SRM Hall Booking Facility

By

Mayank Kumar Nagda

(RA1511003010313)

Under the guidance of

Dr. E. Poovammal

A Minor Project Report

Submitted to the Department of Computer Science and Engineering

In partial fulfillment of the requirements
for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE & ENGINEERING

of

FACULTY OF ENGINEERING AND TECHNOLOGY

S.R.M. Nagar, Kattankulathur, Kancheepuram District

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SRM Institutes of Science and Technology

BONAFIDE CERTIFICATE

Reg No: RA1511003010313

Certified that this project report titled ***SRM Hall Booking Facility*** is the bonafide work of ***Mr. Mayank Kumar Nagda.*** Who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

Signature of the Guide Signature of the H.o.D

Name of the Guide

Date:

Abstract

The goal of this project is to develop a web portal for providing online hall booking facility which can be made available to everyone 24*7. This facility will also include event publicity page where upcoming events in the campus can be seen by the public. The events will be made available by the hall booking data collected from the user while booking the hall.

This facility will allow registered users to book the halls without going through many steps and formalities present in the current manual booking system. It'll also provide an additional feature/platform to publicize various events happening in the campus premises.

The portal developed will be such that it can be used on various devices (Computers, Mobile and Tablets), without any design or implementation issue. Required security will also be provided to both the user data and to the website from many unethical attacks and practices by the hackers.

The permission access provided to the user for bookings and registration will be divided in different hierarchies of administrators. The respective hall in charges will be given admin rights to approve bookings of their halls. A Super Administrator will be given all the admin rights with additional rights to block halls on some particular days as well as to approve the registration requests by the user.

Incorporating this online facility instead of the already present manual booking system will provide facility and ease in the process of hall booking in the campus.

Acknowledgement

In completing this Minor Project, I have been fortunate to have help, support, and encouragement from many people. I would like to acknowledge them for their cooperation.

First, I would like to thank Dr. E. Poovammal, my project guide, for guiding me through each and every step of the process with knowledge and support.

As every great achiever is inspired by a great mentor, I would also like to take this opportunity to thank my Faculty Advisor Ms. P. Mahalakshmi for her constant support, inspiration, and guidance from the very start.

I would also like to thank Dr. Annapoorani Panaiyappan, my Academic Advisor who helped me throughout the development of the project.

It is my radiant sentiment to place on record my best regards, deepest sense of gratitude to faculties of SRM University to include a Minor Project course in our curriculum, which pushed me to take this opportunity which was a great experience for learning and professional development.

I perceive this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement in order to attain desired career objectives.

Sincerely,
Mayank Kumar Nagda
RA1511003010313

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1. INTRODUCTION

The goal of this project is to develop a booking portal (College Hall Booking). The portal will be useful for many purposes, from booking a hall on a particular day, to see all the events for which the halls have been booked in the college.

1.1 LITERATURE SURVEY

The problems with manual booking is that, there is lot of process and procedure to follow. It's also not available 24*7 to the users for the bookings.

A manual booking system also requires the person in charge to manage data physically in log books and that they are not able to perform task easily and efficiently with this process [1]. An online booking system provides ease of use, usefulness, and user satisfaction [1].

For implementing online booking system certain steps are taken so that the development is smooth, effective and meets all the requirements. Website development can be divided in four essential parts that are Analysis, Design, Generation and Implementation [2].

For the essential website development steps mentioned in [2], a developer is required to follow certain technologies to cop up with the web technologies, which has some new developments almost every day [1].

For development process HTML5, CSS3, php, MySQL are used with xampp localhost to have repetitive testing of website on the local developer machine. HTML5 with CSS3 provides usability of the web portal across different devices [3]. Using xampp has many benefits as developer can easily change into code according to the requirement after looking on the local host preview. Another feature of xampp is inbuilt security features because of dedicated localhost to run the web application [4].

The growth in web applications has reached to a large extends, less trusted user and more vulnerable attacks [5]. Any web application which is vulnerable to attacks can result in lost data, leaked sensitive information and interruption in the online facility usage.

Security is the main problem for web application as all types of user, access the website and may try to harm the web services. Different types of securing techniques are used to save the website from the attacks or vulnerability, is referred as the web security.

The internet and web are becoming vulnerable as the advancement in technologies and skills are implemented for wrong reasons by hackers using advance and complex techniques [5].

With all the features the developed web portal should be user friendly, should meet all the requirements while providing all kinds of security measures.

An online portal which meets all the requirement and having a user friendly secured environment is preferred by the users and administrators over a manual booking system [1].

1.2 PROBLEMS IN MANUAL HALL BOOKING

Currently hall booking is done by manual methods, in which the one who wants to book a hall for any event or meeting has to contact the person in charge personally with a request letter and then the hall booking is processed. A person gets to know the free halls on the current date only at the time he's performing the booking himself, which sometimes results in cancellation of a particular event due to the unavailability which was not known earlier.

It is a known fact that manual reservation system has many limitations and often results in errors like overbooking and abrupt cancellations.

With the current system everyone can approach the in charge for hall booking with a request letter which leaves a vulnerability in the system because anyone can do hall booking.

There is a particular fixed timings to perform hall booking with manual reservation system that too with many formalities which needs to be followed while doing so, that sometimes results in delaying of the work progress.

1.3 PROPOSED SRM HALL BOOKING FACILITY (SHBF)

To overcome the problems stated in Section 1.1 a system is to be made which overcomes the known issues and also provides stability and user friendliness.

The most optimized approach towards problems stated in Section 1.1 can be to have a stable online portal for hall booking.

A portal is to be made on which hall booking can only be done by approved users, with admins having total hierarchical control over their respective halls under them.

The proposed system is also made secured from various online website vulnerabilities such as SQL Injections, Script Booking, and Page Jumping.

The proposed portal is also made device responsive which enables its custom GUI while switching over different kinds of devices (Mobile, Tablet, and PC).

Proposed portal also has an Events page where all the upcoming events in the college can be listed down for enabling students to see and learn more about the events, which increases the publicity and reach of events which are conducted in the college. The information of the events is taken at the time of hall booking itself.

2. REQUIREMENT ANALYSIS OF SHBF

Requirements analysis is critical to the success or failure of a systems or software project. The requirements should be documented, actionable, measurable, testable, traceable, related to identified needs or opportunities, and defined to a level of detail sufficient for system design.

2.1 FUNCTIONAL REQUIREMENTS

1. User should be able to verify his/her login information.
2. Users should be able to search which hall is free on a particular date.
3. When a user search for halls, the search result must contain hall location and also its availability on a particular day in different slots.
4. SuperUser should be able to block certain or all the halls for a particular day.
5. Admins should be able to approve the bookings and also cancellation requests for the halls under them.
6. The system must send emails to the users when registrations, bookings, and cancellation requests are approved by the admins.
7. Users should be able to check their booking status from their individual accounts.

2.2 NON FUNCTIONAL REQUIREMENTS

1. The system must ensure that all the transferable data as for example user's personal information, login information should be secure.
2. The system must be able to handle multiple bookings at a time.
3. The system must provide users 24*7 online booking service.
4. The system must support all internet browsers.
5. The system must be usable on all the devices (Mobile, PC, and Tablets).
6. The portal must not be vulnerable to hacking and SQL injections.

