



Faculty of Computer Science and Information Technology

***SPORTS FACILITY RESERVATION PLATFORM IN BINTULU
(BORNEOFITBTU)***

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Sports Facility Reservation Platform in Bintulu (BorneoFitBTU)

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This project is submitted in partial fulfilment of
The requirements for the degree of Bachelor of Computer Science with Honours
(Network Computing)

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Platform Tempahan Fasiliti Sukan di Bintulu (BorneoFitBTU)

MUHD HAMARUDIN BIN OMAR ALI

Projek ini merupakan salah satu keperluan untuk
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(Pengkomputeran Rangkaian)

Fakulti Sains Komputer dan Teknologi Maklumat
UNIVERSITI MALAYSIA SARAWAK
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ABSTRACT

Bintulu, a city known for its vibrant sports community and numerous sports venues, faces challenges in managing reservations for popular sporting facilities like pétanque, volleyball, football, futsal, and badminton courts. The current reservation process, characterized by difficulties in securing bookings, has resulted in a decline in enthusiasm among sports enthusiasts. To address these issues, this project aims to develop a platform equipped with an automated reservation system, effectively resolving the problems encountered in traditional reservation methods. By implementing the BorneoFit BTU application, users and venue owners can overcome hurdles related to availability checks, real-time bookings, cancellations, and payment methods. The success of BorneoFit BTU was evaluated through a survey involving 20 testers. The results indicate that the majority of respondents agreed on the platform's proficiency in storing and retrieving records of court bookings, providing up-to-date sports news, and facilitating access to sports tournaments. Users found the application to be highly useful in streamlining court reservations, staying informed about the latest sports news, and keeping track of ongoing sports tournaments. In conclusion, the BorneoFit BTU platform offers a comprehensive solution to the challenges faced by sports enthusiasts and venue owners in Bintulu. Its automated reservation system not only simplifies the booking process but also enhances the overall sports experience, fostering a more active and engaged sports community in the city.

ABSTRAK

Bintulu, sebuah bandar yang terkenal dengan komuniti sukan yang aktif dan pelbagai tempat sukan, menghadapi cabaran dalam menguruskan tempahan fasiliti sukan popular seperti padang petanque, bola tampar, bola sepak, futsal, dan gelanggang badminton. Proses tempahan semasa, yang ditandai dengan kesukaran untuk mendapatkan tempahan, telah menyebabkan penurunan semangat di kalangan peminat sukan. Untuk mengatasi masalah ini, projek ini bertujuan untuk membangunkan satu platform yang dilengkapi dengan sistem tempahan automatik, dengan berkesan menyelesaikan masalah yang dihadapi dalam kaedah tempahan tradisional. Dengan menerapkan aplikasi BorneoFit BTU, pengguna dan pemilik tempat sukan dapat mengatasi cabaran berkaitan pemeriksaan ketersediaan, tempahan secara masa nyata, pembatalan, dan kaedah pembayaran. Keberkesanan BorneoFit BTU dinilai melalui satu tinjauan yang melibatkan 20 orang pengujian. Keputusannya menunjukkan bahawa majoriti responden bersetuju mengenai kecekapan platform ini dalam menyimpan dan mengambil rekod tempahan gelanggang, menyediakan berita sukan terkini, dan memudahkan akses ke kejohanan sukan. Pengguna mendapati aplikasi ini sangat berguna dalam menyederhanakan tempahan gelanggang, mendapatkan berita sukan terkini, dan menjejak kejohanan sukan yang sedang berlangsung. Kesimpulannya, platform BorneoFit BTU menawarkan penyelesaian menyeluruh terhadap cabaran yang dihadapi oleh peminat sukan dan pemilik tempat sukan di Bintulu. Sistem tempahan automatiknya tidak hanya menyederhanakan proses tempahan, tetapi juga meningkatkan pengalaman sukan secara keseluruhan, memupuk komuniti sukan yang lebih aktif dan berpenglibatan di bandar ini.

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LIST OF ABBREVIATIONS

AFA Athletes For Athletes

BTU Bintulu

DFD Data Flow Diagram

FIT Fitness

UI User Interface

CHAPTER 1: INTRODUCTION

1.1. Background

Bintulu has many sports enthusiasts and sports venues that are used daily. The most popular venues that are being used are pétanque, volleyball, football, futsal, and badminton courts. There are a lot of sports enthusiasts who want to play, but it is hard to make reservations, so most of them get lazy when they run into this problem.

Many problems have been encountered, such as checking availability, real-time booking and cancellations, payment methods, and so on. The goal of this project is to create a platform with an automated reservation system that will help users and venue owners get around any problems that come up.

