



Arenabook: A django Driven Sports Facility Booking And Scheduling Platform

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Abstract- The demand for managing sports facilities efficiently is. We need better digital tools to handle bookings. Traditional methods often lead to scheduling conflicts. Are not very efficient. This paper talks about Arenabook a web-based platform for booking and scheduling sports facilities. It was built using the Django framework. With Arenabook users can see what's available in time make reservations and manage their bookings. Administrators can control scheduling, pricing and resource allocation. Here's how Arenabook works to prevent bookings: it uses a check-lock-confirm-update mechanism. This ensures that everything runs smoothly and consistently. The platform has secure user authentication and role-based access control. It works well on devices. The backend of Arenabook uses a database. This helps with handling data and processing queries. Arenabook makes managing sports facilities easier reduces the need for work and improves the user experience. Tests show that Arenabook is scalable, reliable and suitable for sports facility management. Arenabook can handle a lot of users and data making it a great solution, for sports facilities. Arenabook is a platform that can improve the way sports facilities are managed.

Keywords- Sports Facility Management, Online Booking System, Django Framework, Scheduling Optimization, Real-Time Availability, Reservation System, Scalable Web Application.

I. INTRODUCTION

The management of sports facilities is getting really complicated because more and more people want to use them and we need to schedule things. A lot of facilities are still using fashioned methods or systems that are not very good which causes problems like double bookings we do not know what is going on and we are not using resources very well. To deal with these problems we made *Arenabook* a web platform that uses Django to make booking and scheduling sports facilities easier and better. Arenabook gives users a way to see when facilities are available make reservations and manage their bookings without any trouble. The platform has a system to make sure bookings are consistent and do not overlap.

Administrators have tools to manage schedules keep an eye on how facilitiesre being used and allocate resources in a good way. We built the system using the Django framework so it is safe can handle a lot of users and is easy to maintain. By automating tasks and making it easier for

people to use Arenabook is a practical and reliable way to manage sports facilities making things better for both users and the people in charge of the facilities. *Arenabook* is a solution, for managing sports facilities in a modern way.

II. LITERATURE SURVEY

Many people are now using websites to book sports facilities. This makes it easier and faster to check if a place is available and to reserve it. Some websites use a tool called Django. It helps keep the website safe and able to handle a lot of users. Some booking systems also let administrators control bookings and see updates in time. Some current booking systems have problems. They might not work well when many people try to use them at the time. They might also let people book the place twice. This shows that we need a booking system.

III. PROBLEM STATEMENT

Booking sports facilities the old way can be slow and confusing. People might have trouble seeing if a place is available. Administrators might have trouble managing bookings. When there is no system to manage bookings it can lead to mistakes. For example someone might book a place that is already taken. A new system is needed to make booking easier and more efficient.

IV. PROPOSED SYSTEM

Arenabook is a website that helps people book sports facilities. It is built using Django. Users can see if a place is available and book it online. Administrators can manage bookings and prices. The Arenabook system uses a method to prevent people from booking the same place twice. It also keeps the data safe and up-to-date. Arenabook has features, like user logins and different levels of access. This makes it a safe and efficient way to manage sports facilities.

System Architecture Diagram

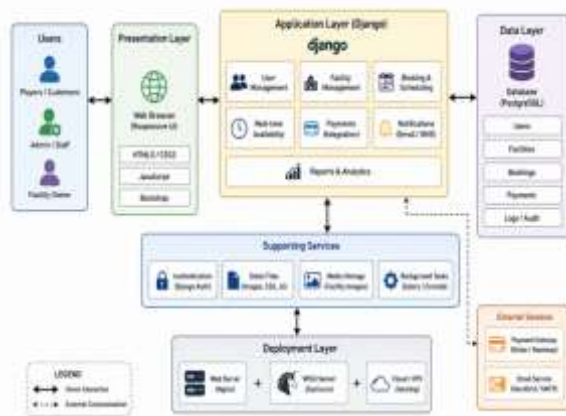


Fig 4.1

Data Flow Diagram



Fig 4.2

Use Case Diagram



Fig 4.3

Activity Diagram



Fig 4.4

Sequence Diagram

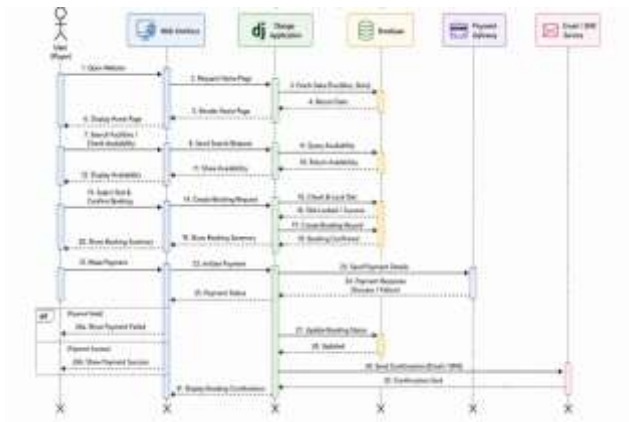


Fig 4.5

Class Diagram



Fig 4.6

Functional Block Diagram



Fig 4.7

V. ALGORITHM FLOW

A. Start

We need to get the system up and running.