3. UML DESIGN OF SHBF

UML design is the shortest form of "Unified Modelling Language". The purpose of this modelling language is to visualize the design of the system. There are total 14 types of UML diagram. They are:

- Class Diagram.
- Component Diagram.
- Deployment Diagram.
- Object Diagram.
- Package Diagram.
- Profile Diagram.
- Composite Structure Diagram.
- Use Case Diagram.
- Activity Diagram.
- State Machine Diagram.
- Sequence Diagram.
- Communication Diagram.
- Interaction Overview Diagram.
- & Timing Diagram.

Here we will show only 2 diagrams out of 14. For that we have chosen "***Use Case Diagram***" & "***Class Diagram***"

3.1 CLASS DIAGRAM OF SHBF

This is the most used UML diagram in the field of software engineering design. It is called as a main building block of any object oriented solution. Usually it illustrates the classes in a system, attributes and operations of each class and also the relationship between each class. Below is the "Class Diagram" of our new proposed system

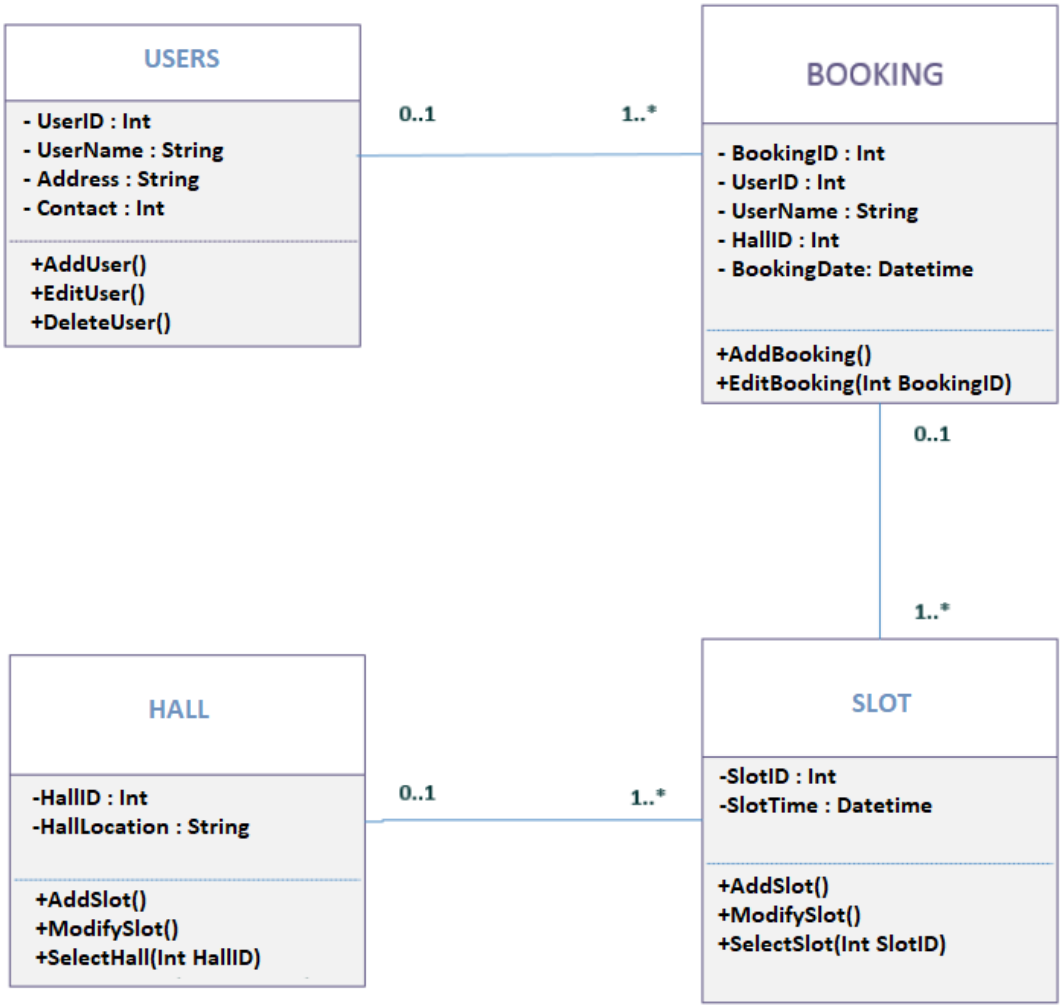


Figure 1 Class Diagram

3.2 USE CASE DIAGRAM OF SHBF

It is also called behavioral UML diagram. It gives a graphic over-view of the actors involved in a system directly. It shows how different functions needed by the actors how they are interacted. Below is the "USE CASE DIAGRAM" of our new proposed system

