



Faculty of Computer Science and Information Technology

UNIMAS SPORT EQUIPMENT BOOKING SYSTEM

Felicia Tan Li Fen

Bachelor of Computer Science with Honors

(Network Computing)

2020

UNIVERSITI MALAYSIA SARAWAK

THESIS STATUS ENDORSEMENT FORM

TITLE: UNIMAS SPORT EQUIPMENT BOOKING SYSTEM

ACADEMIC SESSION: 2019/ 2020

(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

Felicia Tan

(AUTHOR'S SIGNATURE)

Permanent Address

NO. 15, JALAN TIMAH 5,
TAMAN SRI PUTRI,
81300, SKUDAI, JOHOR.

Date: 4th AUGUST 2020

Validated by



ASSOC. PROF. DR. KARTIMAH BINTI ZEH
(SUPERVISOR'S SIGNATURE)

Faculty of Computer Science and Information Technology
Universiti Malaysia Sarawak

Date: 4 August 2020

* Thesis refers to PhD, Master, and Bachelor Degree

** For Confidential or Restricted materials, please attach relevant documents from relevant organizations / authorities

UNIMAS SPORT EQUIPMENT BOOKING SYSTEM

FELICIA TAN LI FEN

This project is submitted in partial fulfillment of the
requirements for the degree of
Bachelor of Computer Science with Honors

Faculty of Computer Science and Information Technology

UNIVERSITY MALAYSIA SARAWAK

2020

UNIMAS SPORT EQUIPMENT BOOKING SYSTEM

FELICIA TAN LI FEN

Projek ini merupakan salah satu keperluan untuk Ijazah
Sarjana Muda Sains Komputer dan Teknologi Maklumat dengan Kepujian

Fakulti Sains Komputer dan Teknologi Maklumat

UNIVERSITI MALAYSIA SARAWAK

2020

DECLARATION

I hereby declare that this research together with all of its content is none other than that of my own work, with consideration of the exception of research based information and relative materials that were adapted and extracted from other resources, which have evidently been quoted or stated respectively.

Signed,

Felicia Tan

.....

Felicia Tan Li Fen (55991)

Faculty of Computer Science and Information Technology

University Malaysia Sarawak.

15th July 2020

ACKNOWLEDGEMENT

I would like to express my great appreciation to my supervisor, Dr. Kartinah bt Zen, for her constructive advices, patient guidance and supervision throughout my Final Year Project. Secondly, I wish to express my heartiest gratitude to my examiner, Dr. Tan Chong Eng, who had provided constructive feedbacks and comments regarding Final Year Project like to thanks to Dr. Tan Chong Eng. I would like to address special thanks to my Final Year Project coordinator, Professor Dr. Wang Yin Chai, who has provided useful guidelines during lectures.

Other than that, I would like to extend my thanks to my university, University Malaysia Sarawak (UNIMAS) as well as my faculty, Faculty of Computer Science and Information Technology for giving me this golden opportunity to do this Final Year Project. I am truly appreciated because I get to explore and gain valuable knowledge in the process of doing this project. I would also like to thank all the respondent who have contributed to this project included my friends and course mates. Finally, I wish to express my deepest gratitude to my family who give me mentally support on completing this project.

ABSTRACT

Internet is widely used and is emerging into everyone's daily life. UNIMAS Sport Equipment Booking System is a web-based booking system that will be used by the UNIMAS sport centre staff. This system will help the staff to have a more systematic way to manage the sport equipment. Currently, the process to borrow sport equipment is to manually fill-in the booking form which is paper-based system. The downside of this method is that it is time consuming as students need to go to the office for reservation and booking approval. Besides, the staff also encounter problem where they need a duration of time to record and save students' data manually. Hence, the proposed system will help the sport centre staff to handle and manage sport equipment more efficiently and in a systematic way. It also enables student and staff to book sport equipment easily by just access to the system to make reservation

