

ABSTRACT

Indian Railway Catering and Tourism Corporation popularly known as IRCTC is an Indian public sector undertaking that provides ticketing, catering, and tourism services for the Indian Railways. Our project "IRCTC RAILWAY RESERVATION" is a desktop based standalone application developed using java swings framework of JAVA. This project is an attempt to demonstrate the working of railway reservation process both from the admin and user view. This project provides various functionalities to the user where he can create his own account or login through an existing account and search the desired trains according to plan of his/her travel. The user can also book the seats to confirm his travel in the Indian railways. Other functionalities includes viewing his profile, view his previous bookings. Passengers travelling in the train are assigned a pnr number which is unique and find all the details of their journey by using the search pnr function. The user also receives a confirmation mail to his registered mail id after booking. All the details are stored in the database which is accessed dynamically every time to provide accurate information. It also has admin where the admin is authenticated using both password and OTP sent to his registered mail providing two step verification. The admin can make major changes which includes adding a new train to the database.

TABLE OF CONTENTS

Certificate	i
Acknowledgement	ii
Abstract	iii
Table of Contents	iv-vi
List of Figures	vii-viii
List of Tables	ix

Chapter 1

Introduction	1
1.1 Introduction To Project	1
1.2 Project Objective	1
1.3 Project Overview	1
1.4 Project Scope	2
1.5 Introduction To Database	2
1.6 History Of DBMS	3
1.7 Advantages Of DBMS	4
1.8 Components Of DBMS	6

Chapter 2

System Requirements	7
2.1 Software Requirements	7
2.2 Hardware Requirements	7

Chapter 3

System Design	8
3.1 ER Diagram	8
3.2 Schema Diagram	8
3.3 EER Diagram	8
3.4 Control Flow Diagram	8

Chapter 4

Implementation	13
4.1 Java	13
4.2 Java Swing and AWT	13
4.3 SQL	14
4.4 Java JDBC	14
4.5 Table Descriptions	15
4.6 Triggers	18

4.7 Stored Procedure	20
Chapter 5	
Testing and Results	21
5.1 Testing	21
5.2 Results	23
5.3 Snapshots	24
Conclusion	33
References	34

LIST OF FIGURES

Fig No	Description	Page No
Figure 1.1	Components of a DBMS	6
Figure 3.1	ER Diagram of IRCTC	9
Figure 3.2	Schema Diagram of IRCTC.....	10
Figure 3.3	EER Diagram of IRCTC.....	11
Figure 3.4	Control Flow Diagram of IRCTC	12
Figure 4.1	Establish Connection	15
Figure 4.2	Trigger for calculating cost.....	19
Figure 4.3	Stored procedure	20
Figure 5.1	Testing for Invalid User name and password	23
Figure 5.2	Testing for Invalid Captcha	23
Figure 5.3	Main Page	24
Figure 5.4	User Registration	24
Figure 5.5	User Login	25
Figure 5.6	Home Page	25
Figure 5.7	Train Search	26
Figure 5.8	Book Tickets	26
Figure 5.9	Passenger Details	27

Figure 5.10	Confirm Booking	27
Figure 5.11	PNR Status	28
Figure 5.12	PNR Details	28
Figure 5.13	User Profile	29
Figure 5.14	Ask Disha.....	29
Figure 5.15	Admin Login.....	30
Figure 5.16	Admin Home Page.....	30
Figure 5.17	Add Trains	31
Figure 5.18	All Bookings	31
Figure 5.19	Admin Profile	32

LIST OF TABLES

Table No.	Description	Page No.
Table 4-1	User Table	15
Table 4-2	User Login Table	15
Table 4-3	Admin Table	16
Table 4-4	Admin Login Table	16
Table 4-5	Trains Table	16
Table 4-6	Stations Table.....	16
Table 4-7	Routes Table	17
Table 4-8	Schedule table	17
Table 4-9	PNR Status table	17
Table 4-10	Bookings Table	18
Table 4-11	Passengers Table	18
Table 5-1	Test Cases	2

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION TO PROJECT

Indian Railway Catering and Tourism Corporation popularly known as IRCTC is an Indian public sector undertaking that provides ticketing, catering, and tourism services for the Indian Railways.

Our project "IRCTC railway reservation" is a desktop based standalone application developed using java swings framework of java.

This project is an attempt to demonstrate the working of railway reservation process both from the admin and user view. All the functionalities which are provided by the IRCTC website and app are implemented in the form of desktop application which is very simple and easy to use.

The user interface is attracting and doesn't confuse users in completing their booking process.

1.2 PROJECT OBJECTIVE

The main objective of the project is to implement the desktop version of IRCTC mobile application which provides all the functionalities in desktop.

A complete and efficient desktop application which can provide a good and user-friendly experience is the basic objective of the project.

1.3 PROJECT OVERVIEW

The central concept of the application is to allow the users to book tickets virtually using the Internet. The information pertaining to the trains, stations, cost, time and all other necessary details are stored in the database in the form of tables following the rules of RDBMS (Relational database management system).

The application processes the users request and sends the ticket to their registered e-mail Id where the user doesn't need any hard copy of the ticket to travel in the train. The application is designed into two modules, first is for the users who wish to book the tickets. Second is for

the admin who maintains and updates the information pertaining to the trains and their respective schedules and even those of the customers. The end user of this product is the customer where the application is hosted on the desktop as standalone and the administrator maintains the database.

The application which is deployed at the user database, the details of the trains and personal information are brought forward from the database for the user view based on the selection through the menu and the database of all the trains such as updating the available seats after each booking and updating the bookings table after each booking is completed successfully. Data entry into the application can be done through various screens designed for various levels of end users (admin and customer).

1.4 PROJECT SCOPE

This system can be implemented in any desktop which complete the requirements in order to user the application. The system recommends a facility to accept the bookings 24*7 and online ticket issuing system which decreases the effort of customers to take the offline ticket issued at the station. This system also decreases the effort of the railways to appoint more employee to issue tickets.

The railways also don't lose their customers and even are also happy by their decrease of effort. Since the application is available in the desktop it is easily accessible and always available.

PNR status is one of the important feature where the users can track their booking status by entering their 10-digit number which shows all the details of the passengers travelling in the booked train which also shows the seat number which can be updated when there are some changes in the operation of the train.

1.5 INTRODUCTION TO DATABASE

Databases and database technology have had a major impact on the growing use of computers. A database is a collection of related data. By data, we mean known facts that can be recorded and that have implicit meaning. For example, consider the names, telephone numbers, and addresses of the people you know. Nowadays, this data is typically stored in mobile phones, which have their own simple database software. In other words, a database has some source from which data is derived, some degree of interaction with events in the real world, and an

audience that is actively interested in its contents. A database can be of any size and complexity. For example, the list of names and addresses referred to earlier may consist of only a few hundred records, each with a simple structure. On the other hand, the computerized catalogue of a large library may contain half a million entries organized under different categories.

A database has the following implicit properties:

- 1 A database represents some aspect of the real world, sometimes called the mini world or the universe of discourse. Changes to the mini world are reflected in the database.
- 2 A database is a logically coherent collection of data with some inherent meaning. A random assortment of data cannot correctly be referred to as a database.
- 3 A database is designed, built, and populated with data for a specific purpose. It has an intended group of users and some preconceived applications in which these users are interested.

A database management system (DBMS) is a computerized system that enables users to create and maintain a database. The DBMS is a general-purpose software system that facilitates the processes of defining, constructing, manipulating, and sharing databases among various users and applications. Defining a database involves specifying the data types, structures, and constraints of the data to be stored in the database. The database definition or descriptive information is also stored by the DBMS in the form of a database catalogue or dictionary; it is called meta-data. Constructing the database is the process of storing the data on some storage medium that is controlled by the DBMS. Sharing a database allows multiple users and programs to access the database simultaneously.

1.6 HISTORY OF DBMS

Data is a collection of facts and figures. The data collection was increasing day to day and they needed to be stored in a device or a software which is safer.

Charles Bachman was the first person to develop the Integrated Data Store (IDS) which was based on network data model for which he was inaugurated with the Turing Award (The most prestigious award which is equivalent to Nobel Prize in the field of Computer Science.). It was developed in early 1960's.

In the late 1960's, IBM (International Business Machines Corporation) developed the Integrated Management Systems which is the standard database system used till date in many places. It was developed based on the hierarchical database model. It was during the year 1970 that the relational_database_model was developed by Edgar Codd. Many of the database models we use today are relational based. It was considered the standardized database model from then.