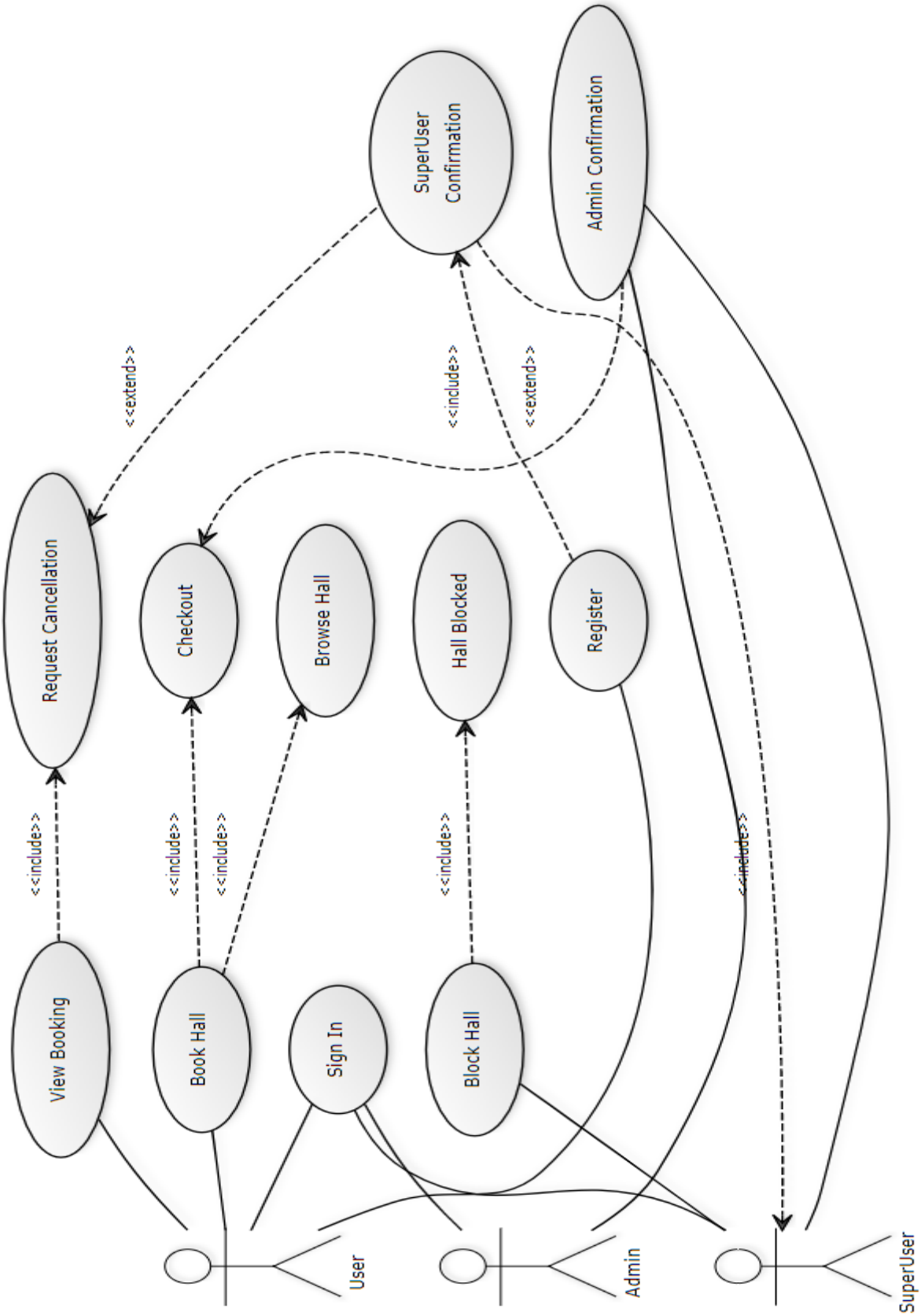


Figure 2 Use Case Diagram

4. PHYSICAL DESIGN OF SHBF

In this section, physical design of the website from the view of Public, User, Admin, and SuperUser is shown. The sections which one set of users can see/use can't be seen/used by other set.

4.1 PUBLIC VIEW

Some of the facilities of the website is made to be even used by public. There is no need to register or login to view/use these facilities.

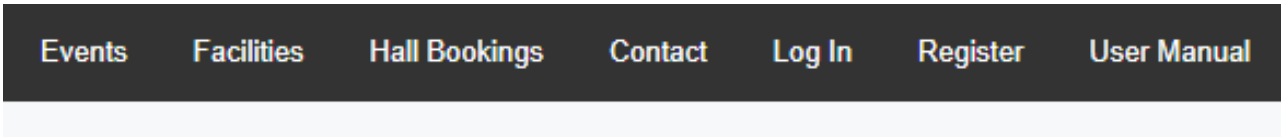


Figure 3 Sections which can be viewed by public

The facilities under public view are shown in Fig. 3

4.1.1 EVENTS SECTION

A separate events section is made to view all the upcoming event in the institution, for which the hall booking is done.

The events section is crafted with CSS cards, which displays the information about a particular event.

The information which events card contains are:

1. Event Name
2. Event Poster
3. Event Description
4. Event Date, Time and Venue
5. Registration link for the event
6. Contact Person Details

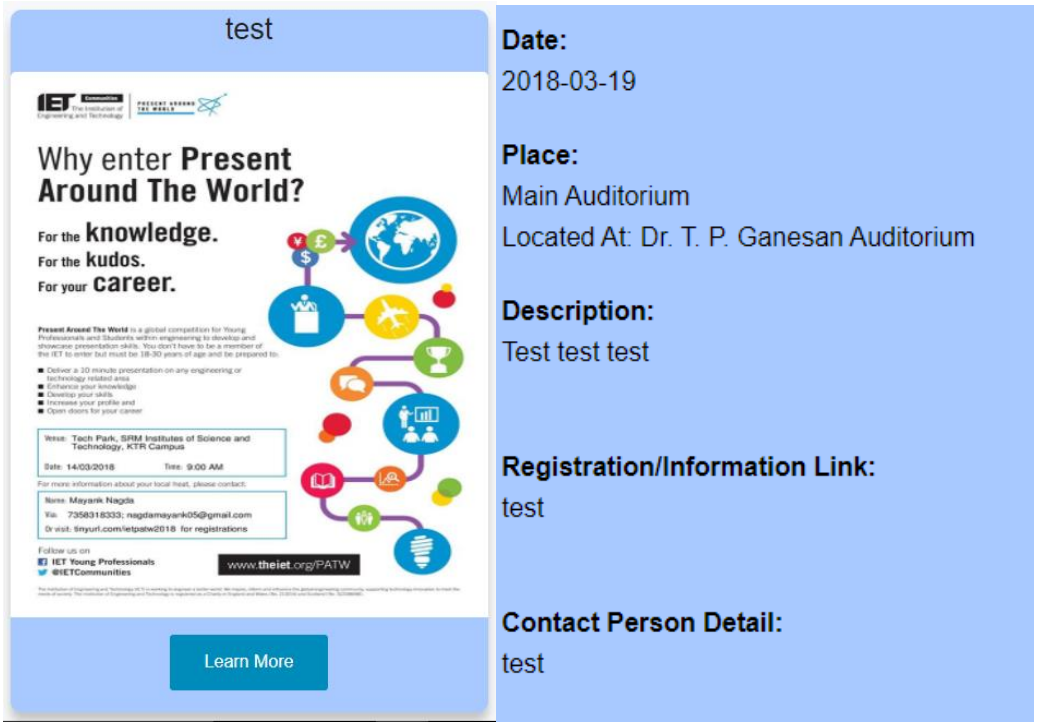


Figure 4 A events card with displayed information

Event section can be viewed by public and is shown in Fig. 4.

4.1.2 FACILITIES & CONTACT SECTION

Facilities section shows all the available halls with location, capacity and facilities included in them. Similarly, contacts section has the list of halls with the respective hall in charge contact information.

State-of-the-art facilities available for users.

"All the faculty members and faculty advisors of student clubs, who have registered in this portal can book the halls"

Sr. No	Name of Hall	Located Building	Capacity	Facilities Included
1	Main Auditorium	Dr. T. P. Ganesan Auditorium	3000	Podium, Mic, Sound System, Projector, Guest Room, Food Serving Area
2	Mini Hall - 1	Dr. T. P. Ganesan Auditorium	300	Podium, Mic, Sound System, Projector, Guest Room, Food Serving Area
3	Mini Hall - 2	Dr. T. P. Ganesan Auditorium	250	Podium, Mic, Sound System, Projector, Guest Room, Food Serving Area

Figure 5 Facilities Section

Fig. 5 shows the facilities section with all the discussed information.

4.1.3 LOGIN & REGISTRATION

Anyone willing to do hall booking has to register to the portal. SuperUser will view the registration request and after the SuperUser verification a user can login to the portal.

Users also need to verify their email id before logging in the portal. Without the email id and SuperUser verification user can't login to the system. Fig. 6 below shows the registration form.

