BUS SCHEDULER

A Project Report of Capstone Project - 2

Submitted by

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Under the Supervision of

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SCHOOL OF COMPUTING AND SCIENCE AND ENGINEERING

BONAFIDE CERTIFICATE

Certified that this project report"BUS SCHEDULER" is thebonafide work of "SHREYA VATSALA(1613101704)" who carried out theproject work under my supervision.

SIGNATURE OF HEADSIGNATURE OF SUPERVISOR

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PhD (Management), PhD (CS)   **Associate Professor,**

Professor & Dean,   **School of Computer Science &**

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Engineering

CHAPTER 1

Introduction to Bus Scheduler

There was a time when people used to waste their valuable times just to get a piece of information. Now the technology is more advance then compare to any previous times. One of the blessings of technology is web application. It allows users to interact with the system from anywhere as long as they are connected to the internet.

Usually Bus owners do paper works for keep their customer's details and booking reservation records. If any customer need to reserve seat he or she need to call them or walk in to their counter which is consider as wasting their valuable times. Sometimes the phone line also keep busy and customers unable to reserve seats for them. Besides, it need to keep records of the payments made by customers in papers and quite impossible for them to keep track on payment issues.The location tracking feature of the model also help us to tell that where exactly we are present. It enhances the security and safety feature in our model.

This Software project is aimed at automation of Bus Ticket booking. Objective of the project is to develop customize software package for Ticket booking.

In our daily life we have to book ticket for Bus, movies, Flight and cricket match or foot boll match. When we do this task manually then it becomes very hard to manage the ticket booking. So are developing this system to manage booking of ticket automatically. In this bus ticket booking project we develop the system that can help the user to book their ticket online. In this

project we take care of every service related to travelling and online ticket booking. When you start your traveling tour you have to book ticket so we help you from the starting point to the end. we help you in booking your traveling ticket

1.1 Overall Description:

According to our system we are having some features which will make users to access the system smoothly.

Here we will describe what are going to implement in this bus ticketing system. We will integrate the features with the user's interaction to make it clearer.

- **Users List**

User: Customer

Here customers can purchase the ticket or reserve their seats by accessing the system as a guest or as a member. With every purchasing or reservation the system will generate a reservation id or purchased id for both guest and members at a time. Once the payment is done customers won't be able to send the request through the system to refund the payment if they want to cancel their purchase. Customers can update their account details as for example: contact number, email address, mail address etc. If the customers is not registered members then the system will not have any account for the guest to update at any time they want. So the information as for example name, address, contact, and email

they will provide while reservation need to make sure they don't change for any reasons. Registered Customers are able to cancel their booking although there will be no refund.

- User: Staff

Employee is another user of this system. They will access the system for reservation and booking purposes. Every employee can login to the system by entering their individual username and password. Depending on customers preferences they will purchase the ticket on behalf of them or reserve the seats and send them an email as a confirmation or notification.

- User: Manager

Manager will be able to access the system to check the reports of booking or purchasing details of individual customers. He can cancel the booking on request. He will also check the employees working hours completed. Manager will also be able to generate the sales report depending on months or years. He can also update the bus schedule.

- User: Admin

Admin is the key users of this entire web system. He will register new staff, new manager and even new admin (if necessary) by entering their details into the system. He will also be able to manage the booking of the registered customers. Again, changing the user's credentials like username and password is another important function that only an admin will be allowed to.

1.2 Problem Statement:

Systems that are using offline mode of booking need an extra assistance for booking and help for customers. Customer has to go to the bus counter and book tickets and ask for bus schedule. Customer has to pay cash and stand in queue for many long hours. They find a lot of difficulty in this process .The tickets are also in manual form ,it may be stolen or can get lost .If this happen they will not be able to travel.

Bus scheduling is advanced method to book and schedule bus timing .It will overcome all the shortcomings of manual ticket booking .It will also send the automated booking id and send the softcopy of the ticket.The user can also schedule trip according to their use, they can do the payment online . The system will generate a voucher code for registered customers every 15 days. So, using this voucher customers will have some discount while purchasing ticket online.

1.3 Existing System

In old system, we can't do reservation online and old system has following problems.

- More time taking.

- Before reservation it is complex to find all information about the bus and seats.

- Lot of paper work

- Hard to analyze data real time.

- Difficult to process history data

- Difficult communication b/w different branches

- Hard to introduce new processes.

1.4 Proposed Model:

Bus scheduling and booking system is a web based application which is connected to a complete database. The database includes information about buses, no. of seats available, occupancy, availability, days and time of operation, no. of buses from point 'A' to point 'B', Price ranges, automated report and bill generation etc.

The database is updated time to time and a user can reserve his ticket from any part of the world and any time.

The application gives utmost importance to security and usability.

The following points were kept in mind while designing this system.

- The system should be user friendly.

- Data validation whenever necessary to ensure correctness of input data.

- Data security should be taken care of.

- Live Tracking should be a prominent feature.

- Maintaining and updating the database easily.

- This system is based on the very popular Model-View-Controller (MVC)Architecture. MVC is most commonly used in websites, very popular and triedand test.

1.5 Merits and Demerits of project

Merits:

i. The system having online payment functions. So that it will be easier for customers to pay online rather than going to the counter and pay by cash.

ii.The system will generate a voucher code for registered customers every 15 days. So, using this voucher customers will have some discount while purchasing ticket online.

iii.Customers will be able to see the available bus depending on the schedule they select along with the price.

iv. To make the seat reservation clearer the system having the picture of available and reserved bus seats so that customers will know which seats they can reserve before they go fo purchasing tickets.

v. If there is any upcoming or on going promotion then the system will show it for customers whoever accessing.

Demerits:

i)If any of the registered customers do not access the system for more than 6 months then the system will delete their account from the database to keep their database free from excessive files.

ii) System will not support any offline data accessibility.

CHAPTER 2

Software and Hardware Requirements

2.1 Software Requirements

- OS : Windows 7 or above
- Tool : Net Beans 8.0.2
- Web Server : Tomcat Apache 8.0.15 or Glassfish 4.0
- Platform : Java
- Scripting : JSP
- Backend : MySQL

2.2 Hardware Requirements

- Processor : Intel Dual core and all above
- Main Mem : 1 GB DDR3
- Hard Disk : Approximate of 10 GB of Disk Space
- Keyboard : 108 keys
- Monitor : 20" Color LCD

CHAPTER 3

Project Analysis

- Based on the given requirements, conceptualize the Solution Architecture, depict the various architectural components, show interactions and connectedness and show internal and external elements. Design the web services, web methods and database infrastructure needed both client and server.

