Database Management Systems

Software Requirements Specification

for

Sports Slot Booking System (SSBS)

submitted by

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1 Introduction

The **Sports Slot Booking System (SSBS)** is an *online platform* designed to facilitate the reservation of sports slots for institute students, allowing them to 'book slots' for their regular indoor sports activities throughout the semester. This System Requirements Specification (SRS) outlines the 'essential functionalities', 'system requirements' and 'operational constraints' of SSBS, providing a clear framework for its development and integration within the institute's "infrastructure".

2 Purpose

The purpose of **SSBS** is to make booking slots for indoor sports activities like *Badminton, Carrom, Chess, Gym and Table Tennis* easier with an 'online platform'. It aims to ensure that users can 'book their preferred slots' conveniently, maximizing the use of sports facilities. SSBS strives to 'simplify the booking process', 'reduce scheduling conflicts' and enhance the overall experience of users engaging in indoor sports. By providing a "straightforward and user-friendly solution", SSBS aims to promote active participation in sports activities and contribute to the well-being of the "IIITDM community".

3 Scope

The scope of **SSBS** encompasses various key components essential for efficient sports facility management. It will cover aspects such as 'managing different sports activities', 'defining available slots', 'tracking slot availability' and facilitating slot bookings for *students, faculty and staff members*. Additionally, SSBS will provide functionalities for 'maintaining user accounts', 'handling booking requests', 'generating reports on sports facility utilization' and ensuring users and administrators can "communicate smoothly".

4 Functional Requirements for Sports Slot Booking System (SSBS)

4.1 User Authentication and Profile Management:

a) Implement authentication mechanism using institute-provided email IDs for *students, faculty and staff members.*

b) 'Verify user identity' by cross-referencing entered ID with the respective tables from the database for students, faculty and staff members.

c) Allow users to 'update contact details' such as phone number.

d) 'Ensure data integrity' by validating user inputs, to prevent unauthorized access or tampering.

4.2 Sports Management:

a) 'Define and maintain a list' of available sports activities.

b) Specify 'maximum capacity' and other relevant details for each sport activity.

c) Provide an intuitive interface for administrators to 'add, edit or remove sports activities' as required.

4.3 Slot Booking:

a) Display a 'unified interface' for booking slots across all available sports activities.

b) Allow users to select their 'desired sport and available slot'.

c) Restrict users to booking only 'one slot per sport activity, at a time'.

d) Implement 'real-time validation' to prevent double booking and ensure slot availability.

e) Provide 'confirmation messages' upon successful booking and display booked slots in user profiles.

4.4 Dependency Management:

a) Enable faculty members to 'register their dependents' using their institute-provided email IDs.

b) 'Associate each dependent' with the respective faculty member upon registration.

c) Implement checks to ensure that 'dependents are not registered under multiple faculty members' simultaneously.

4.5 Registration Period Management:

a) 'Record registration start and end dates' for each user account.

b) Define end dates based on specific time intervals such as 'one semester, month or week'.

c) 'Notify users' about upcoming registration periods and expiration dates of their subscriptions.

d) Upon the expiration of a subscription period, individuals who previously subscribed to a particular slot will no longer have access to that slot unless they renew their subscription by booking again. This ensures that access to slots is regulated according to "active subscriptions", promoting fairness and efficient utilization of sports facilities.

4.6 Reporting and Analytics:

a) 'Generate reports' about users, sports facility utilization and booking trends.

b) Provide insights into 'popular sports activities', 'peak booking times' and 'user participation rates'.

c) Allow administrators to export reports in various formats for analysis and decision-making purposes.

These functional requirements are tailored to ensure smooth operation of the **Sports Slot Booking System (SSBS)**, with a focus on 'user authentication', 'profile management' and 'efficient booking processes' while adhering to the unique requirements of the "IIITDM community".

5 Non-Functional Requirements

5.1 Performance:

a) 'Ensure the system can handle concurrent user access and booking requests' without performance degradation.

b) 'Response times' for slot availability and booking operations should be within acceptable limits.

5.2 Scalability:

a) Design the system to 'accommodate increasing numbers of users and booking requests' over time.

b) Ensure 'scalability of database' to manage large volumes of user data and booking records.

5.3 Security:

a) Implement 'authentication mechanisms' to verify user identities during login.

b) 'Encrypt sensitive user data' such as personal information to maintain confidentiality.

c) Apply 'access controls' to restrict unauthorized access to booking functionalities.

5.4 Usability:

a) Design an 'intuitive user interface' with clear navigation and booking instructions.

b) Get 'informative feedback messages' to enhance user experience.

6 Constraints

The **Sports Slot Booking System (SSBS)** must use 'technology and platforms' that work with the organization's existing setup. It also needs to follow the 'rules and standards for developing and testing software' that are important in our field.

7 Conclusion

The **Sports Slot Booking System (SSBS)** aims to improve the reservation process for indoor sports activities at IIITDM. By providing a 'user-friendly platform' for booking sports slots, SSBS promotes 'active participation' and 'effective utilization of sports facilities'. With a focus on "performance, scalability, security, and usability", SSBS will help create a healthier and livelier sports community at the "institute".