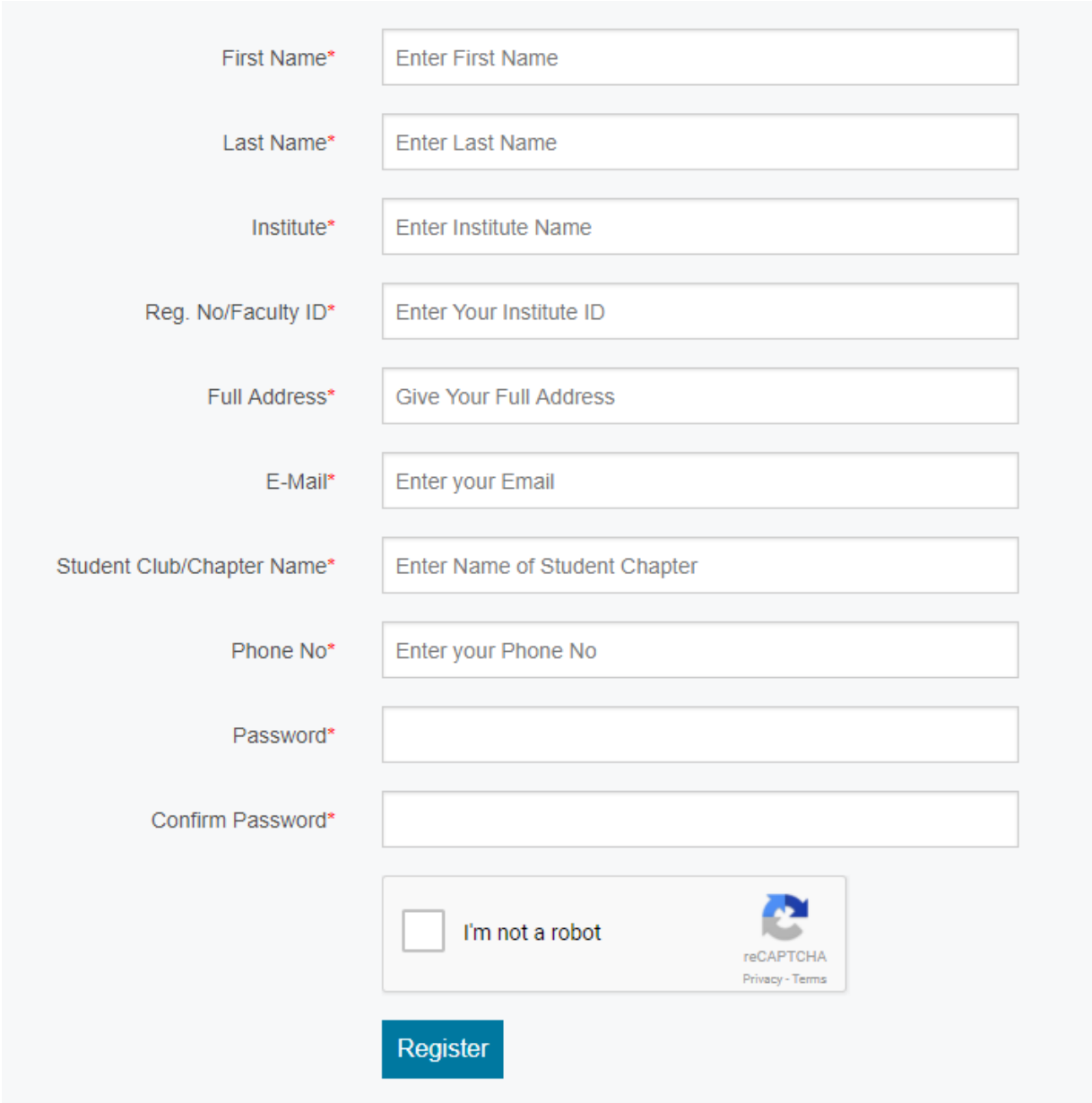


Figure 6 Registration form

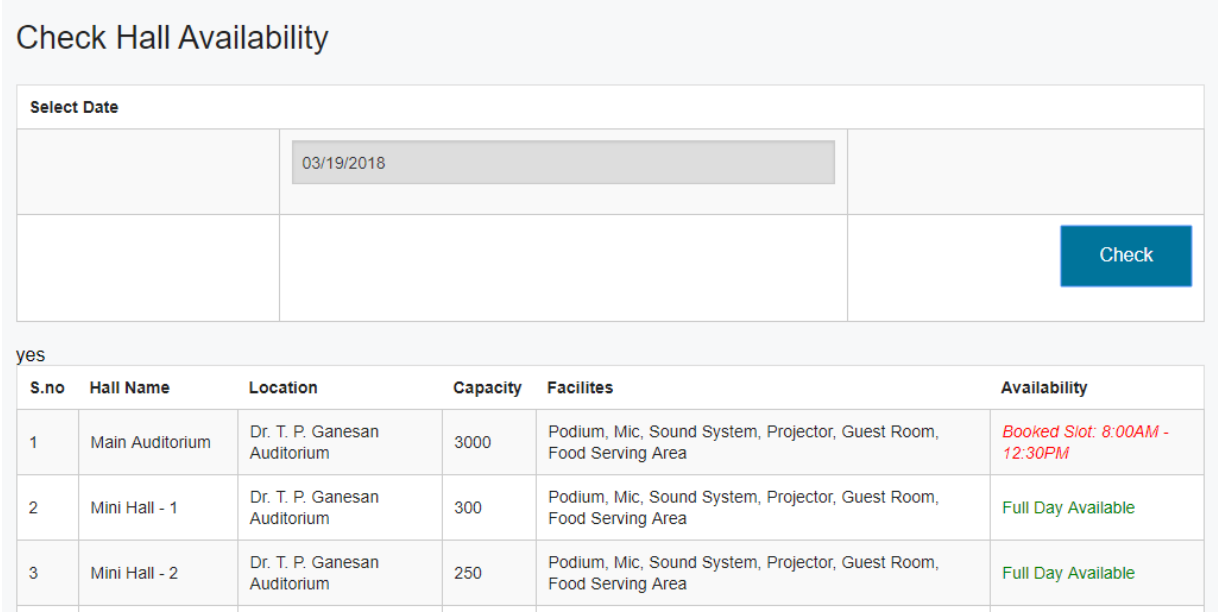
4.2 USER VIEW

After the user has been verified by the SuperUser and also done with email verification, he can login to the portal for using portal facilities. Now, as the user is logged in, hall booking can be done.

A registered user can also view some extra sections, such as Hall Availability.

4.2.1 HALL AVAILABILITY

A registered user can view hall availability on a particular date by visiting “Hall Availability” section. All the halls available on the chosen date will be listed down with the availability status.



S.no	Hall Name	Location	Capacity	Facilites	Availability
1	Main Auditorium	Dr. T. P. Ganesan Auditorium	3000	Podium, Mic, Sound System, Projector, Guest Room, Food Serving Area	*Booked Slot: 8:00AM - 12:30PM*
2	Mini Hall - 1	Dr. T. P. Ganesan Auditorium	300	Podium, Mic, Sound System, Projector, Guest Room, Food Serving Area	Full Day Available
3	Mini Hall - 2	Dr. T. P. Ganesan Auditorium	250	Podium, Mic, Sound System, Projector, Guest Room, Food Serving Area	Full Day Available

Figure 7 Hall Availability

4.2.2 HALL BOOKING

Once the Hall Availability is checked as shown in Fig. 7 user can proceed for registration to the desired free hall. Hall Booking can be done from the Hall Bookings section where user can select the desired hall and can click on Book to book the hall.