- Provide an environment for up gradation of application for newer versions that are available in the same domain as web service target.

3.2 Modules

3.2.1 Admin

- Admin Login
- Admin Home

3.2.2 Customer

- Customer Registration
- Customer Login
- Forgot Password
- Customer Home
- Booking Tickets
- Checking Fare
- Tracking buses

- Seat selection

Modules Description

3.3.1 Admin

- Admin Login

  Admin should Login the system.

- Admin Home

  The admin should be able to perform the following actions-

  1. View the list of busesregistered.

  2. View the time table of buses.

  3. Have full database of bus information from their driver details to the passenger details.

  4. Tracking ids

  5. Should be able to manage booking i.e. make modifications in booking

  6. Should be able to cancel the booking

  7. Should have payment related informations

3.3.2 Customer

- Customer Registration

  The user should enter valid credentials. An auto generated password should be sent to the entered email address for verification purpose.

- Customer Login

  The Customer should enter his email address as user id and the auto generated password received during registration to login the system. The customer can change this password later.

- Forgot Password

  In case the customer forgets his password, a new password should be sent to his registered email address which can be used to login the system.

- Customer Home

  The customer should be able to perform the following actions-

1. Book bus
2. Check Fare.
3. Seat Selection.
4. Tracking bus
5. View the Bus provider and customer care contact information.

There are mainly Eight Entities Admin, Manager, Employee, client, Bus,Track, Payment, book.

These Eight entities would manage the whole system

1.Admin:

Admin is a super user of the system. Admin has all right to view and modify the data in the system. Admin has followings attributes.

AdminID: This is numeric 14 digits number which is unique to every admin. AdminID is the primary key to admin table in the database.

Name: This attribute would hold the name of Admin. The name is varchar type variable which holds the data length up to 250characters.

Email: This is an essential attribute of the table. Every Admin must have a working email id to keep in contact with employees. Thisfield has validation only email formatted values will be stored.

Contact: This is multi valued attributes which mean every owner can have more the one mobile number in database.

Address: This attribute would hold the address of Admin. Each employee must provide the address.

2.Manager: The manager is a secondary user of the system. The manager can view Bus details, manage employee, booking, solve client's problem. The manager has followings attributes.

ManagerID: This is numeric 14 digits number which is unique to every Manager. ManagerID is the primary key to Manager table in the database.

Name: This attribute would hold the name of the manager. The name is varchar type variable which holds the data length up to 50 characters.

Email: This is an essential attribute of the table. Every Manager must have a working email id to keep in contact with employees.This field has validation only email formatted values will be stored.

Contact: This is multi valued attributes which mean every manager can have more the one mobile number in database.

Address: This attribute would hold the address of admin. Each employee must provide the address. Admin address is verified viaHuman resource team.

3.Employee:

The employee is another user of the system. An employee can view Bus details, confirm the online booking of seat availability for clients. The employee has followings attributes.

EmpID: This is numeric 14 digits number which is unique to every Employee. EmpID is the primary key to Employee table in the database.

Name: This attribute would hold the name of Employee. The name is varchar type variable which holds the data length up to 50 characters.

Email: This is an essential attribute of the table. Every employee must have a working email id to keep in contact with staff. This field has validation only email formatted values will be stored.

Contact: This is multi valued attributes which mean every employee can have more the one mobile number in database.

Address: This quality would hold the address of the employee. Each employee must provide the address.

4.Client:

The client is the primary end user of our system most of the business is done through them. Clients would book the desired seats. The client would provide the feedback. The client has following attributes.

ClientID: This is numeric 14 digits number which is unique to every Client. ClientID is the primary key to client table in the database.

Name: This attribute would hold the name of customers. The name is varchar type variable which holds the data length up to 50 characters.

Email.: This is an essential attribute of the table. Every client must have a working email id. This field has validation only email formatted values will be stored

Address: This attribute would hold the address of clients. Address of clients would help us to connect with them and visitthe location. This would provide better services.

5.BUS: Every Bus registered with the system has the information in this entity. Buses are the main concern of system.

BusID: This is numeric 14 digits number which is unique to every Bus. BusID is the primary key to case table in thedatabase. Each Bus is uniquely identified using this id.

Bus Number: This attribute holds the bus number of the bus. The bus number is the number given by Government to everyvehicle on the road.

No of seats: Every bus has many seats. To make it easy for the customer and check availability no. of seats should be in thedatabase.

Type: This attribute would hold the type of bus. The bus can be AC, non-AC, Nonstop AC, Nonstop non-AC etc.•

.

6.Book:Before going to book any seat. The client should check the availability. If the desired seat is available. They can book it.

BookID: This is numeric 14 digits number which is unique to every Booking. BookID is the primary key to case table in the database. Each Payment is uniquely identified using this id.Seat and Concerning Bus, booking must have a seat no.

Journey Date: This would hold the date of Journey.

Bus Number: For further reference to the customer. The bus number is added to every booking.

CHAPTER 4

LITERATURE REVIEW

4.1 Study of the Background

This project addresses the study and development of an Online Bus Ticketing System web portal to enable users, both the bus operators and the customers to make an online bus ticket sale/ purchase and act as an operation tool for bus operators to operate their organization effectively. Traditionally, bus ticket purchase has been over the counter in bus terminals, however, today it has evolved with the rapid expansion of e-commerce. Thus, prior to developing the system, a this research critically assess and study the reason behind the evolution and the current e-ticketing systems. This project also addresses the problems faced by customers and bus operators especially on illegal bus operators, long wait to purchase a bus ticket, unsafe environment and many more. The research studies some issues on implementation and also recommendations on how Online Bus Ticketing System web portal can take place effectively. This research recommends on a star ranking system based on monthly sales, bus operator popularity and law traffic offences. This research also recommends a Decision Support System to deal with the customer's requirement whereby it provides reliable choices to a customer to make decision. This research includes the development of a prototype Bus scheduler web portal to support the research objective. This web portal will assist in future development that would support a fully

integrated system that links bus operators to customers, bus operators to bus operators, bus operators to other mode of transport providers, bus operator to businesses and bus operators to government agencies.