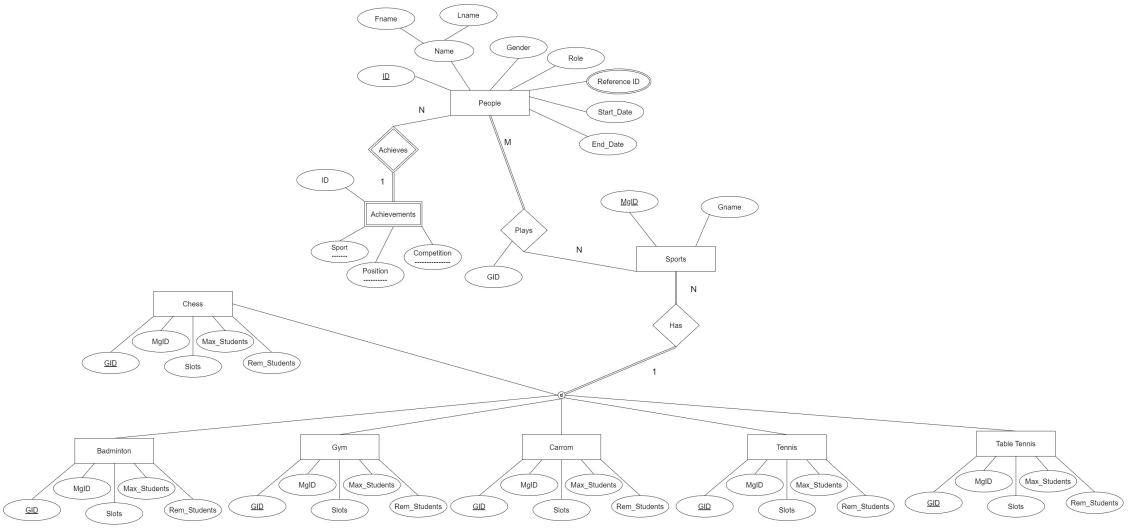

Figure 1: ER diagram

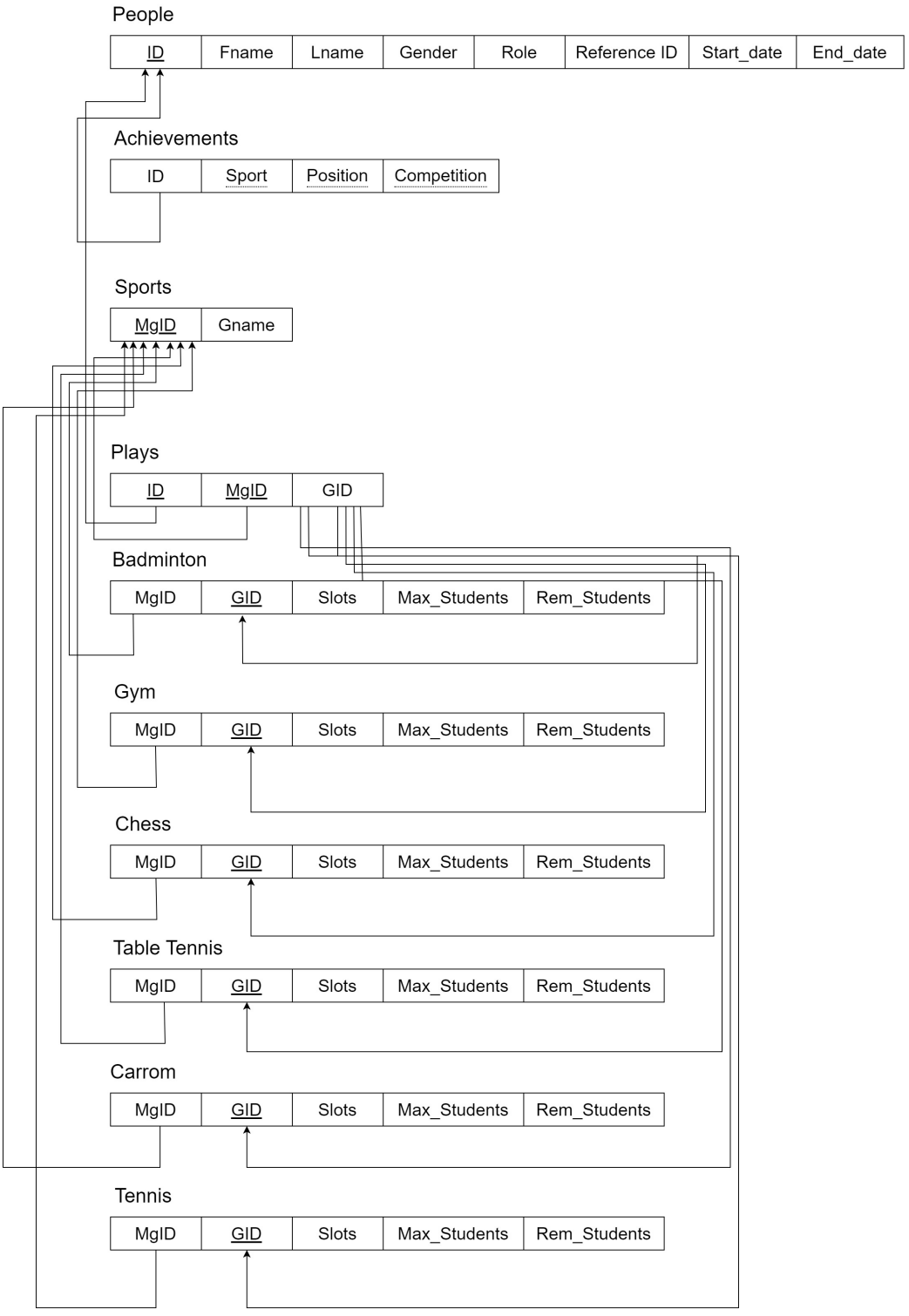

Figure 2: Schema Diagram