ABSTRAK

Internet diguna secara meluas dan muncul dalam kehidupan harian manusia pada masa kini. Sistem tempahan peralatan sukan UNIMAS merupakan satu system tempahan yang berasaskan “web” yang akan digunakan oleh kakitangan di Pusat Sukan UNIMAS. Sistem ini dicadangkan bagi melancarkan sistem pengurusan penempahan peralatan sukan di Pusat Sukan UNIMAS. Proses penempahan peralatan sukan pada masa ini dilakukan secara manual iaitu pelajar perlu mengisi borang penempahan untuk menempah peralatan sukan. Kelemahan proses yang dipraktikkan ialah proses ini mengambil masa pelajar untuk pergi ke pejabat Pusat Sukan UNIMAS untuk menempah dan mengetahui keputusan tempahan tersebut di mana penempahan itu dilulus atau ditolak. Selain itu, kakitangan turut menghadapi masalah iaitu mengambil masa yang lama untuk memasukkan data dan rekod pelajar secara manual. Oleh itu, sistem penempahan peralatan sukan UNIMAS dicadangkan untuk kegunaan kakitangan dan pelajar supaya proses penempahan dapat dijalankan dengan cekap dan secara sistematik. Pelajar dan staf juga dapat menempah peralatan sukan dengan mudah

Table of Contents

DECLARATION.....	i
ACKNOWLEDGEMENT	ii
ABSTRACT	iii
ABSTRAK.....	iv
Table of Content.....	v
List of Figures	viii
List of Table.....	viii
Chapter 1: Introduction.....	1
1.1 Introduction	1
1.2 Problem Statement.....	2
1.3 Objectives.....	3
1.4 Methodology.....	4
i. Analysis and Quick Design.....	4
ii. Prototype Cycle	5
iii. Testing	5
iv. Implementation.....	5
1.5 Scope.....	5
1.6 Significance of Project	6
1.7 Project Schedule	7
1.8 Expected Outcome.....	8
1.9 Project Outline	8
1.9.1 Chapter 2: Literature Review.....	8
1.9.2 Chapter 3: Requirement Analysis and Design.....	8
1.9.3 Chapter 4: Implementation and Testing	9
1.9.4 Chapter 5: Conclusion and Future Work.....	9
Chapter 2: Literature Review.....	10
2.1 Introduction	10
2.2 Overview of Objectives.....	10
2.3 Review on Similar Existing System	11
2.3.1 Lab Equipment Reservation System, Phonetic Lab for Department of Linguistic (University of Washington).	11
2.3.2 School of Biological Sciences Web Booking System (University of Hong Kong).....	12
2.3.3 EZ Booking Equipment (University of Adelaide).	15
2.3.4 Comparison between the Existing Systems	19
2.4 Review of Tools and Technologies.....	20
2.4.1 PHP Hypertext Preprocessor.....	20
2.4.2 HTML.....	21
2.4.3 MySQL	22
2.5 Summary	25

Chapter 3: Requirement Analysis and Design	26
3.1 Introduction	26
3.2 Rapid Application Development	27
3.2.1 Analysis and Quick Design.....	28
a. Interview.....	29
b. User Requirement	29
c. Identifying the User	30
d. Functional Requirement.....	30
e. Software Requirements	31
3.3 System Quick Design.....	32
3.3.1 UML Use Case Diagram	32
3.3.2 Use case scenario and descriptions	34
3.3.3 Sequence Diagram.....	44
3.3.4 Activity Diagram.....	51
3.3.5 Data Dictionary	53
3.3.6 Wireframe	55
3.3.6.1 Student Login Page.....	55
3.3.6.2 Administrator/Staff Login Page.....	56
3.3.6.3 Homepage for Booking System.....	56
3.3.6.4 Student/Staff Manage Booking	57
3.3.6.5 Student/Staff View Booking Availabilities.....	57
3.4 Prototype Cycle	58
3.4.1 Developing.....	58
3.4.2 Demonstrating.....	58
3.4.3 Refining	58
3.4.4 Testing	59
3.4.4.1 Alpha Testing	59
3.4.4.2 Beta Testing.....	59
3.4.5 Implementation	59
3.5 Summary	60
Chapter 4: Implementation.....	61
4.1 Introduction	61
4.2 Installation and Configuration of System's Components	61
4.2.1 XAMPP	61
4.2.2 phpMyAdmin.....	64
4.3 System Users	65
4.4 Common Function among all users	66
4.4.1 Login.....	66
4.4.2 Logout.....	67
4.5 System Administrator Functions	68
4.5.1 Homepage	68
4.5.2 Updated News.....	69
4.5.3 Booking Status	70
4.5.4 List of Sport Equipment	73
4.5.5 List of Equipment Rent.....	78
4.5.6 List of Equipment Receive	79