The relational model was still in use by many people in the market. Later during the same decade (1980's), IBM developed the Structured Query Language (SQL) as a part of R project. It was declared as a standard language for the queries by ISO and ANSI. The Transaction Management Systems for processing transactions was also developed by James Gray for which he was felicitated the Turing Award.

Further, there were many other models with rich features like complex queries, datatypes to insert images and many others. The Internet Age has perhaps influenced the data models much more. Data models were developed using object-oriented programming features, embedding with scripting languages like Hyper Text Markup Language (HTML) for queries. With humongous data being available online, DBMS is gaining more significance day by day.

1.7 ADVANTAGES OF DBMS

Compared to the File Based Data Management System, Database Management System has many advantages.

1. Reducing Data Redundancy

The file-based data management systems contained multiple files that were stored in many different locations in a system or even across multiple systems. Because of this, there were sometimes multiple copies of the same file which leads to data redundancy. This is prevented in a database as there is a single database and any change in it is reflected immediately. Because of this, there is no chance of encountering duplicate data.

2. Data Integrity

Data integrity means that the data is accurate and consistent in the database. Data Integrity is very important as there are multiple databases in a DBMS. All of these

databases contain data that is visible to multiple users.

So, it is necessary to ensure that the data is correct and consistent in all the databases and for all the users.

3. Data Security

Data Security is vital concept in a database. Only authorized users should be allowed to access the database and their identity should be authenticated using a username and password. Unauthorized users should not be allowed to access the database under any circumstances as it violates the integrity constraints.

4. Privacy

The privacy rule in a database means only the authorized users can access a database according to its privacy constraints. There are levels of database access and a user can only view the data he is allowed to. For example - In social networking sites, access constraints are different for different accounts a user may want to access.

5. Backup and Recovery

Database Management System automatically takes care of backup and recovery. The users don't need to backup data periodically because this is taken care of by the DBMS. Moreover, it also restores the database after a crash or system failure to its previous condition.

6. Data Consistency

Data consistency is ensured in a database because there is no data redundancy. All data appears consistently across the database and the data is same for all the users viewing the database. Moreover, any changes made to the database are immediately reflected to all the users and there is no data inconsistency.

1.8 COMPONENTS OF DBMS

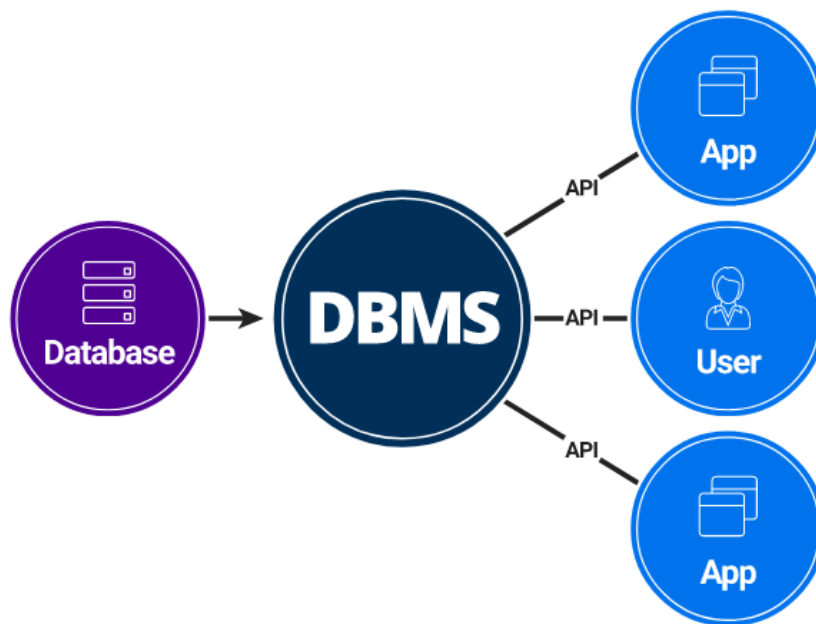


Figure 1.1 Components of DBMS

Figure 1.1 shows the components of DBMS which describe the different parts that work together for creating, managing the database that forms a complete system named DBMS (database management system).

1 **Users:**

Users may be of any kind, such as data base administrators, system developers or database users.

2 **Database application:**

Database application may be Departmental, Personal, Organizational and /or Internal.

3 **DBMS:**

Software that allows users to create and manipulate database access.

4 **Database:**

Collection of logical data as a single unit.

CHAPTER 2

SYSTEM REQUIREMENTS

2.1 SOFTWARE REQUIREMENTS

1. Operating System: Windows XP/VISTA/7/8/10/11
2. Java SE 8 or higher
3. Any text editor supporting Java compilation
4. MySQL (workbench)
5. Full Administrator access

2.2 HARDWARE REQUIREMENTS

1. RAM: 512 MB and above
2. HDD: 500 MB and above
3. PROCESSOR: Intel® Core™ i3-8250U CPU @ 1.6GHz 1.80GHz
4. SYSTEM TYPE: 64-bit operating system, x64-based processor

CHAPTER 3

SYSTEM DESIGN

3.1 ER DIAGRAM

ER Diagram stands for Entity Relationship Diagram, also known as ERD, is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships. ER Diagrams contain different symbols that use rectangles to represent entities, ovals to define attributes and diamond shapes to represent relationships.

3.2 SCHEMA DIAGRAM

A schema diagram is a diagram which contains entities and the attributes that will define that schema. A schema diagram only shows us the database design. It does not show the actual data of the database. Schema can be a single table or it can have more than one table which is related.

3.3 EER DIAGRAM

Enhanced Entity-Relationship (EER) diagrams are an essential part of the modeling interface in MySQL Workbench. EER diagrams provide a visual representation of the relationships among the tables in your model. Revisions made with the Model Editor are shown in the associated diagram.

3.4 CONTROL FLOW DIAGRAM

A Control Flow Graph (CFG) is the graphical representation of control flow or computation during the execution of programs or applications. Control flow graphs are mostly used in static analysis as well as compiler applications, as they can accurately represent the flow inside of a program unit.