After clicking Book the user will be directed to a new page where he has to select a date for which hall booking is to be done.

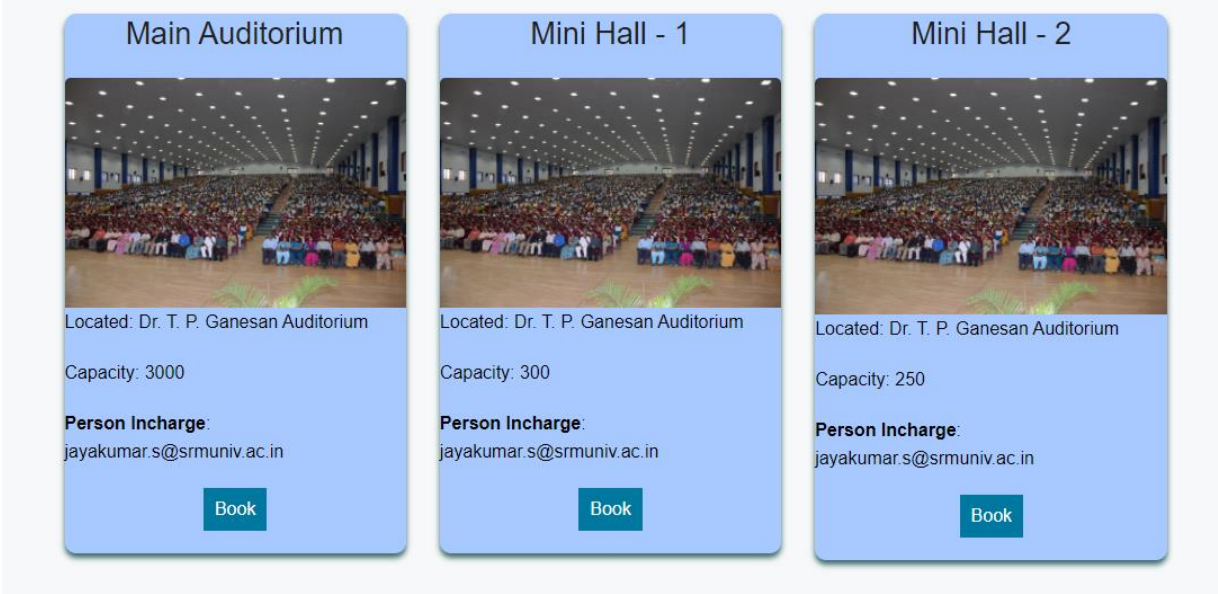


Figure 8 Hall Booking Page

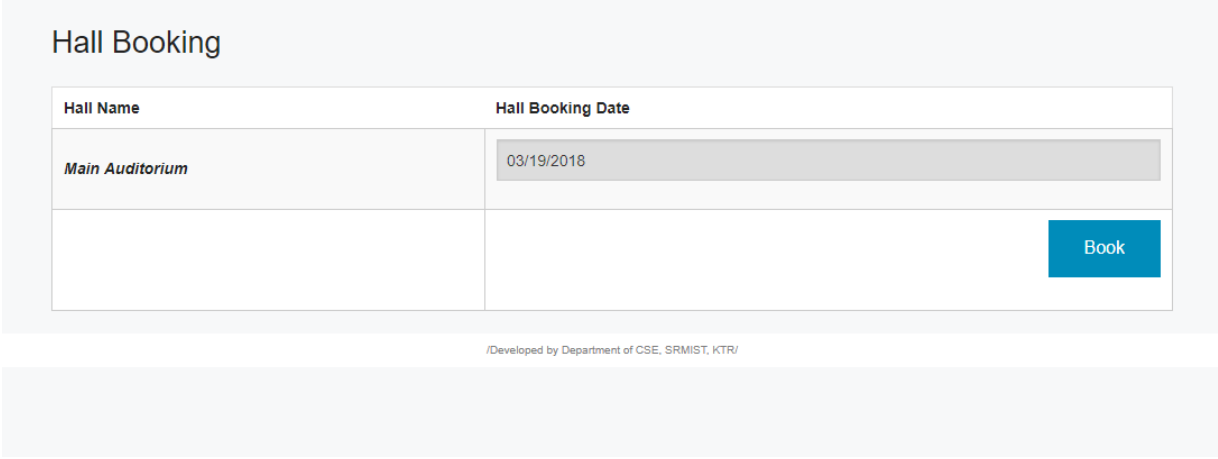


Figure 9 Date Selection Page for chosen hall

Fig. 8 shows the Hall Booking page which is directed to the Date Selection page shown in Fig. 9.

After the date selection is done, user is asked to fill the details for the Hall Booking.

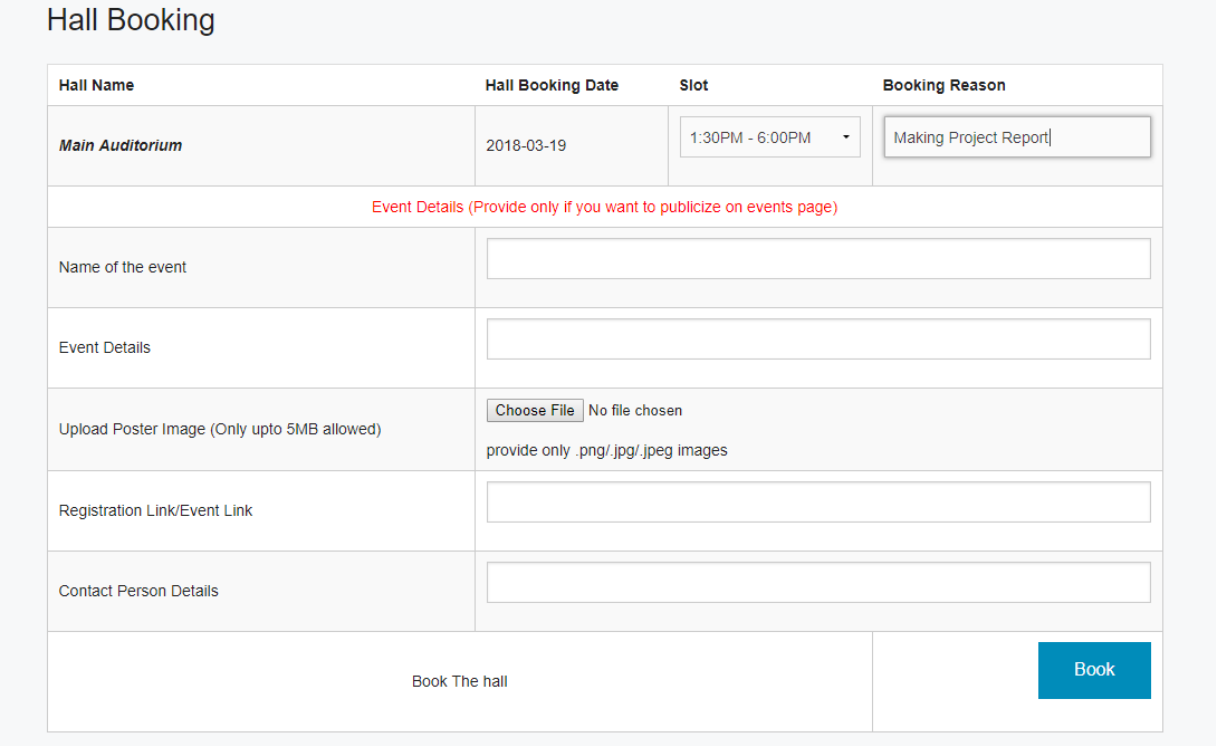


Figure 10 Hall Booking Details

Hall Booking details are filled in the details section as shown in Fig. 10.