Sports play an important role in the modern era and are practised all over the world as careers, hobbies, and fitness routines. There are several venues in our neighbourhood that are underutilised due to the difficulty of making reservations, which discourages most people from playing sports during their free time.

This system will focus more on sports enthusiasts in Bintulu and includes facility bookings with fees based on type of courts.

1.2. Problem Statement

A. Several calls taken to book a venue

Reservations through a manual process could be time-consuming and difficult because individuals must call the relevant person in charge. If that person is unavailable, they must make multiple calls until the phone is answered, search for an alternative venue, or visit the facility to make the reservation (Tan, H.F., 2015).

B. Unable to check nearby and availability of venues

People's lack of familiarity with the sports facilities in their community is one of the primary reasons why they do not participate in their preferred sport. When an individual wants to make a reservation, they must directly inquire whether courts are available for booking (Saat, S.Z., 2017) and people who live far away from the facility will face difficulties traveling to check for availability (Rudin, A. R. A. et al, 2016).

C. No cashless payment methods

Mobile payment is the second most common form of payment and is growing rapidly, according to Worldpay's 2018 Global Payment Report reported by Ramos-de-Luna et al. (2019). Therefore, there is a need for cashless payment for the convenience of the customer to make court reservations rather than paying with cash only.

D. Difficulty in knowing available facilities

Sports facilities may vary based on the facilities they provide. It is difficult to discover the availability of parking spots, changing rooms, equipment storage, canteens, restrooms, and sanitary standards, which are essential for some individuals (Dugalić & Krsteska, 2013).

E. Unaware of nearby tournaments and local news

There are numerous talented sports enthusiasts who would like to participate in tournaments but are unable to do so since they are uninformed of the local events (Kosariev & Pavlíčková, 2018). They will never be able to demonstrate their talent if they are unaware about it.

1.3. Objectives

A. User-friendly mobile interface

The platform offers a user-friendly mobile interface, simplifying the reservation process for sports enthusiasts who can easily browse available sports venues, select their preferred option, and make reservations directly through the platform, eliminating the need for phone calls.

B. Display nearby tournaments and sports news

The platform displays information about nearby tournaments and local sports news, ensuring sports enthusiasts stay updated on the latest developments in the Bintulu sports scene, fostering a sense of community around their shared passion for sports.

C. Increased venue utilization

The easy reservation process encourages greater utilization of sports venues, as sports enthusiasts are more likely to book and utilize these facilities, ultimately benefiting both the customers and venue owners.

D. Revolutionary impact

The online platform revolutionizes the way sports enthusiasts in Bintulu make reservations for sports venues, offering convenience, security, and ease of use, which results in a higher likelihood of sports venue bookings and utilization.

E. Community hub for sports enthusiasts

With its comprehensive features and focus on local sports events, the platform becomes a central hub for sports enthusiasts in Bintulu, bringing the community together and strengthening their connection to sports.

1.4. Brief Methodology

In this project, Agile Scrum methodology approach was selected as the system development methodology. Agile Scrum development is an excellent fit for mobile software development. Agile Scrum methodology is a popular approach to software development that is used to handle complex software projects.

This methodology is ideal for mobile software development as it involves iterative development, frequent testing, and the ability to adapt to changes quickly. According to Kim, Ha, & Lee (2016), Agile Scrum methodology helps development teams to deliver high-quality software, increase productivity, and improve customer satisfaction.

The methodology involves a series of sprints, each of which involves the development of a particular set of features or functionalities. During each sprint, the development team works on the features that were prioritized by the product owner. At the end of each sprint, the development team delivers a working product that can be tested and reviewed by the product owner and other stakeholders. The Agile Scrum methodology allows the development team to respond quickly to changes in the project requirements and enables the product owner to provide feedback on the product throughout the development process (Kim et al., 2016).

Unfortunately, this project will not follow exactly this methodology. It is because agile scrum is designed for a team, but this project is individual. However, the benefits of agile scrum, which is working in a brief period and dividing the big task into small tasks, are extremely helpful in this project. Stages of agile scrum methodology modelling is shown in Figure 1.1 below.

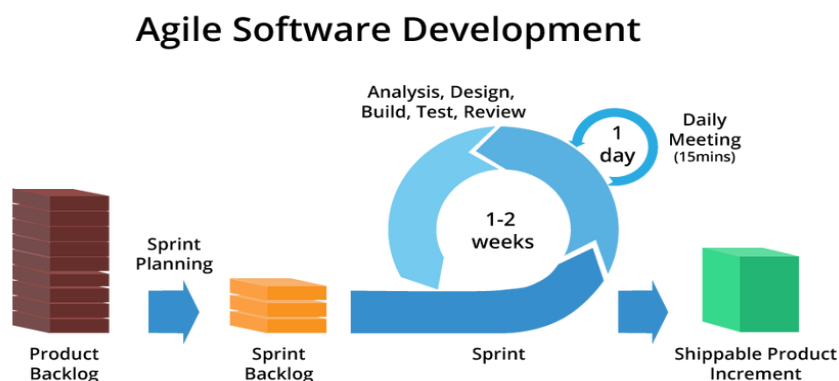


Figure 1.1: Agile Scrum methodology model

1.5. Scopes

This system will be accessible to administrators, venue owners, and customers via the project's platform. The target users for this project are the venue owner and the customer. They will use this platform to manage the reservation process for the sports venue.