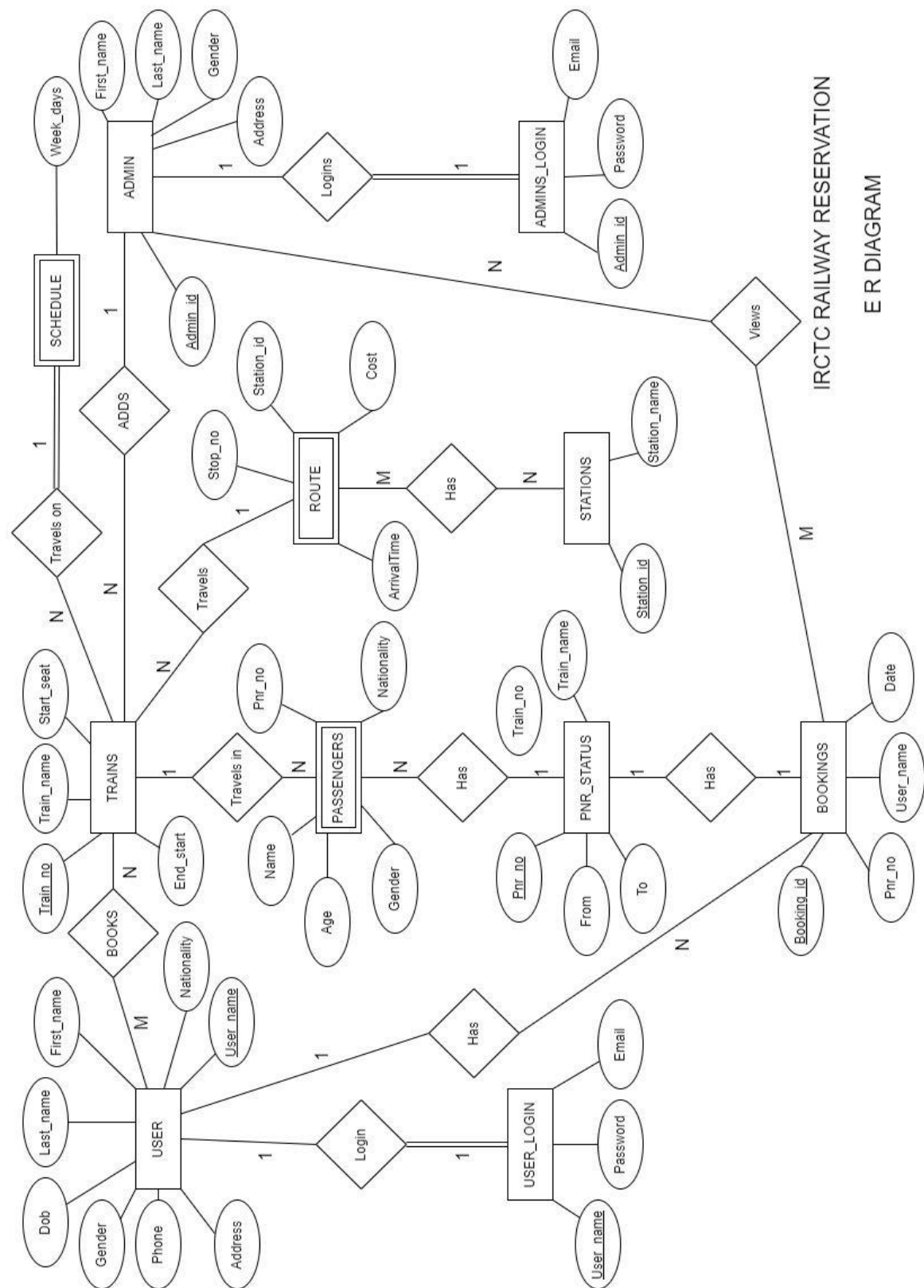


Figure 3.1 ER Diagram of IRCTC

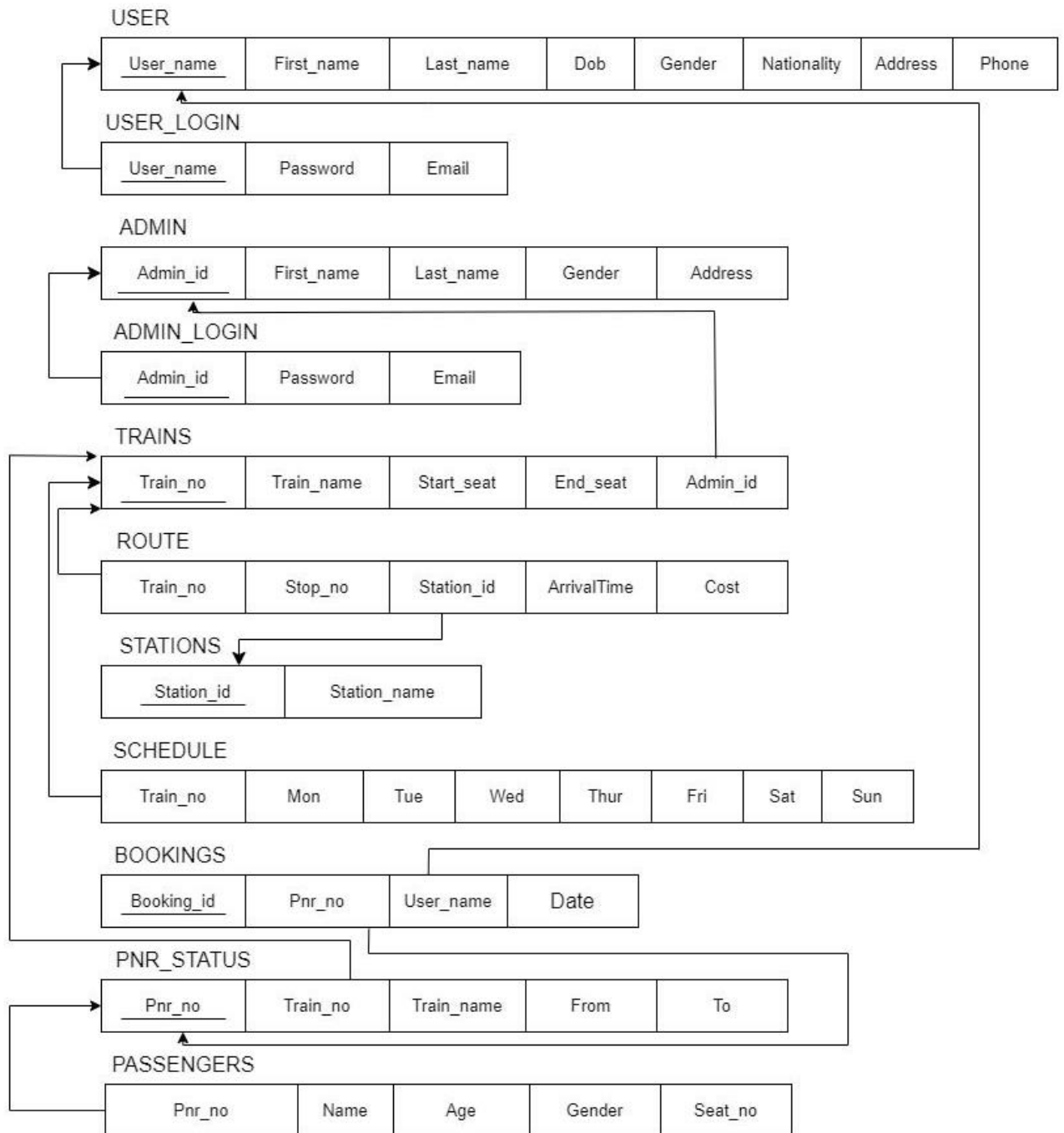


Figure 3.2 Schema Diagram of IRCTC

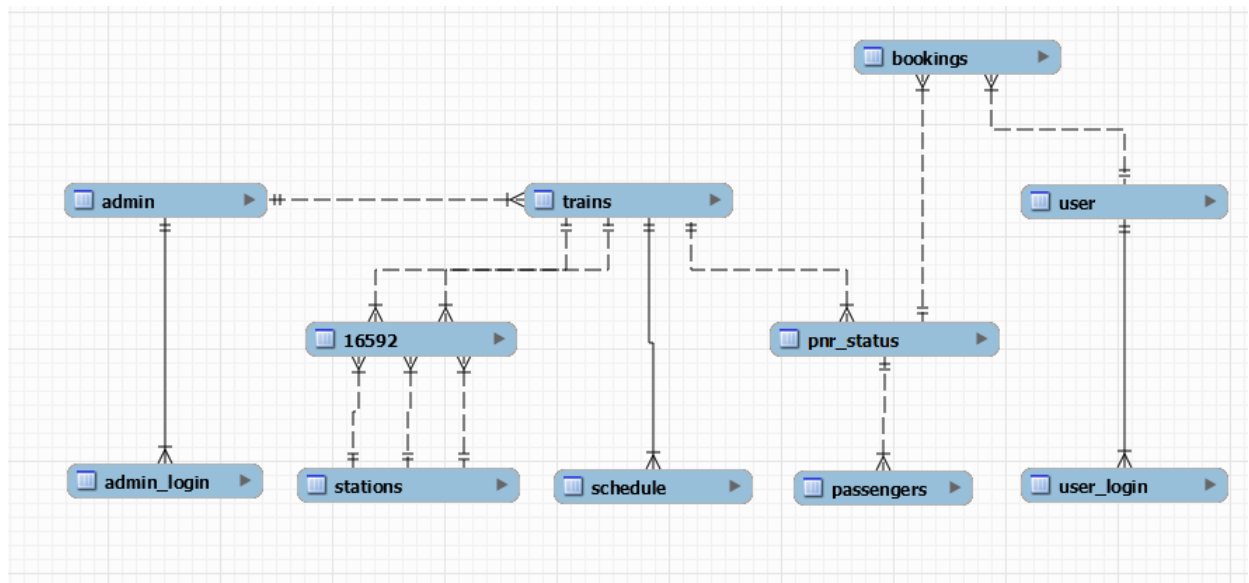


Figure 3.3 EER Diagram of IRCTC

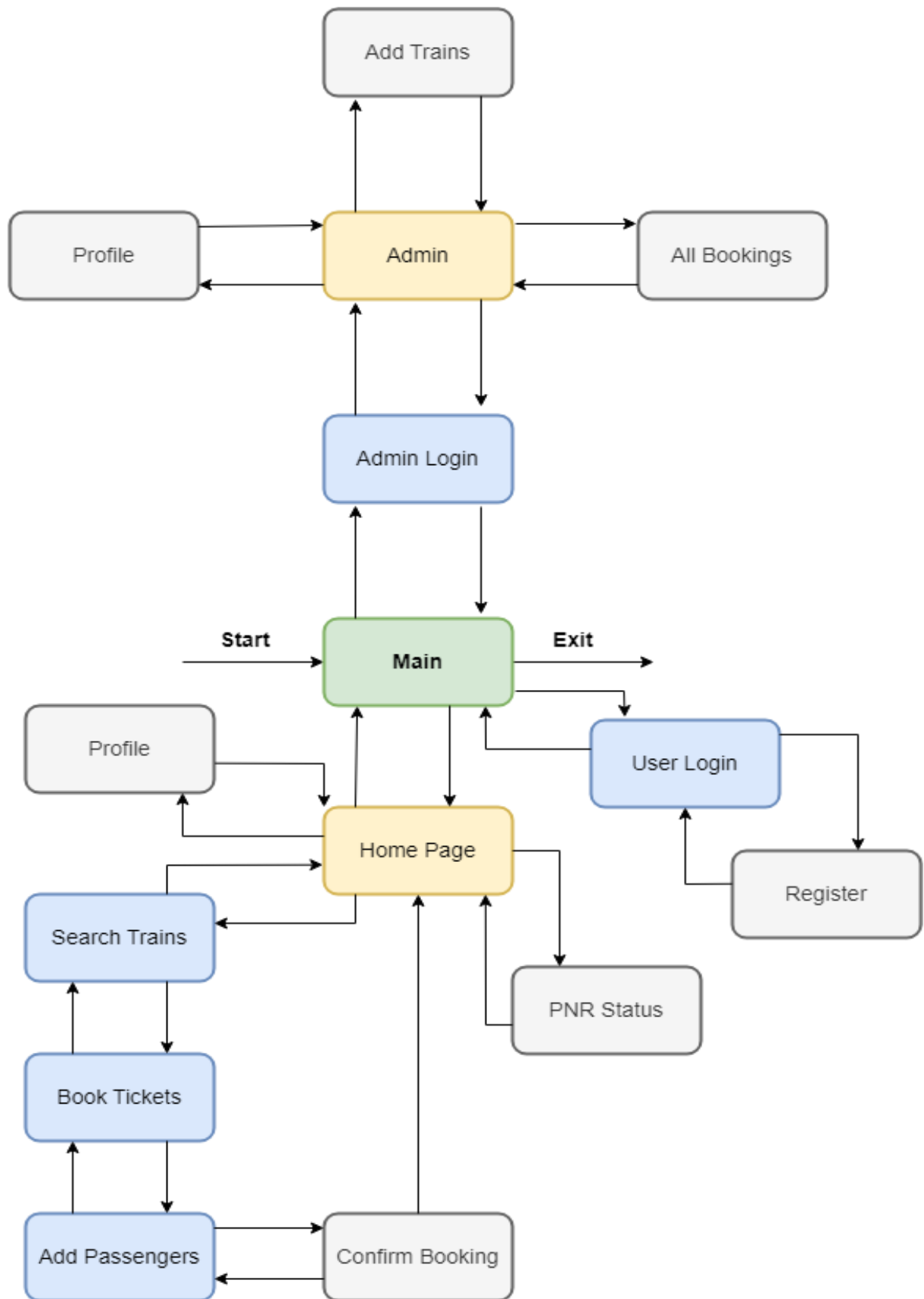


Figure 3.4 Control Flow Diagram of IRCTC

CHAPTER 4

IMPLEMENTATION

4.1 JAVA

Java is a widely used object-oriented programming language and software platform that runs on billions of devices, including notebook computers, mobile devices, gaming consoles, medical devices and many others. The rules and syntax of Java are based on the C and C++ languages.

One major advantage of developing software with Java is its portability. Once you have written code for a Java program on a notebook computer, it is very easy to move the code to a mobile device. When the language was invented in 1991 by James Gosling of Sun Microsystems (later acquired by Oracle), the primary goal was to be able to "write once, run anywhere."

It's also important to understand that Java is much different from JavaScript. JavaScript does not need to be compiled, while Java code does need to be compiled. Also, JavaScript only runs on web browsers while Java can be run anywhere.

4.2 JAVA SWING AND AWT

AWT and Swing are used to develop window-based applications in Java. Awt is an abstract window toolkit that provides various component classes like Label, Button, TextField, etc., to show window components on the screen. All these classes are part of the Java. Awt package.

On the other hand, Swing is the part of JFC (Java Foundation Classes) built on the top of AWT and written entirely in Java. The javax swing API provides all the component classes like JButton, JTextField, JCheckbox, JMenu, etc.

The components of Swing are platform-independent, i.e., swing doesn't depend on the operating system to show the components. Also, the Swing's components are lightweight. The main differences between AWT and Swing are given in the following table.

4.3 SQL (Structured Query Language)

SQL (Structured Query Language) is a domain-specific language used in programming and designed for managing data held in a relational database Management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS). In comparison to older read/write APIs like [SAM or VSAM, SQL offers two main advantages: first, it introduced the concept of accessing many records with one single command; and second, it eliminates the need to specify how to reach a record, e.g. with or without an index.

Originally based upon relational algebra and tuple relational calculus, SQL consists of a data definition language, data manipulation language, and data control language. The scope of SQL includes data insert, query, update and delete, schema creation and modification, and data access control. Although SQL is often described as, and to a great extent is, a declarative language (4GL), it also includes procedural elements.