4.5.7	Manage User	80
4.6	User Functions	83
4.6.1	Homepage	83
4.6.2	Manage Booking	84
4.6.3	Equipment Status.....	85
4.6.4	User Profile	87
4.6.5	About Us	88
4.6.6	Source Code	90
4.7	Summary	91
Chapter 5: Testing.....		92
5.1	Introduction	92
5.2	Functional Testing	92
5.2.1	Unit Testing	92
5.3	Non-Functional Testing	114
5.3.1	Usability Testing	114
5.3.1.1	System Functionality	114
5.4	Summary	115
Chapter 6: Conclusion and Future Works		116
6.1	Introduction	116
6.2	Objective Achievements	116
6.3	Project Limitations.....	117
6.4	Future Works	117
6.5	Conclusion.....	117
References		118
Appendix.....		120

List of Figures

Figure 1.1: RAD development lifecycle (Ghahrai, 2008).....	4
Figure 1.2: Project schedule for FYP using Gantt chart.	7
Figure 2.1: Homepage for Lab Equipment Reservation	11
Figure 2.2: Homepage of Booking System of Equipment	13
Figure 2.3: Detail of Concerned Equipment Interface	13
Figure 2.4: Booking Interface.....	14
Figure 2.5: Booking Confirmation Interface	14
Figure 2.6: Successful Booking Shown in Calendar Interface	15
Figure 2.7: Login Page for EZ Booking Equipment.....	16
Figure 2.8: Filter Equipment using the Drop-Down Menus	16
Figure 2.9: Choose Available Date to Book the Equipment	17
Figure 2.10: Search for Available Equipment by using Specific Keywords	18
Figure 2.11: Edit Bookings	18
Figure 2.12: Top 10 databases 2019 ("DB-Engines Ranking ", 2019).....	23
Figure 3.1: Flowchart of current process in UNIMAS Sports Centre	27
Figure 3.2: RAD development lifecycle (Ghahrai, 2008).....	28
Figure 3.3: Use case diagram	33
Figure 3.4: Sequence diagram for student login.....	45
Figure 3.5: Sequence diagram for booking	46
Figure 3.6: Sequence diagram for administrator/staff login	47
Figure 3.7: Sequence diagram for administrator/staff to manage booking.....	48
Figure 3.8: Sequence diagram for administrator/staff to manage inventory system	49
Figure 3.9: Sequence diagram for administrator/staff to manage user account	50
Figure 3.10: Sequence diagram for administrator/staff to check available equipment.....	50
Figure 3.11: Sequence diagram for administrator/staff logout.....	51
Figure 3.12: Activity diagram for student.....	52
Figure 3.13: Activity diagram for administrator/staff.....	53
Figure 3.14: Login page for student.....	55
Figure 3.15: Login page for administrator/staff	56
Figure 3.16: Homepage of the booking system	56
Figure 3.17: Manage Booking for Student/Staff	57
Figure 3.18: Student View Booking Availabilities.....	57
Figure 4.1: Webpage to download XAMPP.....	62
Figure 4.2: XAMPP Control Panel	63
Figure 4.3: XAMPP Homepage.....	63
Figure 4.4: Click "New" to create a new database	64
Figure 4.5: Creating a new database	65
Figure 4.6: System Administrator Site – Login Page	67
Figure 4.7: Unimas Students and Staff Site – Login Page.....	67
Figure 4.8: System Administrator Site – Logout Button	68
Figure 4.9: Unimas Students and Staff Site – Logout Button	68
Figure 4.10: System Administrator Site – Homepage	69
Figure 4.11: System Administrator Site – Add News.....	69
Figure 4.12: System Administrator Site – Latest News.....	70