Additionally, administrators will advertise sports-related news in Bintulu. Administrators will also advertise the upcoming competition that will be held at nearby location. Thus, this will benefit the sports enthusiasts by making them aware of the events that will take place in the area.

1.6. Significance of Project

The significance of the project is that it dramatically reduces the workload for the venue owners and the customer and frees them up for more important tasks. To do that, an online platform for sports enthusiasts to make reservations for renting the sports facilities is proposed as opposed to a manual system. Most venues seek an online reservation system since this system assists both customers and venue owners in completing their jobs swiftly and effectively. According to Abd Rahman (2008), an online reservation system helps save time for venue owners because they do not have to answer phone calls and check availability by hand.

The platform will aid the venue owner in keeping track of all reservation records, which are stored in a database so they can be quickly located and viewed at any time (Li, C. et al., 2017). Therefore, there is a reduced risk of data loss because it will be saved in the cloud, and it would be much more convenient than having reservations written down in a book by the venue owner. In addition, it eliminates the expense of keeping a person at the front desk and allows them to work at any time. This also allows the customer to make bookings even at midnight.

Lastly, this platform will also deliver local sports news and promote the upcoming Bintulu sports competition. Therefore, this will benefit sports enthusiasts by informing them of upcoming events in the area. They will start to train so that they can compete. This will encourage them to live a healthy life through sports.

1.7. Project Schedule

Please refer to Appendix A.

1.8. Expected Outcome

The expected outcome of this project is to develop an online platform to manage reservations of sports facilities for customers. This platform will make it easier for users to make reservations for sports facilities by letting them book the facilities, check if the court is free, and pay for them online.

In addition, when customers can make reservations without having to wait for an employee to confirm them, they can book online using a desktop computer or a mobile device in their own time without having to deal with direct sales pressure.

They should be able to readily locate local venues by verifying the venue's availability, they should be able to book a space at any time. They no longer need to waste time calling or visiting the venue to pay in advance to reserve a time slot. It lets customers pay without cash, which is more convenient for them because they don't have to carry around a lot of cash or go to an automatic teller machine (ATM).

1.9. Project Outline

This paper includes five chapters to describe the development of **BorneoFitBTU** platform.

Chapter 1: Introduction explains sports enthusiasts, sports facilities owner and expresses the significance. This chapter also outlines the problem statement, objectives, brief methodology, project significance, project schedule, expected outcome, and project outline.

Chapter 2: Literature Review revolves around an analysis of relevant literature of similar systems to the proposed system. This chapter explores the functionalities inside the existing system and compares them with one another. The features of the suggested system are also discussed in this chapter.

Chapter 3: Requirement Analysis and Design describes the requirement analysis of the proposed system. User and system requirements are listed clearly in this chapter. In the design phase, diagrams included are Context Diagram, Data Flow Diagram (DFD), Data model Diagram, and user interface.

Chapter 4: Implementation discusses about the implementation phase of the proposed application. This chapter describes the installation of software needed to run the proposed application. This chapter also provide screenshots of the proposed application.

Chapter 5: Testing discusses about the testing processes done for the proposed application. This chapter provides test plans and technical description of the application.

Chapter 6: Conclusion and Future Work delivers the summary and conclusion for the system. This chapter describes the objectives accomplished, project limitations, and suggestions for future improvements.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

In this chapter, existing applications that perform the same functions as the proposed application are chosen for comparison. The three existing applications are to be reviewed and analysed. The basic function of these applications is to allow users to make online reservations to use the sports facility.

To fully utilise the applications, users must have a basic understanding of how to navigate through a mobile app. These applications were created for users who enjoy sports and want to check the availability of sports facilities before making online reservations.

A functional comparison was performed following the analysis and review of these applications. The tools and technology used in the proposed application, BorneoFitBTU, are discussed in this chapter. Finally, a review summary concludes this chapter.

2.2. Review of Similar Existing Systems

Within this section, three systems with similar functionalities to the proposed application, BorneoFitBTU are reviewed and analysed. The selected applications are AFA: Sports Venue Booking App, iCourt Smart Badminton and Smart Court Badminton. Each application has the same main purpose that is for booking sports facilities and each application's strength and weakness will be discussed.