4.4 Java JDBC

JDBC stands for Java Database Connectivity, which is a standard Java API for database-independent connectivity between the Java programming language and a wide range of databases.

The JDBC library includes APIs for each of the tasks mentioned below that are commonly associated with database usage.

- Making a connection to a database.
- Creating SQL or MySQL statements.
- Executing SQL or MySQL queries in the database.
- Viewing & modifying the resulting records.

```
1  import java.sql.*;
2
3  public class Conn {
4      Connection c;
5      Statement s;
6
7      public Conn() {
8          try {
9              c = DriverManager.getConnection("jdbc:mysql:///irctcproject", "root", "SkSb#292817");
10             s = c.createStatement();
11
12         } catch (Exception e) {
13             System.out.println(e);
14         }
15     }
16 }
```

Figure 4.1 Establish Connection

4.5 TALE DESCRIPTIONS

4.5.1 User Table: Table used to store the user information such as name Date of birth, gender, address etc.

Table 4-1 User Table

	Field	Type	Null	Key	Default	Extra
►	user_name	varchar(50)	NO	PRI	NULL	
	first_name	varchar(30)	YES		NULL	
	last_name	varchar(30)	YES		NULL	
	dob	varchar(20)	YES		NULL	
	gender	varchar(20)	YES		NULL	
	nationality	varchar(30)	YES		NULL	
	address	varchar(50)	YES		NULL	
	phone	varchar(10)	YES		NULL	

4.5.2 User login : Table used to store username,password and email of user

Table 4-2 User Login Table

	Field	Type	Null	Key	Default	Extra
►	user_name	varchar(50)	NO	PRI	NULL	
	password	varchar(20)	YES		NULL	
	email	varchar(50)	YES		NULL	

4.5.3 Admin Table: Table used to store the details of Admin.

Table 4-3 Admin Table

	Field	Type	Null	Key	Default	Extra
►	admin_id	varchar(50)	NO	PRI	NULL	
	first_name	varchar(30)	YES		NULL	
	last_name	varchar(30)	YES		NULL	
	gender	varchar(20)	YES		NULL	
	address	varchar(50)	YES		NULL	

4.5.2 Admin login : Table used to store username,password and email of Admin

Table 4-4 Admin Login Table

	Field	Type	Null	Key	Default	Extra
►	admin_id	varchar(50)	NO	PRI	NULL	
	password	varchar(20)	YES		NULL	
	email	varchar(50)	YES		NULL	

4.5.3 Trains Table: Table used to store the list of all trains available such as train number, train name, seats available and admin id as foreign key which denotes the admin who has added the train.

Table 4-5 Trains Table

	Field	Type	Null	Key	Default	Extra
►	train_no	varchar(10)	NO	PRI	NULL	
	train_name	varchar(50)	YES		NULL	
	start_seat	int	YES		NULL	
	end_seat	int	YES		NULL	
	admin_id	varchar(50)	YES	MUL	NULL	

4.5.4 Stations Table: Table used to store the list of all stations with their station id and station name.

Table 4-6 Stations Table

	Field	Type	Null	Key	Default	Extra
►	station_id	varchar(10)	NO	PRI	NULL	
	station_name	varchar(50)	YES		NULL	

4.5.5 Routes Table: Routes table is used to store the stations and order of stops the train travels through and also contains the cost of each station.