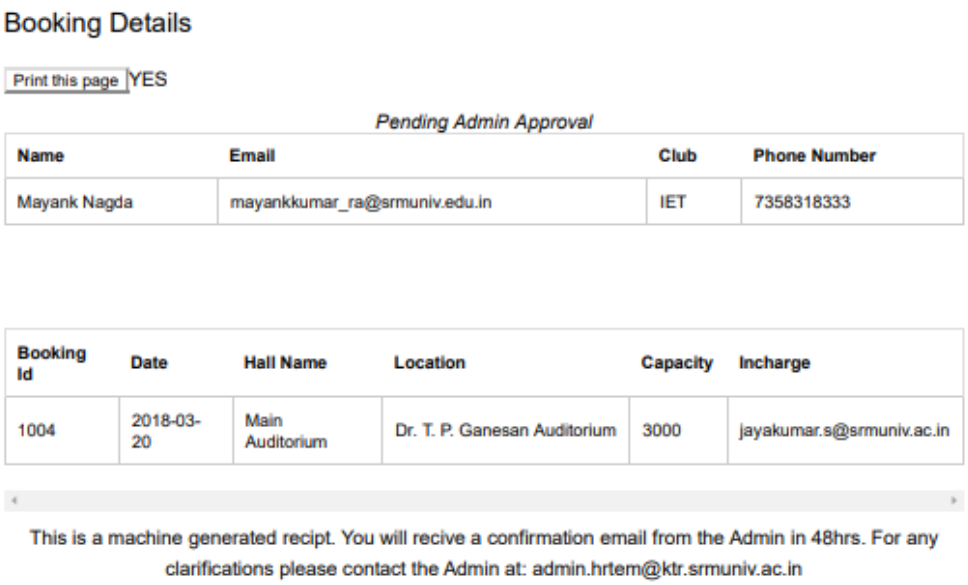


Figure 11 Booking Receipt

A booking receipt is generated as shown in Fig. 11 after the book button is pressed in Fig. 10. After the admins have approved this booking, hall can be used by the user.

4.2.3 VIEW BOOKING AND CANELLATION

After the booking is done it can be viewed from the 'My Bookings' section of the website. All the bookings done by the logged in user will list down in that section with the button to request cancellation of a particular booking.

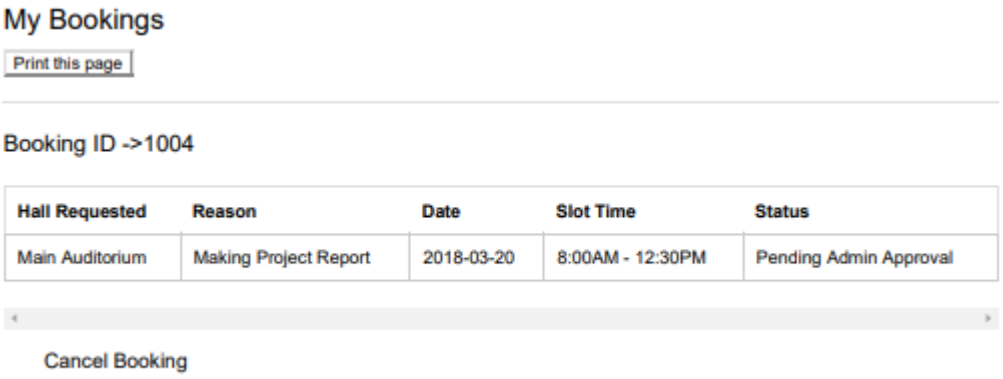


Figure 12 My Bookings and Cancellation

Bookings will list down in ‘My Bookings’ section as shown in Fig. 12, with the cancel booking button to request cancellation.

4.3 ADMIN AND SUPERUSER VIEW

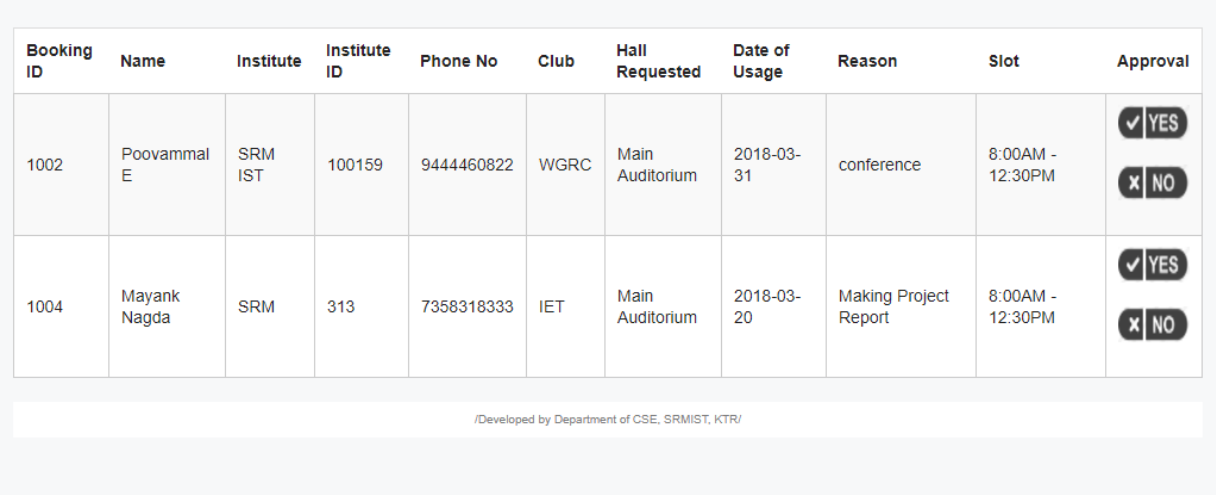
Admins and SuperUser can login to the admin panel using their own IDs and Passwords. Admins will be automatically directed to the admin panel.

Admin Panel has the following sections:

1. Make Announcements
2. Slot Blocking
3. Registration Requests
4. Booking Requests

From which Announcement, Registration Requests Slot Blocking section can only be viewed by the SuperUser.

Other admins can only view and approve Booking Requests of the halls that they are in charge of.