4.2 Related Work

The existing systems that inspired and motivated me to develop this system is Redbus. The concepts and the business models are same as the existing systems except that we also provide dedicated system for bus scheduling.

4.2.1 Redbus

Their mission is to make travel simple and fun for all. It does this by

- Helping people discover great places around them.
- Their team gathers information from every restaurant on a regular basis to ensure their data is fresh. Building amazing experiences around dining.
- Starting with information for over several bus providers (and counting) globally, they are making travelling smoother and more enjoyable with services like online booking scheduling trip.
- Enabling Bus Providers to create amazing experiences.
- With dedicated engagement and management tools, they are enabling Bus Providers to spend more time focusing on managerial services, which translates directly to better customer experiences.

4.3 Problem Definition

What I observed is there are various problems with these existing systems

system, we can't do reservation online and old system has following problems.

- More time taking.

- Before reservation it is complex to find all information about the bus and seats.

- Lot of paper work

- Hard to analyze data real time.

- Difficult to process history data

- Difficult communication b/w different branches
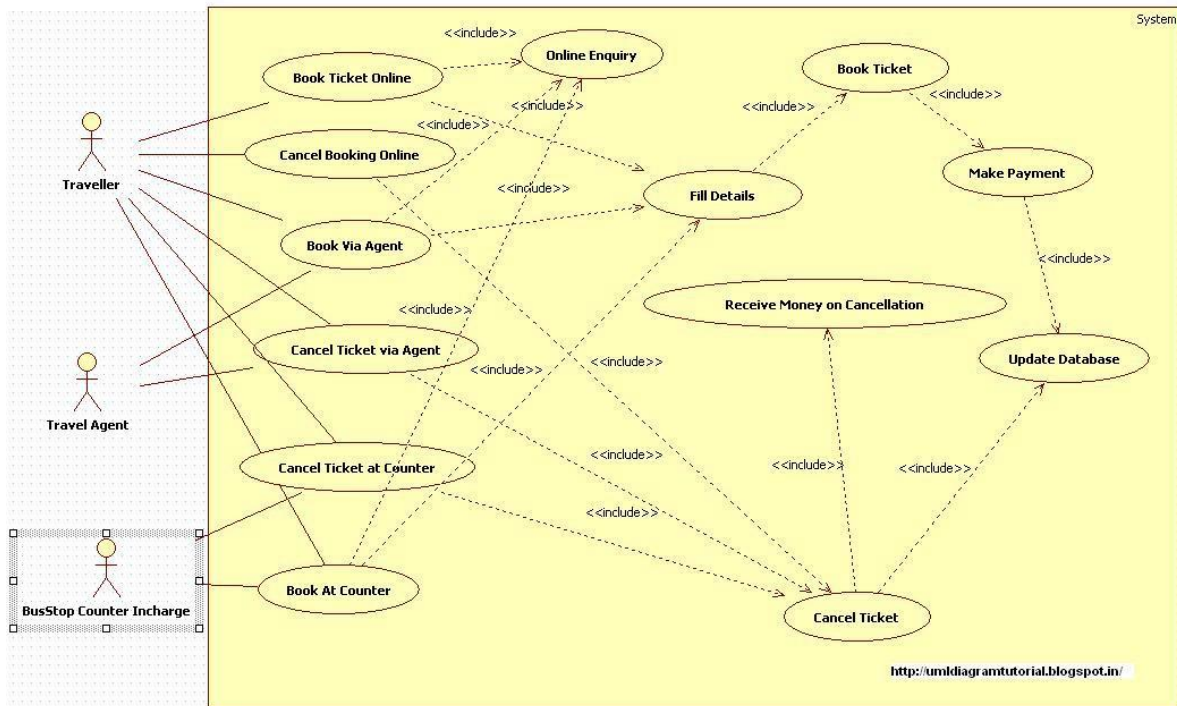
  Hard to introduce new processes

4.4 How are we different from our competitors?

- Our dedicated system exclusively on the basis of our customers need.

- We provide complete solution that includes, bus booking ordering on web, real time scheduling tracking and cost consultancy.

- We have allocated generous marketing budget for promoting our portal, hence greater publicity for our bus providers .

- Investing in state of the art technology.

- Our full focus till we achieve 100% coverage.

- Founded by dedicated and committed professionals to serve your needs.
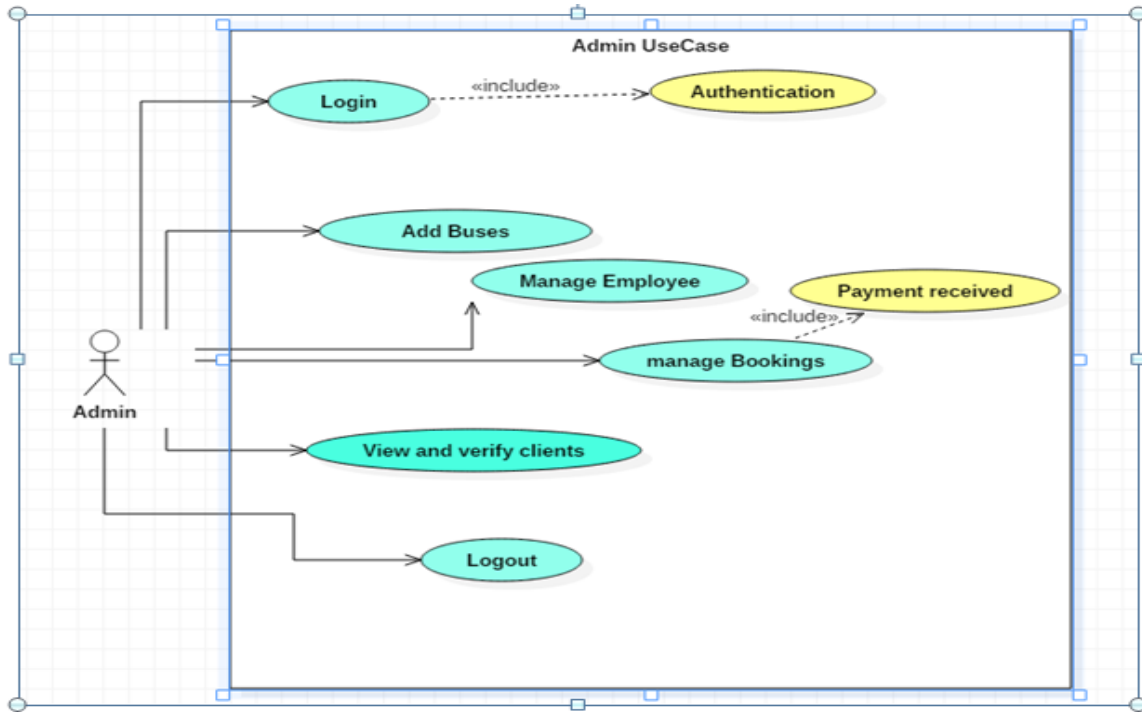
- Know our customer first.