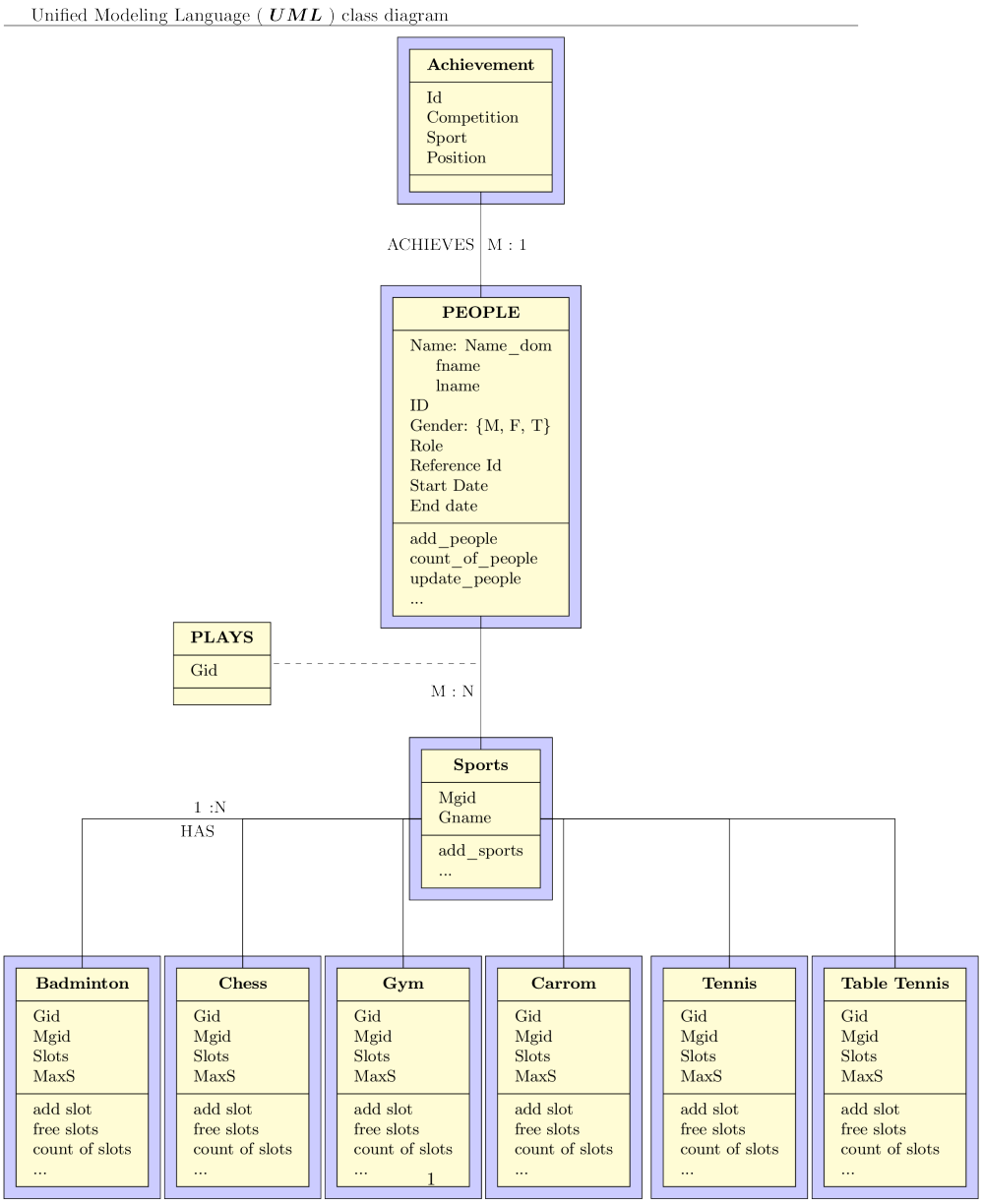

Figure 3: Unified Modeling Language (UML) class diagram

Link for the SRS code files:

https://github.com/RajV95/DBMS

Thank You!