CSN-254

Software Engineering

Feasibility Report

21st February 2023

Submitted by-

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Introduction:

This report looks at the feasibility of creating an app that provides better access to sports facilities at our campus. The app will feature a management tool for each facility, helping to ensure that the facility is being used for its intended purpose without overcrowding. Additionally, the app will keep an updated log of available and booked sports facilities and will include an intuitive booking system for users.

Project Objectives:

The main objective of this project is to create an app that will offer better access and management of sports facilities at the campus. Specifically, the objectives of this project include the following:

1. To create an app that allows users to view and access current and available sports facilities easily.
2. To allow users to book facilities in advance and keep a record of the same.
3. To create a platform to help the client ensure that the available facilities are used optimally.
4. To ensure the app has an intuitive and user-friendly interface.

The customer for whom the work will be done:

1. Students.
2. Faculties.
3. Sports Council Members.

Visibility Plan:

- ➔ Define The Target Audience: Identify the target audience for the software development product. Understand their needs, preferences, and behavior to create targeted marketing campaigns that resonate with them.
- ➔ Weekly Catch-Up meetings: With these meetings, we will ensure that there is not any backlog of work.
- ➔ Taking Feedback: We will be continuously changing and upgrading our project depending on the feedback from our client.

We can keep scrum meetings with the client after every sprint, also we can show a report which can display our progress to the client. We can also give our app to the client after the completion of several sprints.
We can use kanban boards to update the daily progress and keep weekly meetings to report the team's progress.

A statement of the tasks to be undertaken:

- ➔ Develop a project plan: Create a comprehensive project plan that outlines the timeline, resources, and milestones for the sports facility app project.
- ➔ Create a Skeleton version of the app with the basic frontend setup for all the pages, By creating prototypes and visual design for the app's user interface that aligns with the project's requirements and goals.
- ➔ Design and set up the database and begin integrating with our project starting with login/authentication.
- ➔ Develop app features: Build the app's features, including search and booking of sports facilities, scheduling games and events by authorities, and implementing features that ensure that students make a booking for a limited number of hours per week.
- ➔ Testing: Conduct functional and performance testing, user acceptance testing, and quality assurance to ensure that the app meets the project's requirements, is user-friendly and free from errors and bugs.
- ➔ Deployment: Deploy and launch the app to the target audience, ensuring it is adequately supported and monitored.

We will make reports and document the project's progress along this timeline.

A preliminary requirements analysis:

- ➔ User Registration and Login: The application would have a secure user registration and login system. It would allow users to create accounts and sign in using their credentials. Users would have different authorities concerning the sporting facilities they can book and for how much time.
- ➔ Facility Listings: The application would have a database of sports facilities such as basketball courts, tennis courts, football fields, cricket nets, etc. The listings would have detailed information about each facility such as location, sports type, etc.
- ➔ Scheduling and Reservation: The users would be able to reserve sports facilities in advance and provide them with notifications and reminders about their bookings.
- ➔ User Experience: The application would be very user-friendly and easy to use. It would have fast loading times with a responsive design supported on multiple devices. It would respond to user inputs promptly to ensure a smooth user experience.

The process to be followed: Agile model

- ➔ The agile model emphasizes the incremental release of working software as the primary measure of progress.
- ➔ We will follow sprints in which the team will aim to complete a set amount of work within a fixed time frame. It is the heart of the agile methodology which will help deliver better software.
- ➔ After each sprint, we will take feedback from the client and incorporate the changes requested by the client.
- ➔ Pair programming will be followed where two programmers work together at one workstation. One types in code while the other reviews the code as it is typed. The two programmers switch their roles every hour or so.

Suggested Deliverables:

The project is building an app to book the sports facility.
The goal is to deliver an app to the customer so that they can book a field in advance or organize an event in the future.
Constituent parts are to design a login page, make a database and update it, give special permission to some customers, create an event booking page, and show the event's update.
We will create it using an agile model.
Some suggested deliverables of our application would be as follows:

- ➔ User interface design: The application would have a well-designed user interface that would be easy to navigate and use. It would have a visually appealing layout with intuitive navigation options.
- ➔ Registration and login functionality: The users would be able to create accounts and log in to the app securely and efficiently. Various users would have different authorizations about the facilities they can book and how much time they would be allowed to book a given facility.
- ➔ User manual: The document provided to the user helps in using the product seamlessly. It aims to familiarize the interface of the app to the reader.
- ➔ Incremental app deliveries: After each sprint, we will deliver app prototypes to the client for feedback.

Outline plan showing principle activities and milestones:

- ➔ Creating a minimal front-end interface for the application.
- ➔ Creating the backend of the app:
    - Creating the login framework.
    - Creating the database to store the login details of the users.
    - Creating the database to store the slot state of all bookable facilities.
    - Automating the updation of the database on the arrival of a new booking request.
    - Linking the various pages.
- ➔ Improve the interface of the app to make the application intuitive and user-friendly.

After this iteration, we will present this solution to the customer, ask for feedback, and try incorporating the suggested changes.

We will release the app for beta-testing and hence will discover bugs that will be fixed in patch updates.

Risk analysis and fallback plan:

What can go wrong:

- ➔ Synchronization issue: 2 different devices can try to book a single slot simultaneously, causing a clash.
- ➔ High latency between client and server
- ➔ Compatibility issues across different devices
- ➔ Security issue: The app handles sensitive user data that may be vulnerable to cyber-attacks.
- ➔ Project management issues: Lack of communication between team members and unrealistic deadlines may impact the quality of the product
- ➔ Unidentified bugs and crashes

Fallback plan:

- ➔ Look for better database hosting solutions to decrease latency.
- ➔ In case of unrealistic deadlines, talk to the client and finalize a realistic timeline.
- ➔ If security breaches are unavoidable, try salting the passwords before storing them in the database.

Probable technical requirements:

- ➔ Proficiency in Java.
- ➔ Proficiency in Android Studio.
- ➔ Database management.
- ➔ Inter-device communication establishment.
- ➔ SDLC knowledge.
- ➔ UI/UX using XML files.