CHAPTER 5

SOFTWARE DESIGN

I.UML (Uniform Modeling Language)

Use cases for Admin of Bus Scheduler:

Use cases for Employee of Bus Scheduler:

Employee UseCase

Employee

«include»
Login ----→ Authenication

Arrange Bus departure

Receive Add confirm ticket

Handle Customer query

Customer UseCase

Customer

«include» Authentication
Login

Enquiry

Check Availability

Payment

«include»
Make Reservation

Cancel Booking

Logout
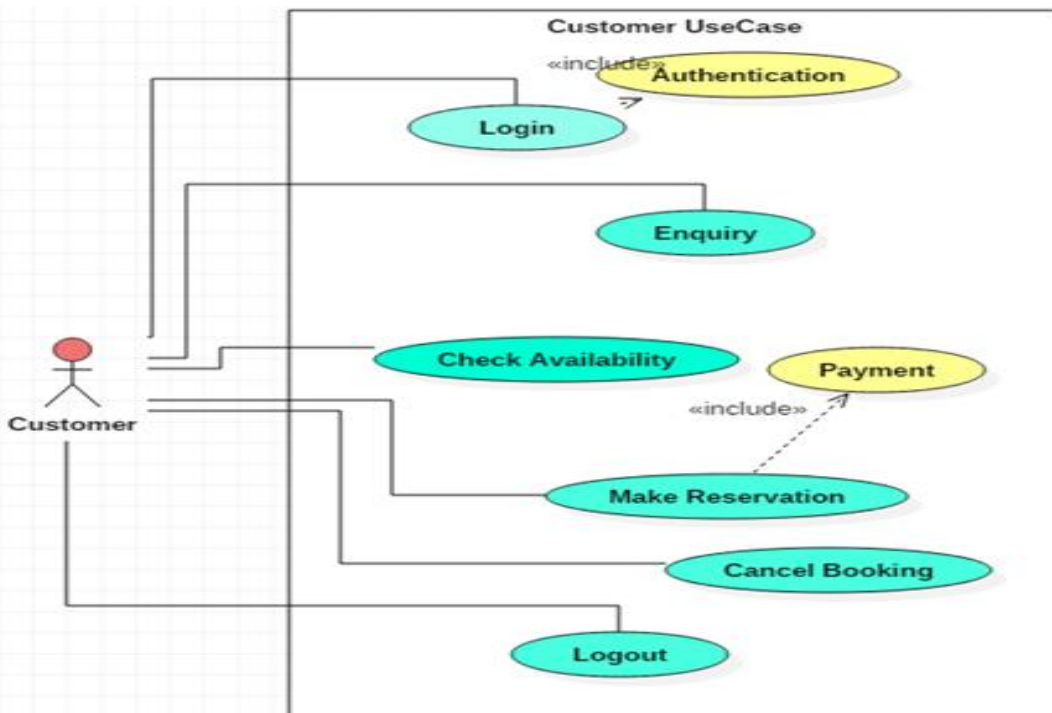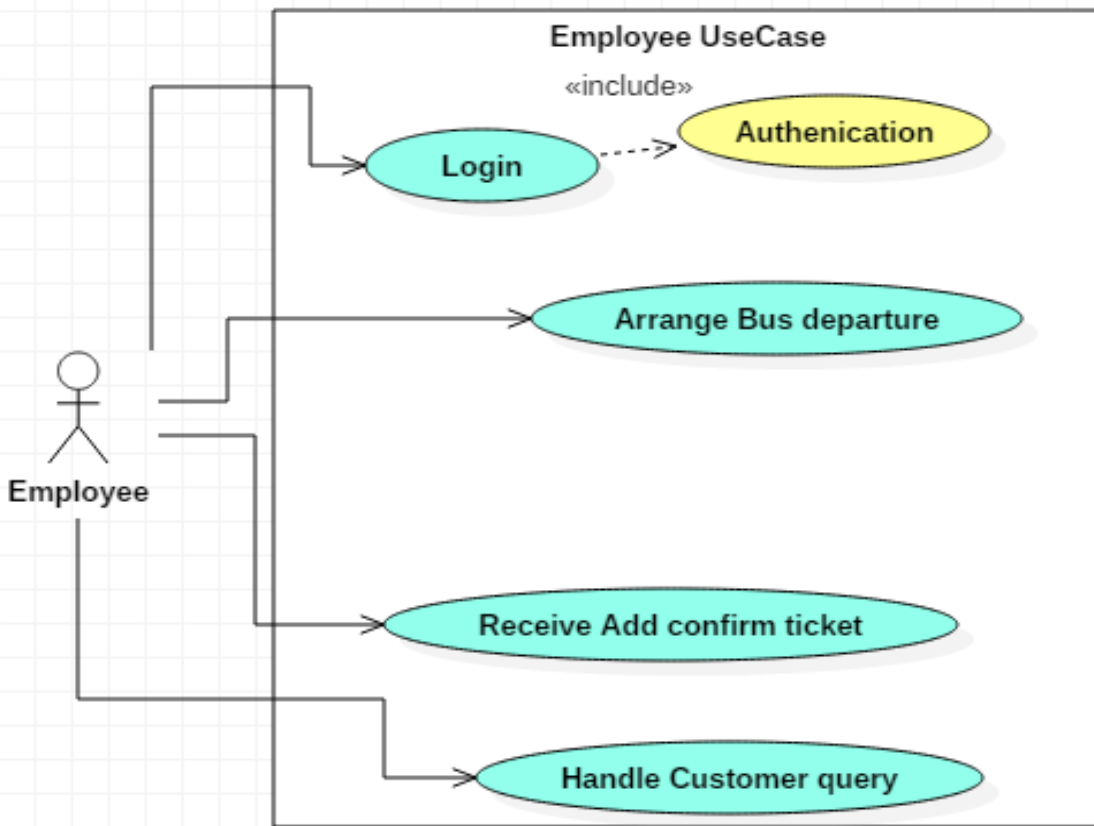
ii.Use Case Specification

Use Case Name: Registration

Summary :Customer enter their details into the system.

