**CSC3113 Group Project – Proposal Template**

Proposed Project Title:

Grounds and Gym Facility Scheduler

Project Group Details

Group number: Group 10

Group members:

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| --- | --- |
| **Name** | **Index No** |
| (i) |  |
| (ii) |  |
| (iii) |  |
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| (v) |  |
| (vi) |  |

# Details of Project Supervisor, Advisors and Clients

Proposed Project Supervisor :

Mrs. T. D.G. Geethika

Name of the supervisor:

Mrs. T. C. Weerakoon

Date:

14-11-2023

Project Advisors: (External industry advisors, if any)

(Please provide, Name, Organization, email address and institute)

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The client of the Project (If applicable, otherwise supervisor will be considered as the client)

Name of the client:

Address of the client:

Contact person at client:

Contact number of the contact person:

e-mail address of the contact person:

Project Details:

1. **Project Title**:

Playgrounds and Gym Facility Scheduler

1. **The Goal and Objectives:**

1. Automate Reservation Process

**Goal** Streamline the stadium booking process by eliminating the requirement for physical presence at the university.

**Objectives**

- Implement an online reservation system accessible remotely.

- Collect and store booking details electronically for easy management.

- Minimize the necessity for clients to visit the university for booking-related activities.

- Provide a user-friendly interface for easy navigation and interaction.

2. Improve Record-keeping:

Goal Enhance efficiency by moving from manual record-keeping to a digital system.

Objectives

- Replace manual record-keeping with a centralized digital database.

- Store user contact details electronically for communication purposes.

3. Expedite Approval Process

**Goal** Accelerate the booking approval process, reducing the need for physical approval letters.

**Objectives**

- Digitize the approval process, allowing the DVC to approve bookings through the system.

- Enable real-time updates on the status of reservations.

4. Enhance Communication

**Goal** Improve communication with clients throughout the booking process.

**Objectives**

- Implement email notifications to inform clients about booking status.

- Enable clients to receive real-time updates on reservation progress.

5. Resolve Scheduling Conflicts

**Goal** Address conflicts in scheduling university sports practice sessions and special events.

**Objectives**

- Implement a system that identifies and resolves scheduling conflicts automatically.

- Improve coordination between different university events.

- Implement a calendar that shows existing reservations

7. Simplify Damage Reporting

**Goal** Provide a seamless process for clients to report and receive evidence of damage.

**Objectives**

- Enable clients to submit evidence of damage through the system.

- Implement a system for tracking and managing damage reports.

8. Optimize Stadium Usage

**Goal** Maximize the utilization of the indoor stadium, including outsourcing for additional income.

**Objectives**

- Develop a membership system for external users to access the indoor stadium.

- Implement a systematic approach for scheduling and managing external usage.

10. Ensure Security and Compliance

**Goal** Establish secure and compliant procedures for handling personal information.

**Objectives**

- Ensure compliance with relevant data protection.

1. **Problem Definition and background:**

**Problem Overview:**

The Sport Unit at University Ruhuna faces significant challenges in its manual ground and stadium booking processes, leading to inefficiencies and difficulties in managing sports practices and events. The existing system involves lengthy approval processes and lacks a streamlined method for customers to book facilities, impacting the overall scheduling of sports activities.

1. Tedious Manual Booking Process:

* Customers submit physical request letters to the DVC for ground or gymnasium bookings.
* DVC approval is a bottleneck, leading to extended waiting periods for customers.
* Manual payment processes and booking confirmation at the university premises introduce delays.

**Weakness**

* Weaknesses include the slow, paper-based process leading to customer dissatisfaction.
* Lack of immediate communication with customers hinders efficient coordination.
* In-person payment processes are inconvenient for both the Sport Unit and users

1. Unstructured Sports Practice Sessions:

* Lack of a centralized scheduling system results in ad-hoc and disorganized sports practice sessions.
* Coordinating 28 sports within limited resources without a systematic approach leads to conflicts and inefficiencies.

**Weakness**

1. Underutilized Gymnasium Potential:

* The university’s gymnasium, the sole one in the Matara district with high-quality facilities, is not optimized for revenue generation.
* The facility remains unused after 8 pm, presenting an untapped opportunity for outsourcing and additional income.

**Weakness**

* The absence of a formal outsourcing strategy prevents the university from capitalizing on this resource.

**Proposed Comprehensive Solutions:**

1. Online Booking Portal:

* Develop a user-friendly online platform for customers to submit and track booking requests.
* Integrate automated approval processes, reducing dependency on manual interventions.
* Enable online payment options for seamless and efficient transactions.