Figure 4.13: System Administrator Site – Booking Status	70
Figure 4.14: System Administrator Site – Pending Booking	71
Figure 4.15: System Administrator Site – Pending Booking (Prompt Dialog).....	71
Figure 4.16: System Administrator Site – Rejected Booking	72
Figure 4.17: System Administrator Site – Rejected Booking (Prompt Dialog).....	72
Figure 4.18: System Administrator Site – Returned Booking.....	72
Figure 4.19: System Administrator Site – Returned Booking (Prompt Dialog)	73
Figure 4.20: System Administrator Site – List of Equipment.....	73
Figure 4.21: System Administrator Site – Add New Equipment	74
Figure 4.22: System Administrator Site – List of Equipment.....	74
Figure 4.23: System Administrator Site – Sport Equipment Details.....	75
Figure 4.24: System Administrator Site – Book History	75
Figure 4.25: System Administrator Site – User Personal Information	75
Figure 4.26: System Administrator Site – Sport Equipment Details.....	76
Figure 4.27: System Administrator Site – Edit Sport Equipment Form.....	76
Figure 4.28: System Administrator Site – Sport Equipment Group List.....	77
Figure 4.29: System Administrator Site – Edit Group (Prompt Dialog)	77
Figure 4.30: System Administrator Site – Adjust Quantity (Drop-down Menu).....	78
Figure 4.31: System Administrator Site – Adjust Quantity (Update Quantity)	78
Figure 4.32: System Administrator Site – Rent List.....	79
Figure 4.33: System Administrator Site – Rent Equipment History	79
Figure 4.34: System Administrator Site – Receive Equipment.....	79
Figure 4.35: System Administrator Site – Restock Equipment Quantity	80
Figure 4.36: System Administrator Site – Add User	80
Figure 4.37: System Administrator Site – Add User Page.....	81
Figure 4.38: System Administrator Site – Edit User Page.....	81
Figure 4.39: System Administrator Site – Reset Password.....	81
Figure 4.40: System Administrator Site – Enable Member	82
Figure 4.41: System Administrator Site – Disable Member	82
Figure 4.42: System Administrator Site – Reset Bad Count.....	82
Figure 4.43: System Administrator Site – Delete Member	83
Figure 4.44: User Site – Homepage.....	83
Figure 4.45: User Site – Booking Status.....	83
Figure 4.46: User Site – Add New Booking	84
Figure 4.47: User Site – Redirect to Booking Form.....	84
Figure 4.48: User Site – Calendar of User’s Booking Details	85
Figure 4.49: User Site – List of Equipment by Group.....	85
Figure 4.50: User Site – List of Equipment by Categories	86
Figure 4.51: User Site – Quantity Available Decreased (After Renting)	86
Figure 4.52: User Site – Quantity Available Increased (After Receiving)	87
Figure 4.53: User Site – Information of Sport Equipment.....	87
Figure 4.54: User Site – User Profile (Update Personal Information).....	88
Figure 4.55: User Site – User Profile (Update Profile Picture).....	88
Figure 4.56: User Site – User Profile (Update Password).....	88
Figure 4.57: User Site – About the Sport Centre.....	89
Figure 4.58: User Site – Background of the Sport Centre	89
Figure 4.59: User Site – Operation Hours of the Sport Centre	90
Figure 4.60: Source Code – Add and Edit Booking for User Site.....	90

Figure 4.61: Source Code – Rent List for Admin Site..... 91

List of Tables

Table 2.1: Comparison of Existing System	19
Table 2.2: Features and Advantages of PHP	21
Table 2.3: Advantages of HTML	22
Table 2.4: Features and Advantages of MySQL	24
Table 3.1: Use case for system login/logout by student	34
Table 3.2: Use case for system login/logout by administrator/staff	35
Table 3.3: Use case for add booking	36
Table 3.4: Use case for edit booking	37
Table 3.5: Use case for cancel booking	37
Table 3.6: Use case to view available sport equipment	38
Table 3.7: Use case to view booking status	39
Table 3.8: Use case to view booking list	39
Table 3.9: Use case for booking approval.....	40
Table 3.10: Use case for checking booking status	41
Table 3.11: Use case to search for booking record.....	41
Table 3.12: Use case to add user account	42
Table 3.13: Use case to delete user account.....	43
Table 3.14: Use case to edit/update user account.....	44
Table 3.15: Data dictionary for User table.....	54
Table 3.16: Data dictionary for Booking table.....	54
Table 3.17: Data dictionary for View table.....	54
Table 3.18: Data dictionary for Equipment table	54
Table 3.19: Data dictionary for Admin User table	55
Table 4.1: Functions for different users of the system	66
Table 5.1: Test Case for Admin Login Module	94
Table 5.2: Test Case for Admin Manage News Module	95
Table 5.3: Test Case for Admin Manage Booking Module	96
Table 5.4: Test Case for Admin Manage Equipment Module	97
Table 5.5: Test Case for Admin Manage Rental Module	100
Table 5.6: Test Case for Admin Manage Receiving Module.....	101
Table 5.7: Test Case for Admin Manage User Module	103
Table 5.8: Test Case for Admin Logout Module	106
Table 5.9: Test Case for User Login Module.....	106
Table 5.10: Test Case for View Information Module.....	107
Table 5.11: Test Case for Manage Booking Module.....	108
Table 5.12: Test Case for View Equipment Module	110
Table 5.13: Test Case for Manage User Profile Module	111
Table 5.14: Test Case for Manage Information Module.....	112
Table 5.15: Test Case for User Logout Module	113
Table 5.16: Summary of the system functionalities for the proposed system	114
Table 6.1: Objectives Achievements	116