Details of the customers used to be validatedby the system before saving into the database.

Actor :Customers

Precondition:Customer need to access the system throughweb browser

Main Sequences

 1. Customers provide their details.

2. System validate customer's details.

3. System then save customers details into thedatabase.

4. System register new customers.

5. System shows the message after saving thedetails successfully.

Alternative Sequence N/A

Post Condition: System create account for the new customer.

Use Case Name: Login

Summary: Customer enter their username and passwordto access their account

Actor: Customers

Precondition: Customer need to register as a member

Main Sequences

1. Customers enter user credentials.

2. System verify users.

3. System redirect to the user page.

Alternative Sequences

If customers are unable to login to thesystem then the system will show customers"Forget Password" link where they canchange their password.

Post Condition :System redirect customers to their account

Use Case Name :Update Users Credentials

Summary: Admin can update users (staff, manager)credentials such as username and password ifnecessary.

Actor Admin

Precondition: Admin need to login to the system.

Main Sequences

1. Admin login to the system.

2. Admin enter new username or passwordfor staff and manager.

3. System validate the details provided byadmin.

4. System save data into the database.

5. System update details.

6. System shows message successful aftersaving the details into the database.

Alternative Sequences N/A

Post Condition: System update username or password for staff

and manager.

Use Case Name: Delete User Account

Summary: Admin can delete user (staff, manager, andcustomer) account if necessary.

Actor :Admin

Precondition: Admin need to login to the system.

Main Sequences

 1. Admin login to the system.

2. Admin access the account file of users.

3. System shows users account.

4. Admin select users account.

5. Admin click the button "Delete Account".

6. System delete the user account.

7. System shows message successful after

deleting account.

Alternative Sequences N/A

Post Condition System delete account from database.

Use Case Name :Manage Account

Summary: Customer can manage their account throughthe system.

Actor: Customer

Precondition :Customers need to login to the system.

Main Sequences

 1. Customer login to the system.

2. Customer access the "Manage Account"section.

3. Customer update their account details suchas address, contact, email, credit carddetails etc.

4. System validate customer's new details.

5. System save customers new details into thedatabase.

6. System update customers account.

7. System shows the successful message after updating database.

Alternative Sequences N/A

Post Condition System update customer's details and save it indatabase.

Use Case Name: Reservation

Summary Customers can reserve or book their seatsusing the system. Staff can also do reservationthrough the system.

Actor: Customer & Staff.

Precondition: Customers need to login to the system as amember or access it as a guest.

Main Sequences

 1. Customer (registered) login to the system.

2. Customer check the available busschedule.

3. Customer select date and time from the busschedule.

4. System check for the availability.

5. System confirm the availability.

6. Customer click the button "RESERVE".

7. System save reservation details into thedatabase.

8. System reserve seats for customers.

9. System shows message "ReservationSuccessful".

Alternative Sequences N/A

Post Condition System update customer's details and save it indatabase.

Use Case Name: Reports

Summary: Manager can generate reports using the systemActor Manager.

Precondition: Manager need to login to the system.

Main Sequences

1. Manager login to the system.

2. Manager access the report section into thesystem.

3. System shows the records of reports.

4. Manager check the reports records fromthe section.

5. Manager select date and click "GenerateReports".

6. System generate reports.

7. The system shows the message "ReportsGenerated Successfully".

Alternative Sequences N/A

Post Condition :System generate the reports.

Use Case Name: Manage Booking

Summary: Manager can edit, update, and delete bookingrecords of customers.

Actor: Manager

Precondition: Manager need to login to the system

Main Sequences

 1. Manager login to the system.

2. Manager access the Manage Booking

Use Case Name:Track

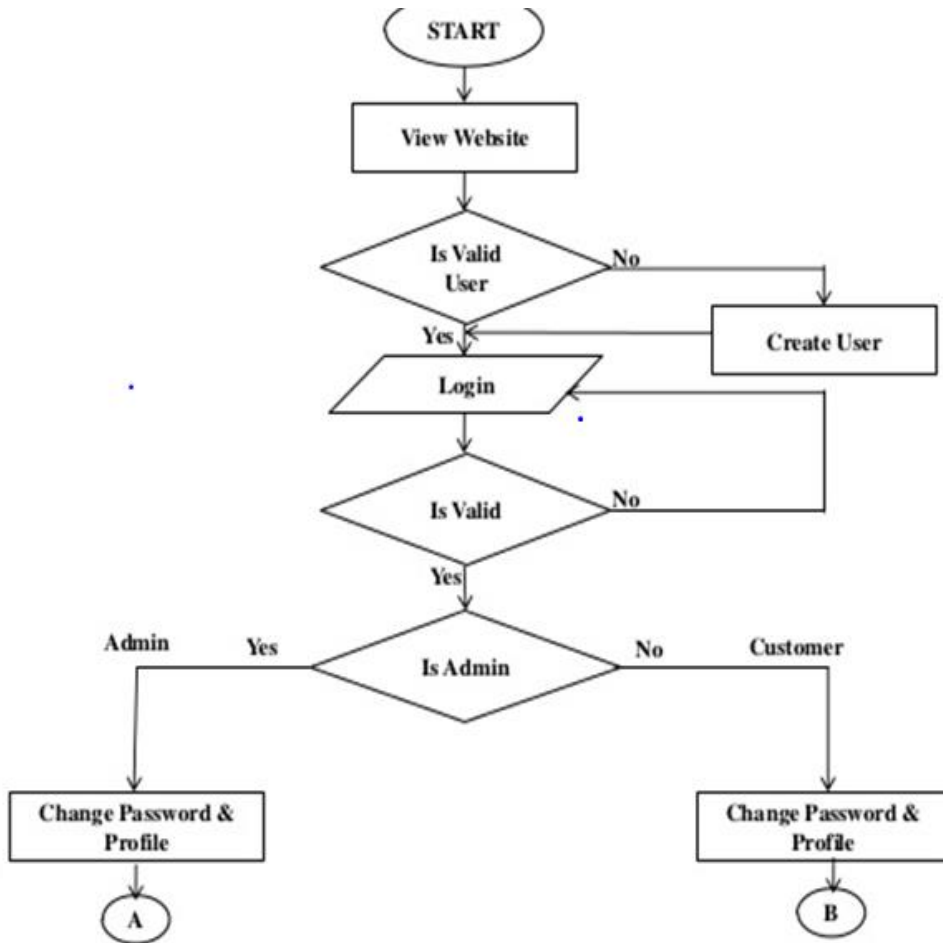Summary:User get the option to track the live location

