagram for Login	47
Table 3. 8: Use case diagram for Check Availability	48
Table 3.9: Use case diagram for Submit Memo	50
Table 3. 10: Use case diagram for Approval Memo	51
Table 3. 11: Use case diagram for Manage Asset	52
Table 3. 12: Use case diagram for Record Transaction	53
Table 3. 13: Use case diagram for Logout	54
Table 5.1 Functionality Testing on User Register Module	102
Table 5.2 Functionality Testing on User Login Module	103
Table 5.3 Functionality Testing on Student Submit Memo Form Application	104
Table 5.4 Functionality Testing on Student Submit Appeal Form Application	105
Table 5.5 Functionality Testing on Student View List Asset	106
Table 5.6 Functionality Testing on Student View Approval Detail	106
Table 5.7 Functionality Testing on User Update User Profile	107
Table 5.8 Functionality Testing on Principal View List Asset	107
Table 5.9 Functionality Testing on Principal Update Memo Status	108
Table 5.10 Functionality Testing on Staff Insert/Update/Delete Asset	110

Table 5.11 Functionality Testing on Staff Insert/Update/Delete Record Transaction	111
Table 5.12 Functionality Testing on Staff View List Appeal Form	112
Table 5.13 Functionality Testing on Staff View Memo Detail	112
Table 5.14 Usability Testing on User Register Page	113
Table 5.15 Usability Testing on User Login Page	114
Table 5.16 Usability Testing on Student Submit Memo Form Application	116
Table 5.17 Usability Testing on Student Submit Appeal Form Application	117
Table 5.18 Usability Testing on Student View List Asset	118
Table 5.19 Usability Testing on Student View Approval Detail	119
Table 5.20 Usability Testing on User Update User Profile	120
Table 5.21 Usability Testing on Principal View List Asset	120
Table 5.22 Usability Testing on Principal Update Memo Status	122
Table 5.23 Usability Testing on Staff Insert/Update/Delete Asset	123
Table 5.24 Usability Testing on Staff Insert/Update/Delete Record Transaction	125
Table 5.25 Usability Testing on Staff View List Appeal Form	126
Table 5.26 Usability Testing on Staff View List Memo Detail	126
Table 6.1 Achievement	139

CHAPTER 1 : INTRODUCTION

1.1 Introduction

Universiti Malaysia Sarawak (UNIMAS) was officially established on 24 December 1992. Sakura College is located at the UNIMAS West Campus and it is the only college that houses female students. It began operating and housed by students on 30 December 2005. Sakura College provided 22 assets for their equipment during the event. To make an event in the college, the student needs to ask permission from the principal to make the events through memo. The students also need to request to use the asset for the event through application form at the office. Student need to wait for principal approval for memo and staff approval for asset request.

1.2 Problem Statement

Currently, management of assets in Sakura College is using the paper-based method. The paper-based method is used to record the management of asset using paper and ring file. The paper-based method might have a certain problem such as missing data and forget to record the data. Paper – based method is using paper to write the details of the event. The paper will be collected into a ring file. Missing data can occur when someone might be careless about the form or memo to apply to use the asset. It will affect the flow process because staff needs the event details to avoid schedules clashes. Forget to record the data may happen when there is many student come to the office rushing to use the asset. Impact of forget to record the data is the asset cannot be detected when another event need the asset. It cause the staff need to buy new assets to replace the missing assets.

The method is tedious because the staff needs to refer many files about the item details. The manual method is also not efficient because students need to go to the office to make the application to use Sakura College assets. The student also needs to go to the office during office hours to check whether their application to use the assets is accepted or not.

Besides, the staffs need some time to confirm the availability of the asset as there are many college events, and most of the time they requested for the same asset. There are many cases where the schedule clashes because of the inefficient method, and students are forced to come to the office time and time again during office hours to check the availability of the asset. To use the asset from the college, students need a memo from the college management, and usually the students does not know the format of the memo which makes it difficult for the staff to process the application.

1.3 Aim and Objective

This project aims to develop a web-based system that is able to make an online application to use the Sakura College asset. Based on the problem statements, the objectives of this project are as follows:

1. To design a web-based system that can supports activities related to asset management for the use of the principal, staff and students of Sakura college.
2. To develop a web-based system that can manage the movement of the asset for Sakura College.
3. To test the usability of the web-based system with the user.

1.4 Methodology

The fundamental methodology that I will use to develop Asset Management System for Sakura College based on the System Development Life Cycle (SDLC) which consist major steps that move from one phase to another phase which is Agile Methodology. Agile Methodology is a practice that promotes continuous iteration of development and testing throughout the software development lifecycle of the project. (Guru99, 2019)There are five phases in Agile .

1.4.1 Planning

In this phase, meetings are conducted with the student that always interact with the Sakura management, an interview with the student to identify the problems and the objectives of the system that we want to develop to make sure that the system will success and achieved all of the objectives. We also need to identify the process of manual method and gather the data of the manual process and requirement that needed in this system by experience the manual method.

1.4.2 Analysis

In this phase, information that has been collected will be analyzed based on the requirement needed such as what function that users need from the system and the solution for the problem faced by the users. Questionnaire also been distributed to the student and staff. The data from the questionnaire also being analyzed to be included in the information collected. This phase will involve developers and users to discuss the project flow based on the users need. Data from the interview is being analyzed.

1.4.3 Design

In this phase, system design is prepared based on the requirement needed. System design help in specifying the requirement and build system architecture such as Gantt Chart, Use

Case Diagram, Sequence Diagram, Activity Diagram and Class Diagram. The developer need to create a mockup to show to the user to get their approval for the requirement need that will be implement into the system. After developer get approval, they can start do the coding according to the features and requirement discussed. Use case diagram, sequence diagram, activity diagram and class diagram should give proper detailed explanation about the system.

1.4.4 Implementation

In this phase, the system will be implemented during the testing for the system. The user that needs to test the system is principal, staff and student. It includes error detection in the system. The testing process is to test the functionality of the system and how the system work that involves the developer and users. The developer will redo to fix the code continuously until the development system reach user satisfaction.

1.4.5 Maintenance

In this phase, it is important because we need to make sure that the system function without any error and misunderstand the concept. We also will continuously evaluate the system's performance such as the need to make sure it meets the right concept.