Chapter 1: Introduction

1.1 Introduction

UNIMAS sport centre is one of the sport facilities that provides all sorts of sports facility for the benefit of all students and staff at UNIMAS. All sports facilities including sport equipment can be used for free by all students and staff. Among the sport equipment that are available at the sport centre are tennis racquet and ball, basketball, squash racquet and ball, and many more.

Students who wish to book the sport equipment must first fill in a booking form manually at UNIMAS sport centre by stating their personal information such as name, student email, contact number, list of sport equipment, quantity of sport equipment, the date they want to borrow and return the sport equipment. Students will also need to leave their matric card to the sport centre staff once they receive the sport equipment. This is to ensure that the student will return the sport equipment to the sport centre on time. The sport centre staff will then check the record of the equipment in their own file to see whether the equipment is available to be borrowed or another student had already borrowed it. Besides, the sport centre staff will need to check for the availabilities of equipment manually in their record which is quite time consuming. The sport centre staff will inform the student through phone call or email as stated in the manual booking form. Therefore, UNIMAS sports equipment booking system is required in order to ease the work of all parties who are involved.

A sport equipment booking system at UNIMAS is developed to give convenience to the students and sport centre staff. Sport centre staff can insert the list of sport equipment that the student can borrow into the system so that student can straight away choose which sport equipment they want to borrow. Sport centre staff also have the access to approve the students' booking. Sport centre staff can easily keep track of students who have book the sport equipment.

For example, according to the rules, students can book a sport equipment for not more than two times within a week for the same sport equipment. This is to give an opportunity to other students who wish to book the sport equipment. Sport centre staff can also monitor the booking of the sports equipment to see which sports equipment is more popular among the students. It is user- friendly if this system is used as compare to the use of manual booking form. The forms can be replaced by this sports equipment booking system. Sport centre staff can easily track back the data of past students that has borrowed the sport equipment as they do not need to go through the files one by one.

Furthermore, student can easily check which sport equipment is available for them to borrow. Students do not need to keep asking the sport centre staff whether they could borrow which sport equipment as the system will show a list of sport equipment students can borrow.

1.2 Problem Statement

Sport centre staff are facing difficulties to keep the students' data in a systematic way as they need to go through all the booking forms that students have filled in one by one manually. For example, if student borrowed the sport equipment a few months ago and wanted to return it back to the sport centre, the sport centre staff will need to search for the student's name and matric number to check for confirmation. This process is very time consuming as the staff will need to go through and check back to the booking form that students had submitted. Sport centre staff would also need to consider the number of times the student has booked before this and give chance to other student who wants to borrow the sport equipment for the first time so that everyone will get a chance to play.

Besides, students do not know which sport equipment they could borrow because there is no list that show them which sport equipment they can borrow. So, they need to ask the staff

and check whether the sport equipment is still available for them to borrow. But, sometimes the sport centre do not have enough staff member or they are too busy to entertain with the student's questions and will ask them to just fill in the manual form first and will inform them once the sport equipment is ready to be borrowed. Thus, students will waste their time by going all the way to the sport centre to just fill-in the manual form and not getting what they want to borrow.

Therefore, the existing manual system is very time consuming and it has become a burden to the sport centre staff and the students.

1.3 Objectives

The main objective of this project is to design and develop a web-based platform for sport centre staff to keep track of the sport equipment borrowed by students in UNIMAS.

The other objectives in this project includes:

- i. To enable student/staff to book the sport equipment, edit the booking or cancel the booking through the system.
- ii. To enable student/staff to check the availabilities of the sport equipment through the system.
- iii. To ensure that sport centre staff can easily keep track with the sport equipment booking records and students' data.

1.4 Methodology

Rapid application development (RAD) is chosen as the methodology of development of this project as it allows the fast development and delivery of a high-quality system with low costs (Beynon-Davies, Carne, Mackay & Tudhope, 1999). Stiner (2016) stated that RAD process allows a quick adjustment made to system in a fast-paced and constantly changing environment to ensure each requirement is met in each prototyping cycle. Figure 1.1 shows all the phases involved in RAD, namely analysis and quick design, prototype cycle, testing and implementation.