Booking ID	Name	Institute	Institute ID	Phone No	Club	Hall Requested	Date of Usage	Reason	Slot	Approval
1002	Poovammal E	SRM IST	100159	9444460822	WGRC	Main Auditorium	2018-03-31	conference	8:00AM - 12:30PM	YES NO
1004	Mayank Nagda	SRM	313	7358318333	IET	Main Auditorium	2018-03-20	Making Project Report	8:00AM - 12:30PM	YES NO

/Developed by Department of CSE, SRMIST, KTR/

Figure 13 Admin Request Approvals

As shown in Fig. 13, Admins and SuperUser can view all the user data and booking details provided by the user as shown in Fig. 10. After going through the details provided by user they can decide whether to approve a particular booking request or not.

5. DATABASE MANAGEMENT IN SHBF

A good online portal requires a good structured database for it to work properly and efficiently. Database is a core part of the website. Without it, there is no functionalities in any portal.

5.1 INFORMATION STORAGE

For the web portal to work with all the discussed functionalities in the above chapters, it requires lots of information storage.

The basic information which needs to be stored for the portal are:

1. User Information
    - 1.1 Name
    - 1.2 Institute Name
    - 1.3 Address
    - 1.4 Email
    - 1.5 Password
2. Hall Information
    - 2.1 Hall Name
    - 2.2 Hall Picture
    - 2.3 Hall Incharge/Contacts
    - 2.4 Hall Details/Facilities
3. Booking Information
    - 3.1 Date of Booking
    - 3.2 Free Slots
    - 3.3 Reason for booking
    - 3.4 Event Details (if any)

To store the above mentioned information efficiently, a proper structured database is required. The database information should also be interactive between different sections. As in case, a user is linked to the booked halls under his ID.

5.2 DATABASE STRUCTURE

A good database structure has primary keys, foreign keys for linking between two different tables at a time. The linkage is done to extract a particular information from the database about a particular ID. For ex to extract hall booked by a particular user ID, user ID in orders table is linked with order_id to provide this relationship, which provide ease in extracting information without writing queries for everything.

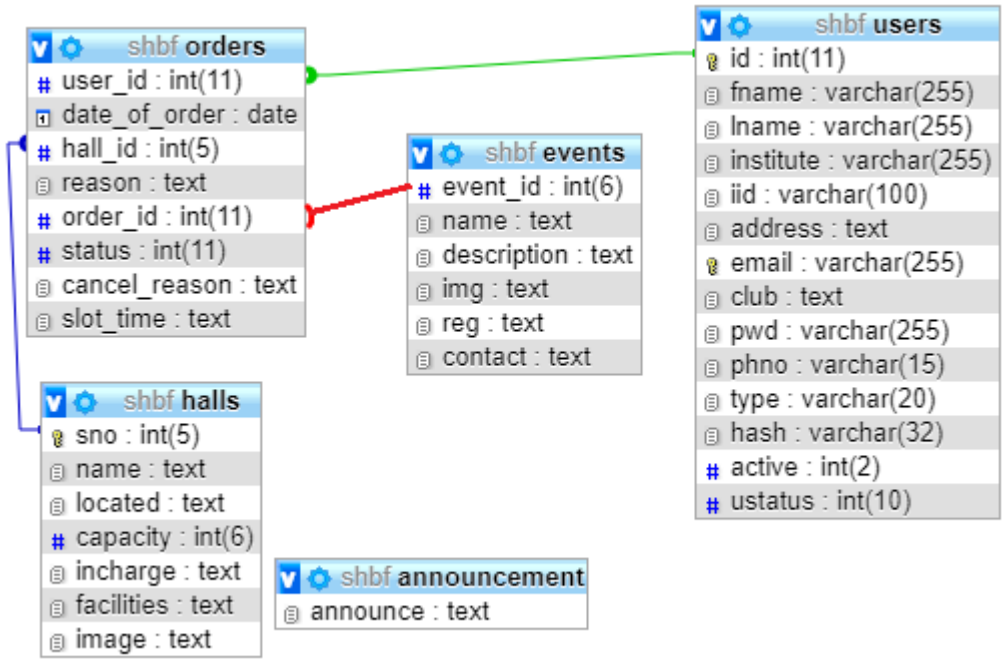


Figure 14 Database Structure

Fig. 14 shows the database structure of information discussed in section 5.1.

During this data analysis phase, the data model is further refined so that it obeys certain rules of good behavior. Normalization is the process of grouping data into such well refined structures [6].

The database in Fig. 14 is normalized till 3rd Normalization Form (3NF), also the Primary Key/Foreign Key linkage is shown with colorful lines.

6. SECURITY FEATURES IN SHBF

Implementation of anything is a waste if security is not provided to it. Web Portals are very vulnerable by any types of mischievous acts by some hackers [5]. If basic security is not provided then user database and website access can be at risk [5].

6.1 COMMON VULNERABILITIES AND ACTIONS

Some of the common vulnerabilities in the web portals are:

1. Page Jumping
2. SQL Injections
3. Script Attack
4. Visible Passwords
5. Code visible to the host
6. Fake Registrations

The above mentioned vulnerabilities are discussed in the section below with the actions taken to prevent those vulnerabilities.

6.1.1 PAGE JUMPING

If by any chance someone gets to know the name of webpages used by the developer while developing a website, he can take advantage of this and can jump to pages which might be made for admins.

Ex: There is a page in the website folder which is directed only when the admin login details are entered, and the name of this page is admin.php. Now, if someone gets to know the file name of this page he can simply type this in address bar after the website link to access the admin panel.

To stop this vulnerability each page in the website is given access rights, if someone forces the access to the pages without having the access rights, he is directed to the main page without revealing the actual page information and hence preventing the website from this vulnerability.

6.1.2 SQL INJECTIONS

SQL injection is a code injection technique that might destroy your database. It is one of the most common web hacking techniques. Malicious codes are placed in SQL statements, via web page input.

SQL injection is an attack technique that exploits a security vulnerability occurring in the database layer of an application and a service. This is most often found within web pages with dynamic content [7].

SQL injection usually occurs when you ask a user for input, like their username/userid, and instead of a name/id, the user gives you an SQL statement that you will **unknowingly** run on your database.

Ex 1: SELECT * FROM Users WHERE UserId = 105 OR 1=1;

The SQL above is valid and will return ALL rows from the "Users" table, since **OR 1=1** is always TRUE.

Does the example above look dangerous? What if the "Users" table contains names and passwords?

The SQL statement above is much the same as this:

Ex 2: SELECT UserId, Name, Password FROM Users WHERE UserId = 105 or 1=1;

A hacker might get access to all the user names and passwords in a database, by simply inserting 105 OR 1=1 into the input field.

Recently this vulnerability was found in BSNL database of INDIA, where a French researcher just tried these codes to get access to the personal information of around 60,000 BSNL employees.

SQL Injections is a major problem and developers should use methods to stop these kind of attacks.

The measures taken against SQL Injection in the portal includes using escape strings.

All the inputs coming from the user are taken as string variables and are processed as strings, which makes any SQL Injection same as a string input and will stop the vulnerability.