Precondition: User should have valid bus id.

Main Sequence:

1.User should login through valid credentials

2.User should go to the tracking option

3.User should enter valid bus id

4.User can share the location of bus through whatsapp and other texting options with other person.

iii. Activity Diagram

START

View Website

Is Valid User — No →

Create User

Yes

Login

Is Valid — No →

Yes

Is Admin

Admin — Yes ←   Is Admin   → No — Customer

Change Password & Profile

A

Change Password & Profile

B

i. Login

ii. Registration

iii. Reservation

iv. Delete User Account

v.Check Booking Records

vi. Manage Booking

vii.Manage Account

viii.Reports

ix.Update Bus Schedule

x.Update Users Credentials

iv.Entity Relationship Diagram

E-R Model is a conceptual high level data model.This model and its variations are frequently used for conceptual design of database applications and many database design tools employ its concept.
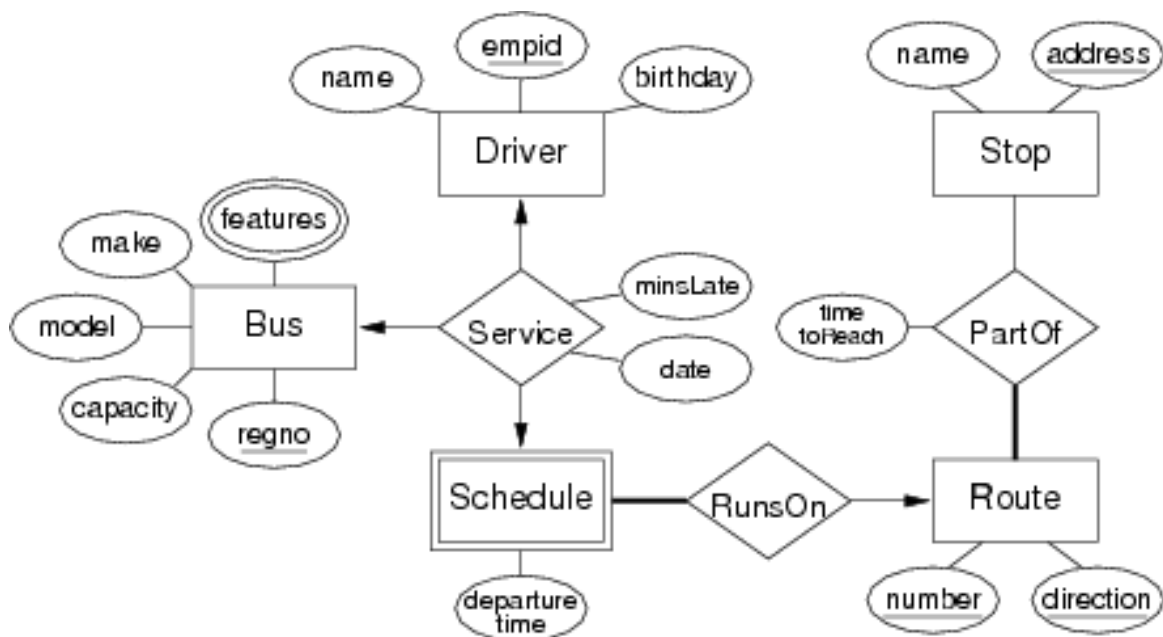
The mapping of E-R Diagram to the entities are:
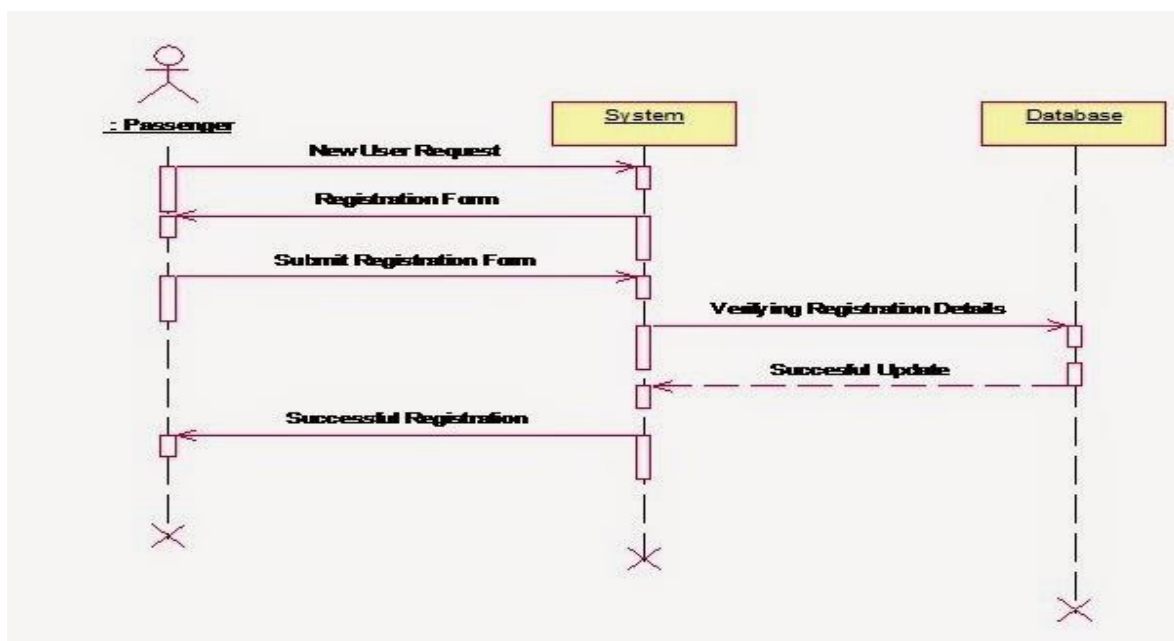
i.Attributes