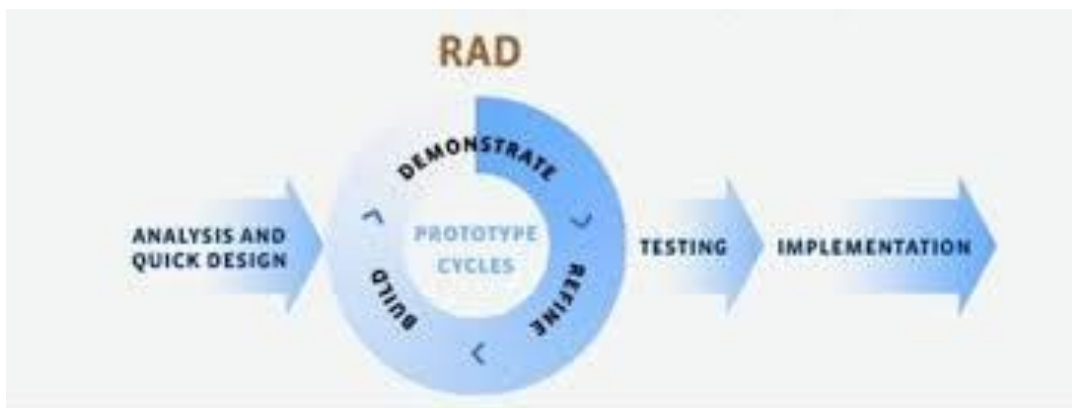


Figure 1.1: RAD development lifecycle (Ghahrai, 2008)

i. Analysis and Quick Design

In this phase, analysis is about requirement analysis. It starts from requirement elicitation which collect user requirement through interview from project stakeholders. There are two separate part design in this system which is logical design and physical design. Logical design is accomplished by using use case diagram, sequence diagram, activity diagram and data dictionary. Whereas, physical design involves the designing of user interface of the system.

ii. Prototype Cycle

Prototype cycle start with the building of prototype based on the system design. Once a prototype is produced, it will be demonstrated to the user and get feedback. Feedbacks collected from user will be analyzed and refinement on the previous prototype will be carried on. These three processes (building, demonstrating and refining) are iterated and the prototype is continually being refined until all the requirements are met.

iii. Testing

In this phase, prototype produced will undergo unit testing, integration testing, system testing and acceptance testing to verify whether it meets all the user requirements and system requirements.

iv. Implementation

Once the system passed the testing phase, it will be deployed to the server. Hence, the system will be accessible to the crowd users.

1.5 Scope

The scope of the project has been outlined to ensure the goal achieves and listed as below:

- i. This system is to ease the management of UNIMAS sport centre staff.
- ii. This system will enable sport centre staff to track back at students' record and list of sport equipment that are borrowed.
- iii. This system will provide a list of sports equipment that are available for students to borrow it.

1.6 Significance of Project

The significances of this project are:

- i. To develop a system for students to book different sport equipment where they could also edit and cancel their booking if they book through the system.
- ii. To assist sport centre staff to keep students' data and sport equipment booking record in the system instead of using manual booking form where the form could be easily destroyed.
- iii. To enable student to know which sport equipment is available for them to book by just checking at the availabilities in the system.

1.7 Project Schedule

Figure 1.2 shows the Final Year Project schedule which is illustrated in Gantt chart. The estimated duration of the project is 248 days, which is from 10.09.2019 to 15.08.2020.