2. Advanced Scheduling Software:

* Implement a robust scheduling software to allocate specific time slots for each sport.
* Consider factors like team preferences, peak usage hours, and maintenance schedules.
* Provide real-time visibility of schedules to both the Sport Unit and users.

3. Outsourcing Strategy:

* Formulate a strategy for outsourcing the stadium post-8 pm, considering potential partners and contractual agreements.
* Establish a method for seamless transitions between university use and outsourced events.
* Develop a revenue-sharing model to ensure mutual benefits.

1. **A brief introduction to the project:**

The Sport Unit of University Ruhuna plays a major role in Booking University Ground and indoor stadium for Sports Practices and Special Events. But those processes are happened manually. For example Ground booking details and indoor stadium Booking details are recorded on a book. In such case they have facing so many difficulties. Also University Sports practice sessions are not conducted on a proper schedule. There are 28 Sports are conducted on our university premise. So Sports Unit face many issues in conducting sports practice sessions.

Our Gymnasium is the one and only gymnasium in the Matara district with high quality facilities. But it is not used after 8pm and expected that the stadium will be outsourced to obtain additional income for the university. But there are no methods to execute it. Recognizing the current challenges faced by both the university and its patrons, we propose a comprehensive overhaul of the existing ground booking process to address various issues and introduce innovative solutions.

1. **The scope of the project:**

Users (possible actors) of the system:

* University Students
* University Organizations and sport teams
* DVC
* Physical education unit’s staff members
* Non university users
* Sport Instructors
* Administrators

Main functionalities of the system:

* Allow customers to book the stadium remotely through an online system.
* Eliminate the need for physical visits to the university for reservations.
* Implement an online form to gather relevant booking details from customers.
* Record booking details in a computer-based database instead of a manual book.
* Record user contact details such as email and phone numbers.
* Enable the system to send booking details to DVC for approval via email and through the system.
* Update clients on the status of their reservation through emails and the system.
* Develop a system calendar displaying booked and pending reservations.
* Allow sports instructors to input practice schedules into the system.
* Implement a conflict-checking mechanism to avoid overlapping reservations.
* Include servant details in the booking after confirmation.
* Facilitate payments with an option for users to submit scanned payment slips through the system.
* Provide a feature for staff members to report and submit evidence of damage through the system .
* Establish a systematic approach for granting membership to external individuals for using the indoor stadium.
* Define usage periods and terms for external members.
* Develop a mechanism for outsourcing the indoor stadium to generate additional income.
* Define procedures for membership, usage rules, and financial transactions for outsourced stadium usage.
* Out of Scope:

1. Physical stadium visits for reservations.

2. Implementation of online payment methods for ground and gymnasium bookings.

3. Detailed financial accounting beyond deposit management and cheque issuance.

4. Physical proof collection for damage reports.

5. Operational details after 8.00 pm for the indoor stadium (outsourcing procedures are covered)

1. **Tentative Technologies:**

MongoDB :

Why MongoDB? MongoDB is a NoSQL database that provides a flexible and scalable data storage solution, making it suitable for applications with evolving data requirements. Its document-oriented model allows for easy representation of complex data structures, and it seamlessly handles large volumes of data.

Benefits for the client: MongoDB's scalability and flexibility can accommodate growing datasets, ensuring the application's ability to scale with the client's needs.

Express.js :

Why Express.js? Express.js is a minimal and flexible Node.js web application framework that provides a robust set of features. It simplifies the process of building scalable and maintainable server-side applications.

Benefits for the client: Express.js accelerates the development process by providing a lightweight framework that facilitates the creation of efficient and modular backend systems. This leads to quicker development cycles and reduced costs.

React.js :

Why React.js? React.js is a declarative, efficient, and flexible JavaScript library for building user interfaces. Its component-based architecture promotes reusability and maintainability, making it an ideal choice for creating dynamic and responsive user interfaces.

Benefits for the client: React.js enhances the user experience by enabling the development of interactive and high-performance UIs. Its modular structure simplifies updates and maintenance, ensuring a smoother user experience over time.

Node.js :

Why Node.js? Node.js is a server-side JavaScript runtime that allows for building scalable network applications. It is designed to be lightweight and efficient, making it well-suited for real-time applications.

Benefits for the client: Node.js facilitates the development of fast and scalable server-side applications. Its event-driven, non-blocking I/O model contributes to improved application performance and responsiveness.

1. **The Project Plan:**

This is a collective effort, and in order for it to be successful, each member must contribute equally and as effectively as possible. The project has a start and end time that it must be finished within. To finish the work task within the allotted time, there will be multiple milestones to meet.

Create the job breakdown structure, including the deadline and completion dates. Create a Gantt chart that includes project evaluation, system development, and system documentation if at all practicable.