



**POTAXIE  
CORPORATION**  
SOFTWARE COMPANY

TECHNOLOGICAL UNIVERSITY OF HUEJOTZINGO

SOFTWARE DEVELOPMENT AND MANAGEMENT

English VIII

INTEGRATIVE TASK

PRESENT

Marcela Azuara Rivera	3521110176
Brenda Lizeth Caballero Hernández	3521110595
Jose Antonio Cordero Daniel	3521110130
Antonio Espíndola Aguirre	3520110524
Jesús Adalberto Pérez Aca	3521110430



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# Sports tournament management system project

## Detailed description of the project

The development of a sports tournament management system aims to streamline the organization and administration of sporting events. This project focuses on addressing common problems such as scheduling conflicts, dissemination of outdated information, registration inefficiencies, poor financial management, referee assignment problems, unconfined event tracking, communication failures, and vital statistics analysis.

The system will provide a comprehensive solution that includes the following functionalities:

- Efficient scheduling and resource allocation

By automating the scheduling process, the system will prevent conflicts and ensure a fair distribution of spaces and resources.

- Information updates

Participants and spectators will receive timely updates on match dates, times, locations, and results, reducing confusion and dissatisfaction.

- Agile and simple registration

A digital platform that will facilitate the registration of teams and players, minimizing documentation errors and easing the workload of organizers.

- Transparent financial management

The system will enable precise tracking of income and expenses, ensuring transparency and financial accountability.

- Effective referee and judge assignment

By considering availability and expertise, the system will efficiently assign referees and judges, reducing conflicts and misunderstandings.



- **Event Monitoring:**

The system will provide tools for event progress tracking, including results updates and incident management.

It will improve communication between teams, organizers and authorities, reducing misunderstandings and delays in decision making. You will also collect and analyze vital statistics, providing valuable data for teams, coaches, fans and sponsors.

## **Theoretical Foundations and Importance**

The theoretical foundation of this project lies in the principles of event management, information systems, and data analysis. Efficient event management is crucial for the success of any sports tournament, requiring meticulous planning, coordination, and execution.

Information systems play a vital role in automating and streamlining these processes, ensuring accuracy, transparency, and efficiency. Data analysis is another key component, as it allows for the extraction of valuable insights from the collected data. By analyzing statistics, organizers can make informed decisions, enhance future events, and provide better experiences for participants and spectators.

The importance of this project is underscored by its potential to significantly improve the management of sports tournaments. By addressing common challenges and leveraging modern technologies, the system will enhance the overall efficiency, transparency, and enjoyment of sports events.

This will benefit not only the organizers but also the participants, spectators, and sponsors, ensuring the long-term success and sustainability of the tournaments.



This project lies in several critical areas that support the development and operation of the system.

### **Implementation of the user interface in wearables.**

Wearable applications play a vital role in managing and sharing information with mobile devices. One of the most beneficial features is the ability to change the status of players with a simple touch. This functionality ensures real-time synchronization between mobile devices and players' wearable devices, allowing coaches to efficiently manage who is playing and who is resting. By improving communication and efficiency, integration with wearable devices ensures that players can instantly see their status on their wrist devices, facilitating immediate action based on their current role.

### **Development in android studio**

The project will be developed using Android Studio, which is essential for creating robust portable applications that interact seamlessly with mobile devices.

### **smart screen apps**

Apps designed for smart displays make it easy to share multimedia information with mobile devices. Implementing the user interface on smart displays, programming applications for these displays, and pairing phones with smart displays is essential to providing a consistent user experience.

### **Web development methodologies and architectures.**

Methodologies, architectures, design patterns and frameworks were determined to define the development processes of the web system. For the sports tournament management system we will use the Agile Scrum methodology. This approach allows us to develop a flexible and iterative development plan tailored to the specific needs of different types of users within the sports tournament management application.



## **MVC architecture in ASP.NET**

The Model-View-Controller (MVC) architecture separates application logic from view logic using three main components: models, views, and controllers. This separation is vital for efficient and sustainable software development. ASP.NET, developed by Microsoft, robustly implements this pattern, making it easy to adopt in modern web applications. The detailed justification of the MVC architecture in the context of ASP.NET integrates key concepts and practical examples, underscoring its importance in developing a scalable and maintainable sports tournament management system.

## **Design patterns used**

- Repository pattern: This design pattern widely used in enterprise applications handles data access logic. Creates an intermediary layer between business logic and data access logic, providing an abstraction over database interactions.
- Dependency Injection Pattern: This design pattern implements Inversion of Control (IoC) and manages application dependencies. It is necessary to create modular, maintainable and easily testable applications.

## **Web development frameworks**

For our sports management system, we chose ASP.NET for the backend and Bootstrap with JavaScript for the frontend. ASP.NET offers a robust, secure and scalable backend, while Bootstrap and JavaScript ensure a responsive, attractive and interactive user interface. Together, these tools enable agile and efficient development focused on delivering a great end-user experience.

## **Version control**

Git is a distributed version control tool that tracks changes to source code, coordinates work between multiple developers, and maintains a detailed history of all changes. GitHub, a Git repository hosting platform, provides additional tools for



collaboration and project management.

### **Database**

We use an ETL and PostgreSQL process to handle data extraction, transformation and loading, ensuring efficient data management and integration within the sports tournament management system.

## **Formal letter to a company**

PotaxieCorporation

Camino, Real San Mateo S/N, Santa Ana Xalmimilulco.

Mexico city, Puebla, 74169

potaxiecorporation@gmail.com

July 7, 2024

Mr. Gonzales

Head of Partnerships

SportsTech Solutions

456 Main Avenue, 3rd Floor

Business City, BC 6789

Dear Mr. Gonzales,

Subject: Proposal for Collaboration in a Sports Tournament Management System

I hope this letter finds you well. My name is Jose Antonio and I am writing to you on behalf of PotaxieCorporacion. We are a team of professionals dedicated and committed to revolutionizing the organization and management of sporting events. Our innovative sports tournament management system is designed to address and resolve several key challenges commonly faced in organizing sports tournaments, such as scheduling conflicts, inefficient registration processes, dissemination of



outdated information, poor financial management, and ineffective communication.

By leveraging modern technologies and methodologies, our system provides a comprehensive solution that streamlines these processes and improves the overall experience for participants, organizers and spectators. Our platform automates scheduling, ensures real-time information updates, facilitates a streamlined registration process, offers transparent financial management, assigns referees and judges efficiently, enables event monitoring, improves communication, and monitors vital statistics.

We believe that SportsTech Solutions shares our vision of improving the management of sporting events through technology. Therefore, we propose a collaboration that combines our innovative solution with the experience and resources of your company. Together, we can bring significant improvements to the sports industry and provide a superior experience to all parties involved.

We will be happy to discuss this proposal further and explore the potential benefits of our collaboration. Feel free to contact us at [potaxiecorporation@gmail.com](mailto:potaxiecorporation@gmail.com) or 2481084566 to schedule a meeting at your convenience.

Thank you for considering our proposal. We look forward to the opportunity to work with SportsTech Solutions and make a significant impact on the sports community.

Sincerely:

Jose Antonio Cordero Daniel

CEO

PotaxeCorporation