Table 4-7 Routes Table

	Field	Type	Null	Key	Default	Extra
▶	train_no	varchar(10)	YES	MUL	NULL	
	stop_no	int	NO	PRI	NULL	auto_increment
	station_id	varchar(10)	YES	MUL	NULL	
	arrival_time	varchar(20)	YES		NULL	
	cost	int	YES		NULL	

4.5.6 Schedule Table: Table used to store the schedule of the train. It stores the days in which train travels.

Table 4-8 Schedule table

	Field	Type	Null	Key	Default	Extra
▶	train_no	varchar(10)	NO	PRI	NULL	
	monday	varchar(5)	YES		NULL	
	tuesday	varchar(5)	YES		NULL	
	wednesday	varchar(5)	YES		NULL	
	thursday	varchar(5)	YES		NULL	
	friday	varchar(5)	YES		NULL	
	saturday	varchar(5)	YES		NULL	
	sunday	varchar(5)	YES		NULL	

4.5.6 PNR Status table: This table stores the PNR details of the passengers. PNR number is a unique 10-digit number given to passengers travelling together in a train.

Table 4-9 PNR Status table

	Field	Type	Null	Key	Default	Extra
▶	pnr_no	varchar(20)	NO	PRI	NULL	
	train_no	varchar(10)	YES	MUL	NULL	
	train_name	varchar(50)	YES		NULL	
	from	varchar(50)	YES		NULL	
	to	varchar(50)	YES		NULL	
	date_of_travel	varchar(20)	YES		NULL	

4.5.7 Bookings Table: This table stores the booking details of the user which can be identified by a unique Booking Id. The user can access his booking details anytime. Admin can access all the bookings done by all the registered users.

Table 4-10 Bookings Table

	Field	Type	Null	Key	Default	Extra
►	booking_id	varchar(20)	NO	PRI	NULL	
	pnr_no	varchar(20)	YES	MUL	NULL	
	user_name	varchar(50)	YES	MUL	NULL	
	ticket_cost	int	YES		NULL	
	date	varchar(50)	YES		NULL	

4.5.8 Passengers Table: Passengers table stores the passengers' details such as name, gender, age and seat number assigned to the passengers.

Table 4-11 Passengers Table

	Field	Type	Null	Key	Default	Extra
►	pnr_no	varchar(20)	YES	MUL	NULL	
	name	varchar(50)	YES		NULL	
	age	int	YES		NULL	
	gender	varchar(20)	YES		NULL	
	seat_no	int	YES		NULL	

4.6 TRIGGERS

A trigger is a special type of stored procedure that automatically runs when an event occurs in the database server. DML triggers run when a user tries to modify data through a data manipulation language (DML) event.

4.5.1 Syntax:

```
CREATE TRIGGER trigger_name trigger_time trigger_event
ON table_name FOR EACH ROW
BEGIN
    --variable declarations
    --trigger code
END;
```

4.5.2 Trigger for Calculating Cost

```
DROP TRIGGER IF EXISTS cost;
DELIMITER $$
CREATE TRIGGER    cost
BEFORE INSERT
ON
`<train_no>`
FOR EACH ROW
BEGIN
    IF (SELECT count (*) FROM `<train_no>`=0 THEN
        SET NEW. cost = 0;
    ELSE
        BEGIN
            DECLARE id_val INT DEFAULT 0;
            SELECT LAST_INSERT_ID () INTO id_val;
            SET NEW. cost = id_val *10;
        END;
    END IF;
END;
$$
DELIMITER ;
```

Figure 4.2 Trigger for calculating cost

4.7 STORED PROCEDURE

A stored procedure is a prepared SQL code that you can save, so the code can be reused over and over again. So, if you have an SQL query that you write over and over again, save it as a stored procedure, and then just call it to execute it.

4.7.1 Syntax

DELIMITER &&

CREATE PROCEDURE procedure_name [[IN | **OUT** | INOUT] parameter_name datatype [
, parameter datatype]]

BEGIN

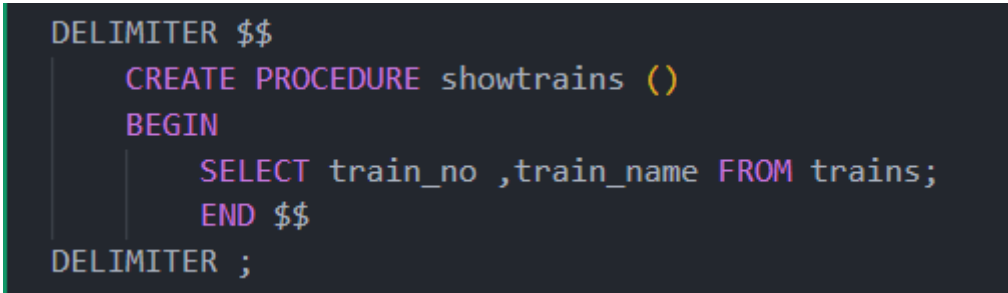
Declaration_section

Executable_section

END &&

DELIMITER;

4.7.2 Procedure for listing all the trains available



```
DELIMITER $$  
CREATE PROCEDURE showtrains ()  
BEGIN  
    SELECT train_no ,train_name FROM trains;  
END $$  
DELIMITER ;
```

Figure 4.3 Stored procedure

4.7.3 Call a Stored Procedure

CALL showtrains();

CHAPTER 5

TESTING AND RESULTS

5.1 TESTING:

5.1.1 Testing

Testing is evaluation of the software against requirements gathered from users and system specifications. Testing identifies important defects, flaws, or an error in the application code that must be fixed. It also assesses the feature of a system. Testing assesses the quality of the product.

5.1.2 Unit Testing

Unit testing refers to the testing certain functions and areas of the code. It gives the ability to verify that all the functions work as expected.

5.1.3 Integration Testing

Integration testing is basically a logical extension of unit testing. In simple words, two tested units are combined into a component and the interface between them is tested. It identifies problems that occur when different units are combined. The different modules of this project have undergone integration testing while being merged.

5.1.4 System Testing

System testing tests the behavior of whole system as defined by the scope of the development project. It might include tests based on risks as well as requirement specifications, business process, use cases or other high-level descriptions of system behavior, interactions with the operating systems and system resources. It is most often the final test performed to verify that the system meets the specification and its objectives. System testing has been performed at the completion of each feature and is still taking place to make improvements on the existing system.

Table 5-1 Test Cases

Test Case Id	Test Case Name	Test Case Description	Input	Expected Result	Actual Result	Result
TC 01	User login	Validate User name, Password And Captcha	Enter Valid User name, Password And Captcha	User login Should be successful	User login successful	PASS
TC 02	User login	Validate User name and Password And Captcha	Enter Invalid User name And Password And Captcha	“Invalid User name/ Password” Error Message Should Be displayed	“Invalid User name/ Password” Error Message is displayed	PASS
TC 03	User login	Validate User name and Password	To check if Fields are Left blank	“Fields are empty” Error message should be displayed	“Fields are empty” Error message is displayed	PASS