ii.Relations

iii.Entities

iv.Sub type and Super type

ii.S

equence Diagram

CHAPTER 6

CODE IMPLEMENTATION

Signup

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

<link href="bootstrap/css/bootstrap.min.css" rel="stylesheet">

<link href="bootstrap/css/bootstrap-glyphicons.css" rel="stylesheet">

<link type="text/css" rel="stylesheet" href="css/style.css" />

<script type="text/javascript" src="js/jquery-1.8.2.min.js"></script>

<script src="bootstrap/js/bootstrap.min.js"></script>

<title>Bus Scheduler</title>

</head>


<body>
<div class="container">

  <div class="header">

    <a class="pull-left" href="index.jsp"><b>Bus Scheduler</b></a>

    <p class="pull-right">

      <a href="signup.jsp">Sign Up</a>  / <a href="signin.jsp">Sign In</a>

    </p>

  </div>

  <%

    String msg=(String)session.getAttribute("msg");

    if(msg!=null)
```

```jsp
            {
    %>
    <br>
    <div class="panel panel-danger">
        <div class="panel-heading text-center">
            <p><%=msg%></p>
        </div>
    </div>
    <%
        session.setAttribute("msg", null);

        }
    %>
    <div class="row">
    <br/>
        <div class="pull-left">
            <img src="img/signup.jpg">
        </div>
        <div class="lform col-md-4 pull-right">
            <h5 class="text-center"> Fill up the form to Sign Up </h5>
            <form action="signupprocess.jsp" data-toggle="validator" method="post" class="form-
horizontal" role="form">
                <div class="form-group">
                    <div class="col-sm-10 col-sm-offset-1">
```

```html
        <input type="email" class="form-control" name="email" placeholder="Email ID"
required>
          </div>
        </div>
        <div class="form-group">
          <div class="col-sm-10 col-sm-offset-1">
            <input type="text" class="form-control" name="name" placeholder="Name"
required>
          </div>
        </div>
        <div class="form-group">
          <div class="col-sm-10 col-sm-offset-1">
            <input type="text" class="form-control" name="phone" minlength="10"
maxlength="10" placeholder="Phone" required>
          </div>
        </div>
        <div class="form-group">
          <div class="col-sm-10 col-sm-offset-1">
            <input type="password" class="form-control" name="pass"
placeholder="Password" required>
          </div>
        </div>
        <div class="form-group">
```

```html
            <div class="col-sm-10 col-sm-offset-1">

              <input type="password" class="form-control" name="cpass"

placeholder="Confirm Password" required>

            </div>

          </div>

          <div class="form-group">

            <div class="col-sm-offset-1 col-sm-10">

              <button type="submit" class="btn btn-danger pull-right">Sign Up</button>

            </div>

          </div>

        </form>

      </div>

    </div>

    <br/>

    <div class="well">

<div class="page-header">

<h2 class="text-center">Welcome <small>to Bus Scheduler</small></h2>

</div><!-- end page-header -->


<p>Welcome to BusScheduler.com, an online bus booking portal that caters to your every bus

travel need. If you are looking to book bus tickets online, look no further because we at

BusScheduler.com are thorough professionals who know the bus service industry in and out.

BusScheduler.com has integrated the once chaotic Indian bus industry and converted it into a
```

highly systematic and smooth bus transport network so that you have a safe, comfortable and

secure journey without any confusion. We at BusScheduler.com also deploy proficient ground

support staff to assist you just in-case the need arises. When you travel with BusScheduler.com,

you can be assured of receiving the highest level of customer satisfaction while we move

towards our philosophy â€" Travel Assured.</p>

```
</div><!-- end well -->


  <div class="footer">

    <div class="container text-center">

      Design & Develop By Shreya

    </div>

  </div>

</div>

<script src="js/validator.js"></script>

</body>

</html>
```

Login

```
<%@page import="java.sql.*"%>
<%
String e=request.getParameter("email");
String p=request.getParameter("pass");

if(e.equalsIgnoreCase("admin"))
{
        PreparedStatement alogin=(PreparedStatement)application.getAttribute("alogin");
        alogin.setString(1, e);
        alogin.setString(2, p);
```

```
ResultSet rs=alogin.executeQuery();
if(rs.next())
{
    session.setAttribute("aid", e);
    session.setAttribute("aname", rs.getString(3));
    response.sendRedirect("admin.jsp");
}
else
{
    session.setAttribute("msg","Wrong Entries!!");
    response.sendRedirect("signin.jsp");
}

}
else
{
    PreparedStatement login=(PreparedStatement)application.getAttribute("login");
    login.setString(1, e);
    login.setString(2, p);
    ResultSet rs=login.executeQuery();
    if(rs.next())
    {
        session.setAttribute("email", e);
        session.setAttribute("name", rs.getString(2));
        if(rs.getString(5).equals("bowner"))
        {
            response.sendRedirect("owner.jsp");
        }
        else
        {
            response.sendRedirect("index.jsp");
        }
    }
    else
    {
        session.setAttribute("msg","Wrong Entries!!");
        response.sendRedirect("signin.jsp");
    }
}
```

Logout