B. User Authentication

We have to check if the users login or register details are correct. If they are not correct the user has to try

C. Search & Select Facility

The system will show the user all the facilities. Let them pick a date and time that works for them.

D. Check Availability

The system has to check the database to see if the time slot the user picked is available. If it is not available the user has to pick another time slot.

5.Booking Process

The system will lock the time slot the user chose. Make a temporary booking so nobody else can take it.

6.Payment Processing

The system will process the payment. If the payment goes through the booking is confirmed. If the payment does not go through the booking is. The time slot is available again.

E. Confirmation

The system will keep a record of the booking. Send the user a confirmation message.

F. End

VI. SYSTEM MODULE DESCRIPTION

The User Management Module handles user sign up and log in. It also controls who can access what.

The Facility Management Module helps administrators manage sports venues.

The Booking Module deals with choosing time slots checking availability and making reservations.



The Payment Module handles payments and updates booking status.

The Scheduling Module makes sure there are no conflicts with bookings.

The Notification Module sends confirmations and updates to users.

VII. SYSTEM ARCHITECTURE

The Presentation Layer is the part that users see and interact with.

The Application Layer which is the Django backend processes requests and manages user log in.

The Data Layer stores information about users, facilities and bookings, in a database.

This design helps Arenabook work well be secure and handle lots of traffic.

VIII. DATA COLLECTION

The system collects user data facility details booking information. Transaction records through online forms.

All data is. Stored safely in a database.

This ensures that the data is accurate and the system works reliably.

IX. IMPLEMENTATION

Arenabook is built using the Django framework. It has a modular structure and uses a relational database like SQLite or PostgreSQL. The system has modules for managing users, facilities and bookings. It uses Django's built-in authentication system to ensure authorized people can access it. There's a mechanism, in place to prevent double bookings. It works by checking, locking, confirming and then updating the booking status. This ensures that the data remains consistent. The system uses forms to handle and validate user input. The views and

templates work together to manage how users interact with the system. When it comes to payments the system updates the booking status automatically. The system is also thoroughly tested to ensure it performs well. Is reliable.

X. RESULTS AND DISCUSSION

The Arenabook system makes it easier to book sports facilities. It shows when facilities are available and lets people make reservations quickly. This system reduces the amount of work people have to do. Helps prevent scheduling mistakes. It does this by using a method to book facilities. Administrators can use an interface to manage facilities and keep track of bookings. The Arenabook system works well. Responds fast. People can use it on devices. The Arenabook system is a solution because it is easy to use and safe. It helps people see what is going on and makes the most of the facilities. The Arenabook system also makes the experience better, for users. The Arenabook system is a solution. The Arenabook system is secure. The Arenabook system is user-friendly.

XI. ADVANTAGES

Arenabook is a tool for booking sports facilities. It is easy to use. It helps people book facilities without any problems. Arenabook shows when a facility is available in time so people do not book the same time by mistake. The system is also very secure so only the right people can use it. It prevents people from booking the facility at the same time which helps keep all the information correct. Arenabook is a system because it works on many devices and it is easy to use, which makes the experience better for everyone.

XII. LIMITATIONS



Arenabook is a system but it has some problems. It needs the internet to work properly. Sometimes the way people pay for facilities might be different because of services. Arenabook only has the features for booking it does not have advanced features like suggestions based on artificial intelligence. The system might also have problems if many people are using it at the time.

XIII. FUTURE WORK

In the future Arenabook might get some features. It could suggest the times for people to book facilities based on what they like. It could also have an application, which would make it easier for people to use. The system could have advanced features to help the people in charge make better decisions. It could also send notifications in time have prices that change automatically and use information from other services like the weather.

XIV. CONCLUSION

Arenabook is a system for booking sports facilities. It is modern reliable. It works well. It makes the process of booking facilities easier and more transparent which makes people happy. Arenabook shows how the internet can help solve problems in the world. If Arenabook gets some features it could become an even better system, for booking facilities. Arenabook will keep helping people book sports facilities in a way.

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