5.2 RESULTS

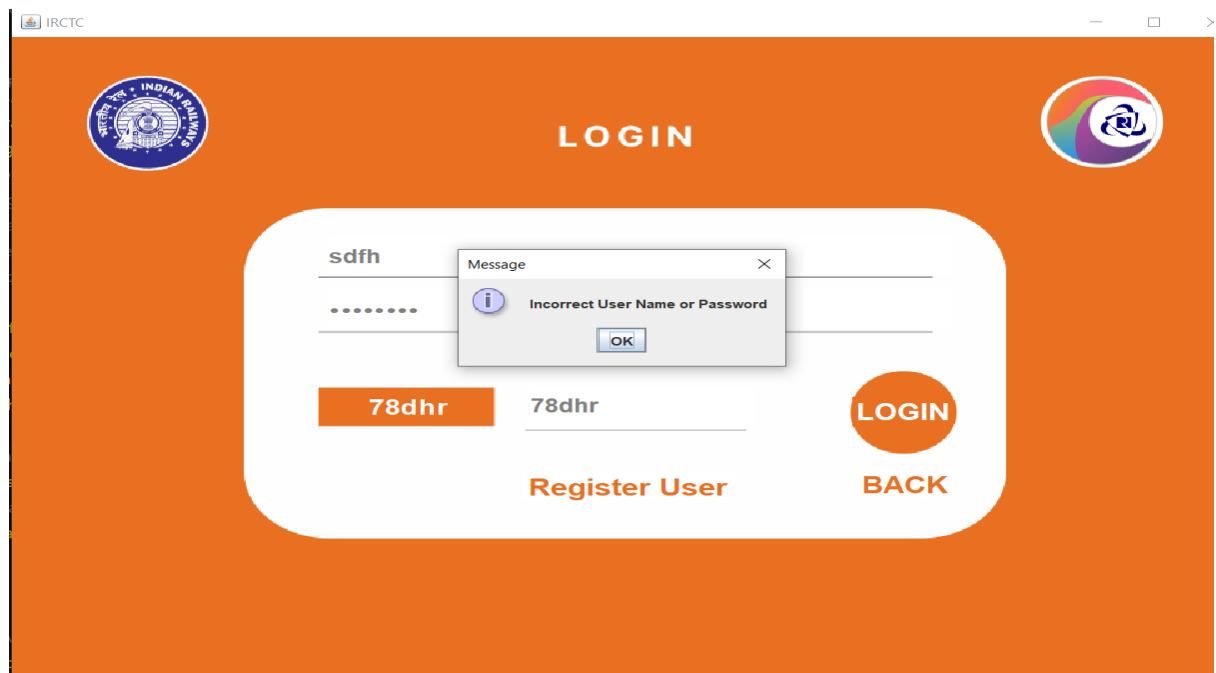


Figure 5.1 Testing for Invalid User name and password

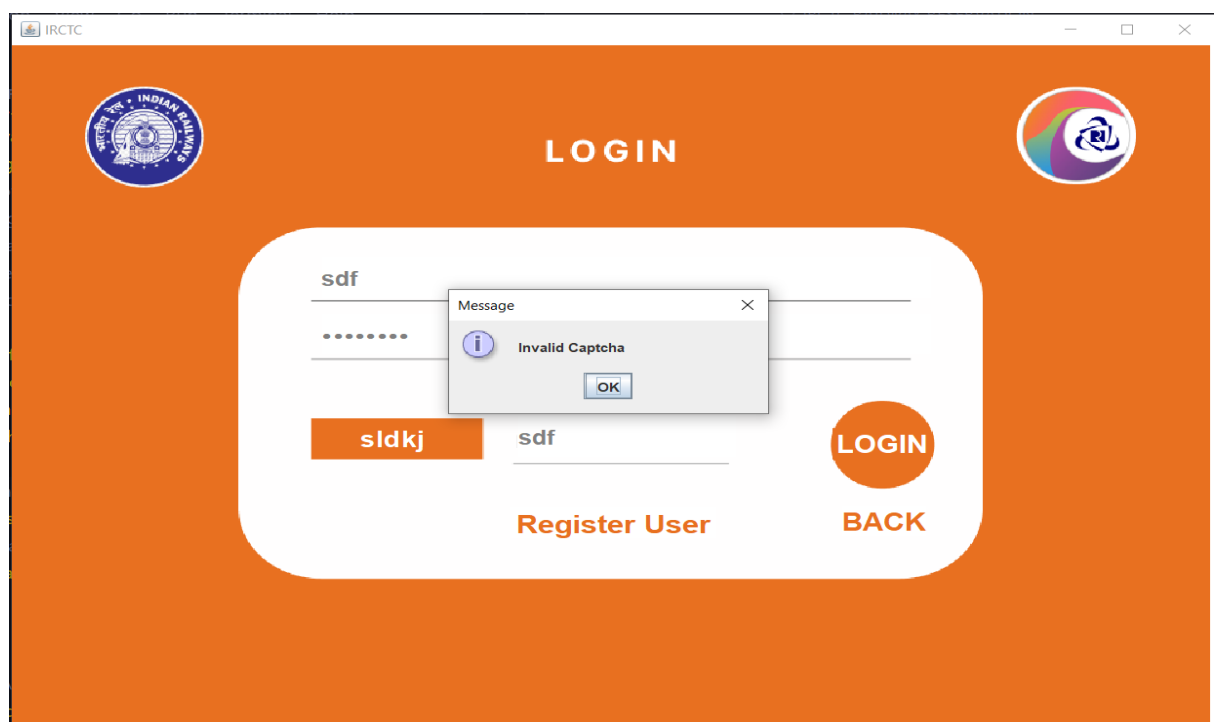


Figure 5.2 Testing for Invalid Captcha

5.3 SNAPSHOTS



Figure 5.3 Main Page

- The above figure 5.3 shows the screenshot of the Welcome Page of our Project.
- It has Admin and User Login

The image shows a web browser window titled 'IRCTC'. The main content area has an orange background. At the top, there's a white banner with the text 'USER REGISTRATION' in orange. Below this is a white registration form. The form contains the following fields: 'First Name', 'Last Name', 'User Name', 'password', 'Re-Enter password', 'Email', 'Address', 'Phone', and 'DOB'. There are also radio buttons for 'Indian' and 'Foreign' under the DOB field, and radio buttons for 'Male', 'Female', and 'Other' below the DOB field. At the bottom of the form, there are two buttons: 'Back' and 'Register', both in orange text.

Figure 5.4 User Registration

- The above figure 5.4 shows the screenshot of the Registration of user.

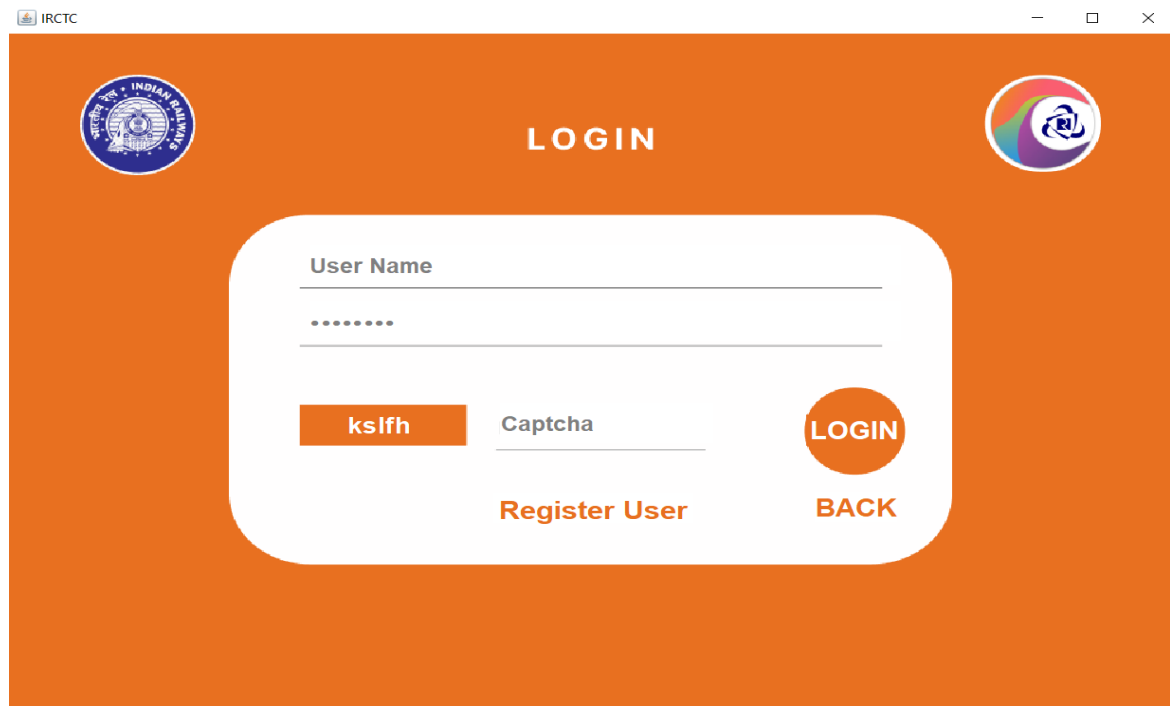


Figure 5.5 User Login

- The above figure 5.5 shows the screenshot of the User Login.