```
<%
session.invalidate();
response.sendRedirect("signin.jsp");
```

%>

Addbus
```
<%@page import="javax.mail.*,javax.mail.internet.*,javax.activation.*"%>
<%@page import="java.sql.*,java.io.*,java.util.*"%>
<%@page errorPage="error.jsp" %>
<%
  String e=(String)session.getAttribute("email");
  String b=request.getParameter("bno");
  String bn=request.getParameter("bname");
  int ns=Integer.parseInt(request.getParameter("ns"));
  String msg;
  PreparedStatement getBus=(PreparedStatement)application.getAttribute("getBus");
  getBus.setString(1,b);
  ResultSet rs=getBus.executeQuery();
  if(!rs.next())
  {
    PreparedStatement insertBus=(PreparedStatement)application.getAttribute("insertBus");
    insertBus.setString(1,b);
    insertBus.setString(2,bn);
    insertBus.setInt(3,ns);
    insertBus.setString(4,e);
    insertBus.executeUpdate();
    msg="Bus Added Successfully.";
  }
  else
  {
    msg="Bus No.( "+b+" ) Already Exist.";
  }
  session.setAttribute("msg",msg);
  response.sendRedirect("owner.jsp");
%>
```

CHAPTER 7

SOFTWARE TESTING

Testing a program consists of subjecting the program to a set of test inputs and observing if the program behaves as expected. If the program fails to behave as expected then the conditions under which failure occurs are noted for later debugging and correction. Various terms associated with Testing are:

FAILURE: It is a manifestation of the error. But the mere presence of an error may not necessarily lead to failure.

TEST CASE: It is the Triplet [I, S, O] where I is the data input to the system, S is the state of the system at which data is input, and O is the expected output of the System.

TEST SUITE: It is the set of all test cases with which a given software product is to be tested.

Software testing is the process used to measure the <u>quality</u> of developed <u>computer software</u>. Testing is a process of technical investigation, performed on behalf of stakeholders, that is intended to reveal quality-related information about the product with respect to the context in which it is intended to operate.

There are essentially two approaches to systematically design the Test Case:

➢ **Black box** testing treats the software as a black-box without any understanding as to how the internals behave. Thus, the tester inputs data and only sees the output from the test object. They are designed using only the software specification of the software.

➢ **White box** testing, however, is when the tester has access to the internal data structures, code, and algorithms. It is therefore also called the Structural testing.

7.1 Levels of Testing

➢ **Unit testing** tests the minimal software component, or module. Each unit (basic component) of the software is tested to verify that the detailed design for the unit has been correctly implemented.

- ➢ **Integration testing** exposes defects in the interfaces and interaction between integrated components (modules).
- ➢ **Functional testing** tests at any level (class, module, interface, or system) for proper functionality as defined in the specification.
- ➢ **System testing** tests a completely integrated system to verify that it meets its requirements.
- ➢ **Alpha testing** refers to the system testing carried out by the test team within the developing organization.
- ➢ **Beta testing** it is the system testing performed by selected group of friendly customers.
- ➢ **Acceptance** Testing refers to the System testing performed by the customer to determine whether to accept or reject the delivery of the system.

Test cases, suites, scripts, and scenarios

- ➢ A test case is a software testing document, which consists of event, action, input, output, expected result, and actual result.
- ➢ The term test script is the combination of a test case, test procedure, and test data. Initially the term was derived from the product of work created by automated regression test tools.
- ➢ The test suite often also contains more detailed instructions or goals for each collection of test cases.
- ➢ Collections of test cases are sometimes incorrectly termed a test plan. They might correctly be called a test specification. If sequence is specified, it can be called a test script, scenario, or procedure.

- ➢ **7.2 Test Cases**

Project	Bus S
Module	Avail
Test Case no.	1.1
Test Case Description	Date

Steps to Execute test	Test Data	Required Out
1. Click on the Sliding window	Tick	Display the Da
2.Click on the Selected date and month	Tick	Selected date i
3.Check Availability	Tick	Show the seat i

TABLE: 7.1 Availability Test Case

Project	B
Module	U
Test Case Number	1.
Test Case Description	T

Steps to Execute test	Test Data	Required Ou
1.Click on the text boxes, sliding window and enter the details	Tick	Display the d
2.Checking entries are valid or not	Tick	In case of no
2. Short key (ctrl +3)	Press	Sh

TABLE: 7.2 User Details Test Case

Project	B

Module	I
Test Case Number	1
Test Case Description	A

Steps to Execute test	Test Data	Required O
1.All Entry Enter by User store in the Database	Tick	Entries store

TABLE: 7.3 Database Test Case

CHAPTER 8

SCREENSHOTS OF SYSTEM

Bus Scheduler

Easy Bus Searching

From:

To: ▾

Return On 📅

Search

❮ ❯

·

Welcome to Bus Scheduler

Welcome to BusScheduler.com, an online bus booking portal that caters to your every bus travel need. If you are looking to book bus tickets online, look no further because we at BusScheduler.com are thorough professionals who know the bus service industry in and out. BusScheduler.com has integrated the once chaotic Indian bus industry and converted it into a highly systematic and smooth bus transport network so that you have a safe, comfortable and secure journey without any confusion. We at BusScheduler.com

Bus Scheduler

SIGN IN

Enter the details to Sign In

Email ID

Password

Sign In

Welcome to Bus Scheduler

Bus Scheduler

Logout   Welcome

Add Bus Owner   Manage Bus Owner   Re-Send Password

Name

Email

Phone

Add

Bus Scheduler   Logout   Welcome

Amount Payable: **Rs /-**

Journey Details: Passenger Details:

Date:
Depart Arrive Duration:
Total Ticket:
Bus Details:

Name

⦿ Male   ◯ Female

Email ID

Mobile No

Book

CHAPTER 9

LIMITATIONS AND CONCLUSION

Even though this dissertation could produce potential outcomes following the research question,

there were some limitations, which could be improved in future research. In terms of the users'

perceptions of the bus scheduler. However, there were some issues, which were brought up by the interviewees, such as enhancing customer service and the use by elderly people. Therefore, future research should carry out a case study based on this prototype to examine exact perceptions from booking customers. Furthermore, this research focused on developing us schedular only for web. Thus, future research should apply system design and source codes in this portfolio to be developed for other kinds of bus scheduler, for example, id linking with tickets,bus gate can only open when qr code of tickets is scanned. Moreover, implementation on another platform, such as Android or .Net, is an alternative, which could be carried out in future research. Finally, additional features suggested by Bus Owners and booking customers, for instance, integration with Point of Sale (POS) system and the advertising of new promotions and also providing options for food booking during journry could also be included in a new prototype, which should have more functionalities as well as a study of users' perceptions of those requirements.

Hereby I conclude my project report but with that I must confess that throughout the journey of converting this project into reality I have learned a lot and it has given me a face to face exposure with the real projects in the field of information technology. I would also like to mention that I am not going to leave this project here only. I will make sure that it is updated according to the changes in the field of education.

CHAPTER 10

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