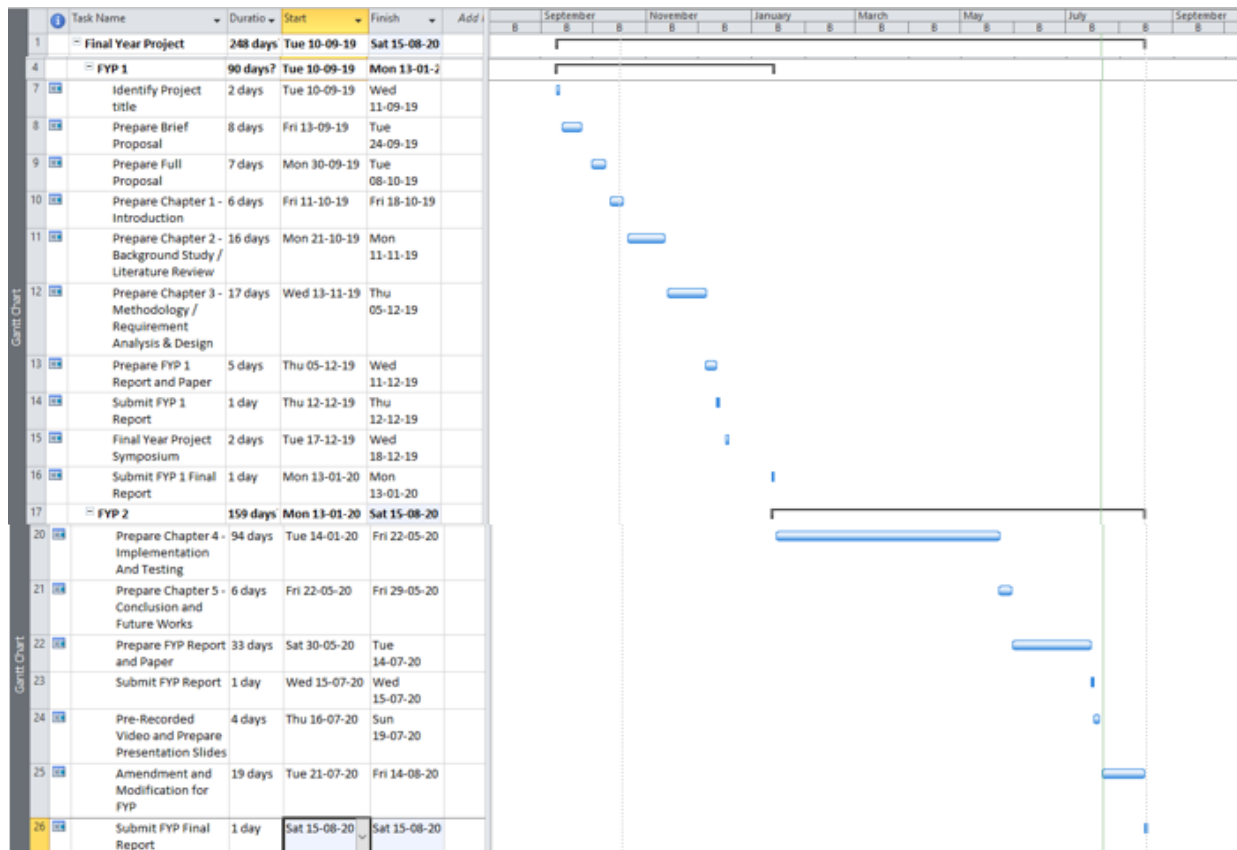


Figure 1.2: Project schedule for FYP using Gantt chart.

1.8 Expected Outcome

- i. Using web-based system to book sports equipment instead of using manual forms.
- ii. Student can easily book the sport equipment by just checking at the system for availabilities.
- iii. Sport centre staff can easily view and keep track the sports equipment and students' data through the system.

1.9 Project Outline

1.9.1 Chapter 2: Literature Review

This chapter discusses the review done on the existing systems similar to the proposed project. The strengths and limitations of the existing systems will be identified and compared with the proposed project. The overall background study is accomplished based on journals, conference paper and articles. This chapter also cover the details of project implementation such as software and programming language used.

1.9.2 Chapter 3: Requirement Analysis and Design

This chapter discusses the methodology chosen to apply in the development of the proposed system. In this proposed project, Rapid Application Development (RAD) is chosen in the system development. Chapter 3 specify the methods of collecting requirements from the stakeholder of the proposed system. This chapter is also concerned with presenting the design proposed system and justifying how it should meet the requirement collected from the stakeholders. Hence, this chapter will include Use Case Diagram, Sequence Diagram, Activity Diagram, Data Dictionary and the physical design of the whole system.

1.9.3 Chapter 4: Implementation and Testing

This chapter focuses on the detailed description and justification of the proposed system's implementation. The structure and behavior of the system are described in detail using screenshot and the interface layout as walk-through. Furthermore, this chapter explains about the testing performed in the proposed system. Hence, the system features and functionalities are evaluated to improve the system performance and accuracy.

1.9.4 Chapter 5: Conclusion and Future Work

This chapter presents conclusion about the entire project and outline the further work. The lesson obtained throughout the project are presented with appropriate examples. Apart from this, this chapter also includes new ideas which can enhance the project in future.