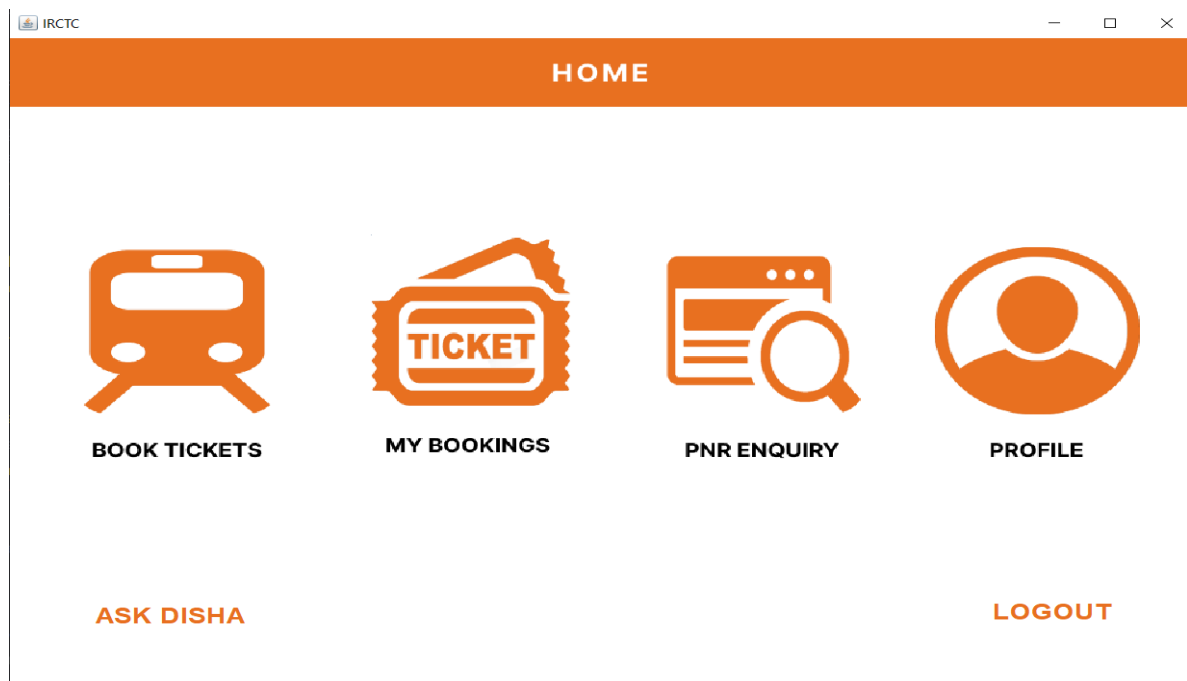


Figure 5.6 Home Page

- The above figure 5.6 shows the screenshot of the Homepage of our Project.

IRCTC

TRAIN SEARCH

FROM **AMBUR** TO **AMBUR**

Departure Date: 10-Jan-2023

January 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat
01	1	2	3	4	5	6
02	8	9	10	11	12	13
03	15	16	17	18	19	20
04	22	23	24	25	26	27
05	29	30	31			

BACK **SEARCH TRAINS**

INFORMATION

Please check the arrival/departure time of booked train from www.indianrail.gov.in, NTES OR 139 for any changes

Figure 5.7 Train Search

- The above figure 5.7 shows the screenshot of the Train Search.

YPR TO BAY

SAMPARK KRANTI (12649)

YESVANTPUR JN 13:50 → BELLARY JN 01:05

Cost : 90
Seats : 26 **BOOK**

YPR HPT EXP (16545)

YESVANTPUR JN 20:25 → BELLARY JN 05:55

Cost : 220
Seats : 28 **BOOK**

HAMPI EXPRESS (16592)

YESVANTPUR JN 22:00 → BELLARY JN 05:50

Cost : 80
Seats : 25 **BOOK**

BACK

Figure 5.8 Book Tickets

- The above figure 5.8 shows the screenshot of the List of available Trains.

— □ ×

PASSENGER DETAILS

SAMPARK KRANTI (12649)

YESVANTPUR JN
13:50
Cost : 90

→

BELLARY JN
01:05
Seats : 16

ADD PASSENGERS

suchith
20
☒ Male ☐ Female ☐ Other

ADD

DELETE

Name	AGE	GENDER	Ticket cost
shashidhar	20	Male	90
suchith	20	Male	90

SUBMIT

BACK

Figure 5.9 Passenger Details

- The above figure 5.9 shows the screenshot of the Passenger Details.

— □ ×

CONFIRM BOOKING

TRAIN SELECTED : Sampark Kranti (12649)
FROM : YESVANTPUR JN (13:50)
TO : BELLARY JN (BAY)
DATE - TIME : 18/01/2023 10-34-45
SEATS BOOKED : 2
TOTAL FARE : 180

SHOW PASSENGERS

Name	AGE	GENDER	SEAT_NO
shashidhar	20	Male	15
suchith	20	Male	16

CONFIRM

BACK

Input

?

Enter the otp sent to your email to confirm tickets

OK

Cancel

Figure 5.10 Confirm Booking

- The above figure 5.10 shows the screenshot of the confirmation details before Ticket Booking.

IRCTC

PNR STATUS

PNR Number

Search **Back**

NOTE ::

1. No refund shall be granted on the confirmed ticket after four hours before the scheduled departure of the train.
- 2.No refund shall be granted on the RAC or Waitlisted ticket after thirty minutes before the scheduled departure of the train.

Figure 5.11 PNR Status

- The above figure 5.11 shows the screenshot of the PNR Enquiry Page.

IRCTC

PNR STATUS

2373589743

Search **Back**

PNR details are :

PNR Number : 2373589743
Train Number :12649
Date : 17/01/2023 21-10-03
Train Name :Sampark Kranti
From : YESVANTPUR JN
To : BELLARY JN

Name	Age	Gender	Seat_no
shashidhar	20	Male	6
suchith Kumar	20	Male	7
Vinay M V	20	Male	8
Sukanva	20	Male	9
Sushma	20	Male	10
Shashank s	20	Male	11

Figure 5.12 PNR Details

- The above figure 5.12 shows the screenshot of the PNR Details i.e., Passenger details.



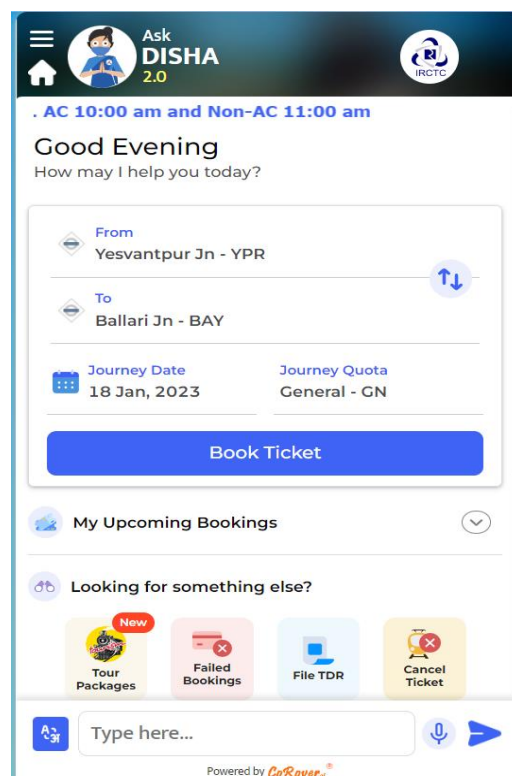
The screenshot shows the 'MY ACCOUNT' section of the IRCTC website. It features a user profile card with an orange background and a white circular icon of a person. Below the card, user details are listed in a two-column format. A 'Back' button is visible at the bottom right.

MY ACCOUNT	
	SHASHIDHAR SHASHIDHAR.SHIVARAJ715@GMAIL.COM
NAME	: SHASHIDHARAS
GENDER	: Male
ADDRESS	: CHINTAMANI
NATIONALITY	: Indian
DOB	: 09-Apr-2002
PHONE	: 9019071753

[Back](#)

Figure 5.13 User Profile

- The above figure 5.13 shows the screenshot of the User Profile which provides user information.



The screenshot shows the 'Ask Disha' chat interface on the IRCTC website. It features a header with a home icon, a user profile icon, and the text 'Ask DISHA 2.0'. Below the header, there is a greeting 'Good Evening' and a prompt 'How may I help you today?'. The main content area displays travel details: 'From Yesvantpur Jn - YPR', 'To Ballari Jn - BAY', 'Journey Date 18 Jan, 2023', and 'Journey Quota General - GN'. A blue 'Book Ticket' button is present. Below this, there is a section for 'My Upcoming Bookings' and a section for 'Looking for something else?' with icons for 'Tour Packages', 'Failed Bookings', 'File TDR', and 'Cancel Ticket'. At the bottom, there is a search bar with the text 'Type here...' and a microphone icon. The footer indicates 'Powered by CoRover'.

