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UNIMAS SPORT EQUIPMENT BOOKING SYSTEM

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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

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Signed,

Felicia Tan

…….…….

Felicia Tan Li Fen (55991)

Faculty of Computer Science and Information Technology 15th July 2020

University Malaysia Sarawak.

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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

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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.

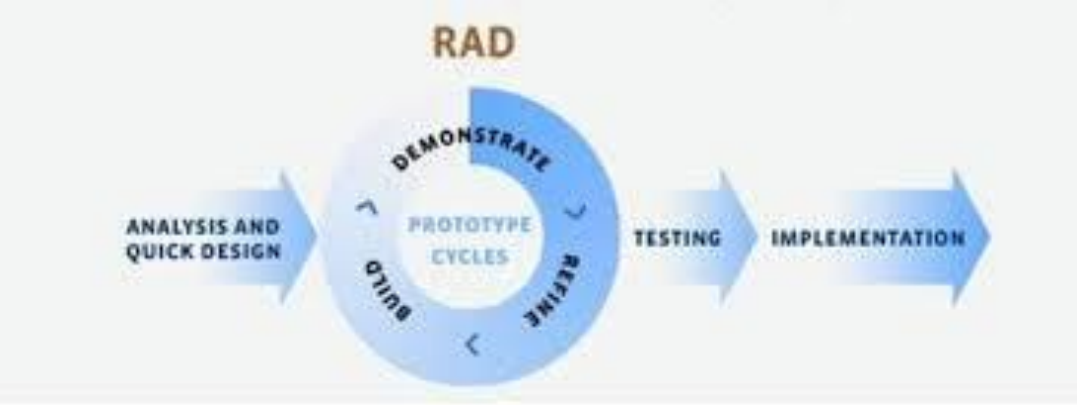

Figure 1.1: RAD development lifecycle (Ghahrai, 2008)

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.

	Task Name	Duratio	Start	Finish
1	**Final Year Project**	**248 days**	**Tue 10-09-19**	**Sat 15-08-20**
4	**FYP 1**	**90 days?**	**Tue 10-09-19**	**Mon 13-01-2**
7	Identify Project title	2 days	Tue 10-09-19	Wed 11-09-19
8	Prepare Brief Proposal	8 days	Fri 13-09-19	Tue 24-09-19
9	Prepare Full Proposal	7 days	Mon 30-09-19	Tue 08-10-19
10	Prepare Chapter 1 - Introduction	6 days	Fri 11-10-19	Fri 18-10-19
11	Prepare Chapter 2 - Background Study / Literature Review	16 days	Mon 21-10-19	Mon 11-11-19
12	Prepare Chapter 3 - Methodology / Requirement Analysis & Design	17 days	Wed 13-11-19	Thu 05-12-19
13	Prepare FYP 1 Report and Paper	5 days	Thu 05-12-19	Wed 11-12-19
14	Submit FYP 1 Report	1 day	Thu 12-12-19	Thu 12-12-19
15	Final Year Project Symposium	2 days	Tue 17-12-19	Wed 18-12-19
16	Submit FYP 1 Final Report	1 day	Mon 13-01-20	Mon 13-01-20
17	**FYP 2**	**159 days**	**Mon 13-01-20**	**Sat 15-08-20**
20	Prepare Chapter 4 - Implementation And Testing	94 days	Tue 14-01-20	Fri 22-05-20
21	Prepare Chapter 5 - Conclusion and Future Works	6 days	Fri 22-05-20	Fri 29-05-20
22	Prepare FYP Report and Paper	33 days	Sat 30-05-20	Tue 14-07-20
23	Submit FYP Report	1 day	Wed 15-07-20	Wed 15-07-20
24	Pre-Recorded Video and Prepare Presentation Slides	4 days	Thu 16-07-20	Sun 19-07-20
25	Amendment and Modification for FYP	19 days	Tue 21-07-20	Fri 14-08-20
26	Submit FYP Final Report	1 day	Sat 15-08-20	Sat 15-08-20

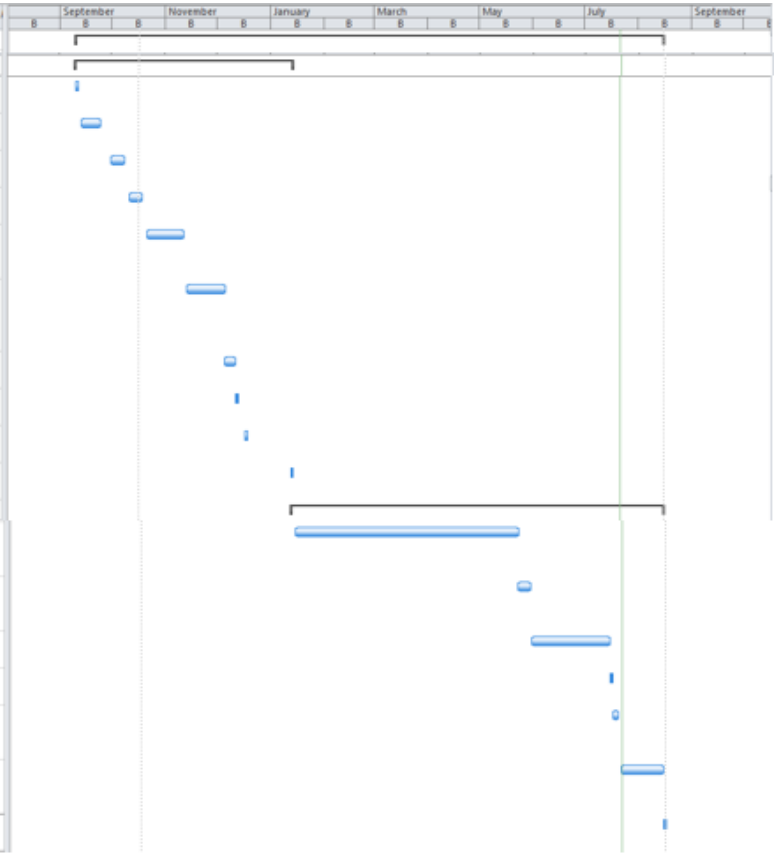

Figure 1.2: Project schedule for FYP using Gantt chart.

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.