The code used for escape strings is:

Ex 1 : `$address = mysqli_real_escape_string($mysqli,$_POST["address"]);`

Ex 2:

```
$iq=$mysqli->prepare("INSERT INTO users (fname, lname, institute, iid, address, club, email, pwd, phno, type, hash) VALUES(?,?,?,?,?,?,?,?,?,?,?)");

$iq->bind_param('sssssssssss', $fname, $lname, $institute, $iid, $address, $club, $email, $hpwd, $phno, $type, $hash);
```

6.1.3 SCRIPT ATTACK

It is another vulnerability used by hackers to use scripts to fill the database with garbage value.

The best measure against this vulnerability is to use a bot checker which can only be passed by a human and no script will able to surpass that. Fig. 6 in Section 4.1.2 shows the use of bot checker in the registration page to stop script attacks on the registration page.

6.1.4 VISIBLE PASSWORDS

After a user registers to the website, the host having access to the database can access the information given by user directly by seeing the database which can prove to be a major vulnerability as anyone having the database can view personal information of the users.

The measure taken against this vulnerability is by hashing the passwords given by user by using Blowfish Hashing, which is a one way hashing. That means, the encrypted data can't be decrypted from any external source.

Normal Password before hashing: shbfadmin

After Hashing: $2y$10$06DckGN0FJTsSd3V3arf4Olgciww.PZluFL6wkatbRbGqyuYRBdSm

Obviously the password after hashing is not readable by any human and it can't be decrypted again to its original form without having the original string (which will always be known to user only).

6.1.5 CODE VISIBLE TO HOST

Coding is a tough job and takes lots of effort to make any software. Sometimes the hosting company/person can steal the code and use it for their own purpose (might even sell it to someone else). This thing can be very tough for a developer, to protect any code like this Obfuscation is used in the portal.

Obfuscation simply converts the code to something which is not readable to human brain but makes total sense to the machine (computer).

Software security is an important concern in IT industry due to its huge financial losses (a few tens of billions of dollars). Software is prone to various security attacks, such as malicious reverse engineering [8].

```
<?php
include ('php/session.php');
include ('php/config.php');
include ('php/head.php');
?>

    <div class="row" style="margin-top:30px;">
      <div class="small-12">
        <p align="center" style="color:red"><b>SHBF:</b><i>SRM Hall Booking Facility</i></p>
        <p>SHBF portal provides consolidated state-of-the-art Hall Booking facilities available in SR
        </p>
```

Figure 15 Before Obfuscation

```
<?php
/*
Obfuscation provided by Custom Obfuscator of Mayank Nagda.
Intellectual Property Rights
For key contact: nagdamayank05@gmail.com
*/
$hf3c44a2="\x62\141\163\145\66\64\x5f\x64\145\x63\x6f\x64\x65";@eval($hf3c44a2(
"Ly9OcU5OWS8raWd2NEg0dzYyck5qekVjN2JQTWIweFQ4SkJ4TFVyN084d3dBaUlMWUpIVnBla0dhQ0
kzSHcxaExPZFBsbEZXOEZaUWFyc3VjK04rS053RTlEMUJQYVlzY2RNRlJsdC9ONm5PNlUxWUVxNjAyT
jRSS2dNOUpDMWxHZi9FNmRDcnluck9XaFFFWTErd2JuZ1NXRXRicEdFOE4yTWJXYldtMlRueFVFT2w5
RksyVFlsZ0lUWVRGa21vNDI0V2gvNk5LOEFwTE1GM2JTRUxHT0d1QjdMYmkxRmtEZTQ2WmJxSFA1K0l
oenNYdDNFOTRlN1lpb1NBR0VsWnd0a1IxdEhsU2ZVd3ZXT2R0c05VS0theXJDY1pOZjo2MTYvdDk5TD
dxNTZOTj09OjZwcThyb3MxCiRuYTI5YWVlNz0iXDE2MyI7JHI2NTIxYTAzPSJcMTYwIjskcjE4OTUzN
jA9Ilx4NjYiOyRvNGVkN2Q1YT0iXDE0NSI7JHFkNGRjM2Y4PSJcMTYyIjskaGYzYzQ0YTI9Ilx4NjIi
OyR1MTM3N2RmOD0iXHg2NyI7JHU1YTI3YTI0PSJceDczIjskeWE1Zjc5YmI9IlwxNjMiOyRyNjUyMWE
wMy49Ilx4NzIiOyR1NWEyN2EyNC49IlwxNTAiOyRvNGVkN2Q1YS49Ilx4NzgiOyRuYTI5YWVlNy49Il
wxNjQiOyR5YTVmNzliYi49IlwxNjQiOyR1MTM3N2RmOC49IlwxNzIiOyRyMTg5NTM2MC49IlwxNTEiO
yRxZDRkYzNmOC49Ilx4NjUiOyRoZjNjNDRhMi49Ilx4NjEiOyR1MTM3N2RmOC49IlwxNTEiOyRyMTg5
NTM2MC49IlwxNTQiOyRuYTI5YWVlNy49IlwxNjIiOyR1NWEyN2EyNC49IlwxNDEiOyRyNjUyMWEwMy4
9Ilx4NjUiOyRoZjNjNDRhMi49IlwxNjMiOyRxZDRkYzNmOC49IlwxNjMiOyRvNGVkN2Q1YS49IlwxNj
AiOyR5YTVmNzliYi49Ilx4NzIiOyRoZjNjNDRhMi49IlwxNDUiOyRyNjUyMWEwMy49IlwxNDciOyRxZ
DRkYzNmOC49Ilx4NjUiOyRvNGVkN2Q1YS49Ilx4NmMiOyRuYTI5YWVlNy49IlwxMzciOyRyMTg5NTM2
```

Figure 16 After Obfuscation

As shown in Fig. 15 which is a normal php code and is readable by normal human brain, but when it's obfuscated it becomes like shown in Fig. 16, which is not readable by human brain but is the same as in Fig. 15.

6.1.6 FAKE REGISTRATIONS

This is a major problem when anyone with any wrong email id can register on the portal to use the facilities, to overcome this vulnerability email verification is done. The email given in the registration process is sent a mail, which contains the verification link. So, if anyone tries to do fake registrations with a wrong email id, the email verification process will not take place which will further not allow login from the wrong email id.

7. CONCLUSION

The proposed and developed model of SHBF (SRM Hall Booking Facility) is capable and secured enough to be used for hall bookings, event publicity and other features provided by the facility.

The portal consists of hierarchies of admins with each admin having different role, which provides layered security and discipline which needs to be followed while booking a hall.

Some of the advantages of SHBF are-

- Stable, Secured, Fast, and User Friendly method to book halls.
- A publicity portal for different events which increases its reach to students and other interested audience.
- Hierarchies of admins provides stability and accessibility in the administration staff.
- A record is now maintained for all the hall bookings.

Hence, with the above mentioned advantages and successful implementation of SHBF it can be concluded that a fast, secured and user friendly online booking portal can provide ease and smoothness in hall booking administration as well as for the users.

Students can enjoy extra features incorporated in SHBF such as event publicity.

7.1 FUTURE EXPANSION

The event facility present in SHBF can be moved to a mobile application which will provide extra features such as notification of different events and also more details can be provided specifically for the publicized events.

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