Fig5.14 Ask Disha

- The above figure 5.14 shows the screenshot of the Ask Disha Chat box where users can ask any questions regarding the Trains.

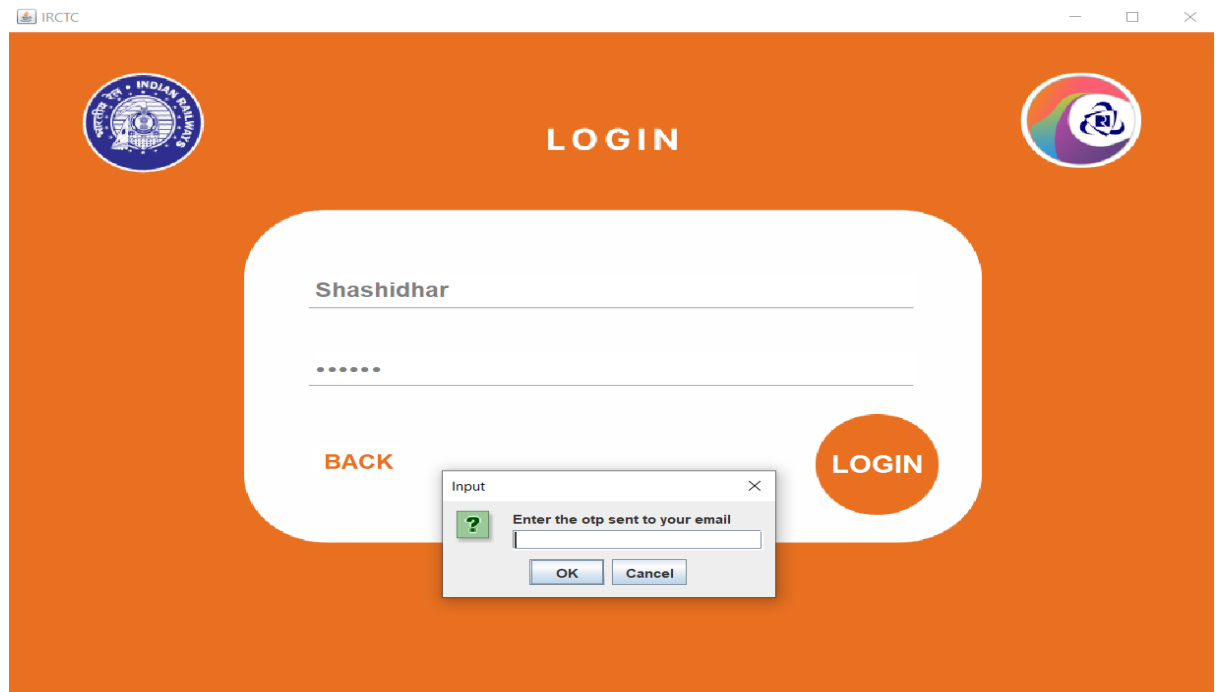


Figure 5.15 Admin Login

- The above figure 5.15 shows the screenshot of the Admin Login.

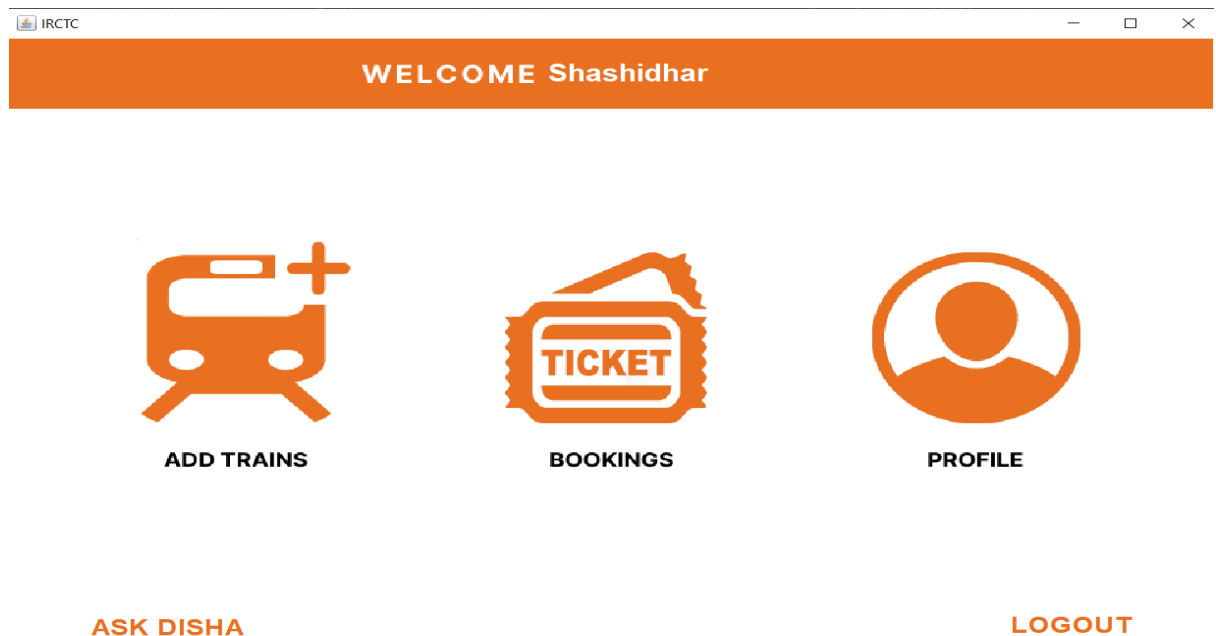


Figure 5.16 Admin Home Page

- The above figure 5.16 shows the screenshot of the Admin Homepage.

ADD TRAINS

39245 Arsikere Express 30

Schedule : ☒ Mon ☐ Tue ☐ Wed ☐ Thur ☐ Fri ☐ Sat ☐ Sun **SAVE TRAIN**

ADD STATIONS

ARSIKERE JN 4:00

ADD DELETE

station id	time
BANGALORE CANT	12:00
YESVANTPUR JN	1:00
YELHANKA JN	2:00
TUMKUR	2:30
CHALLAKERE	3:15
ARSIKERE JN	4:00

BACK SUBMIT

Message: train added successfully

Figure 5.17 Add Trains

- The above figure 5.17 shows the screenshot of the Add Trains where admins can add trains.

ALL BOOKINGS

	Booking Id: 1137 User Name: shashidhar HAMPI EXPRESS(16592) ₹ 240 Booked On: 15/01/2023 21-01-57 STATUS:BOOKED
	Booking Id: 1286 User Name: shashidhar KARNATAKA EXPRESS(12627) ₹ 660 Booked On: 13/01/2023 19-52-24 STATUS:BOOKED
	Booking Id: 1512 User Name: nachu UDYAN EXPRESS(11302) ₹ 310 Booked On: 13/01/2023 22-06-51 STATUS:BOOKED
	Booking Id: 2156 User Name: shashidhar SAMPARK KRANTI(12649) ₹ 90

Figure 5.18 All Bookings

- The above figure 5.18 shows the screenshot of the all bookings which provides the details of all bookings i.e. user booked train tickets.



Figure 5.19 Admin Profile

- The above figure 5.19 shows the screenshot of the Admin Profile.

CONCLUSION

In our project “IRCTC Railway Reservation” we have developed a system such that it shows all the necessary details for booking a train ticket. This database is helpful for systems which facilitate passengers to book the train tickets and check the details of trains and their status from their place of comfort. It majorly avoids the inconveniences of going to railway station for each and every query they get. We have considered only the most essential details only, many more additional features can be added to our project in order to obtain even more user friendly application. The system can be updated with any change or upgrade in the technology. The system developed by us is very simple and easy to use and can be implemented in real-time.

REFERENCES

1. Java Documentation – <https://docs.oracle.com/en/java/>
2. Stack Overflow – <https://stackoverflow.com/>
3. The MySQL Documentation – <https://dev.mysql.com/doc/>
4. GitHub - <https://github.com/>
5. Java Point - <https://www.javatpoint.com/>
6. Tutorial point - <https://www.tutorialspoint.com/index.htm>
7. Figma - <https://www.figma.com/>
8. Code for Interview YouTube channel -
<https://www.youtube.com/c/TheCodingInterview?app=desktop>