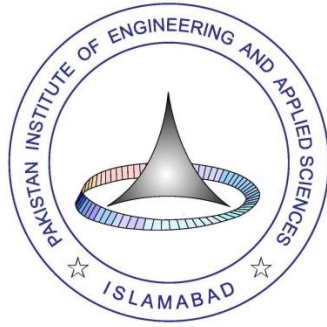


Pakistan Institute of Engineering and Applied Sciences, Islamabad
Department of Computer and Information Science



Internet Application Development

Lab Project

“Bus Ticketing Application”

Submitted By

Awais

Faiza Riaz

Huma Amin

Muhammad Kashif Altaf

Session (21-25)

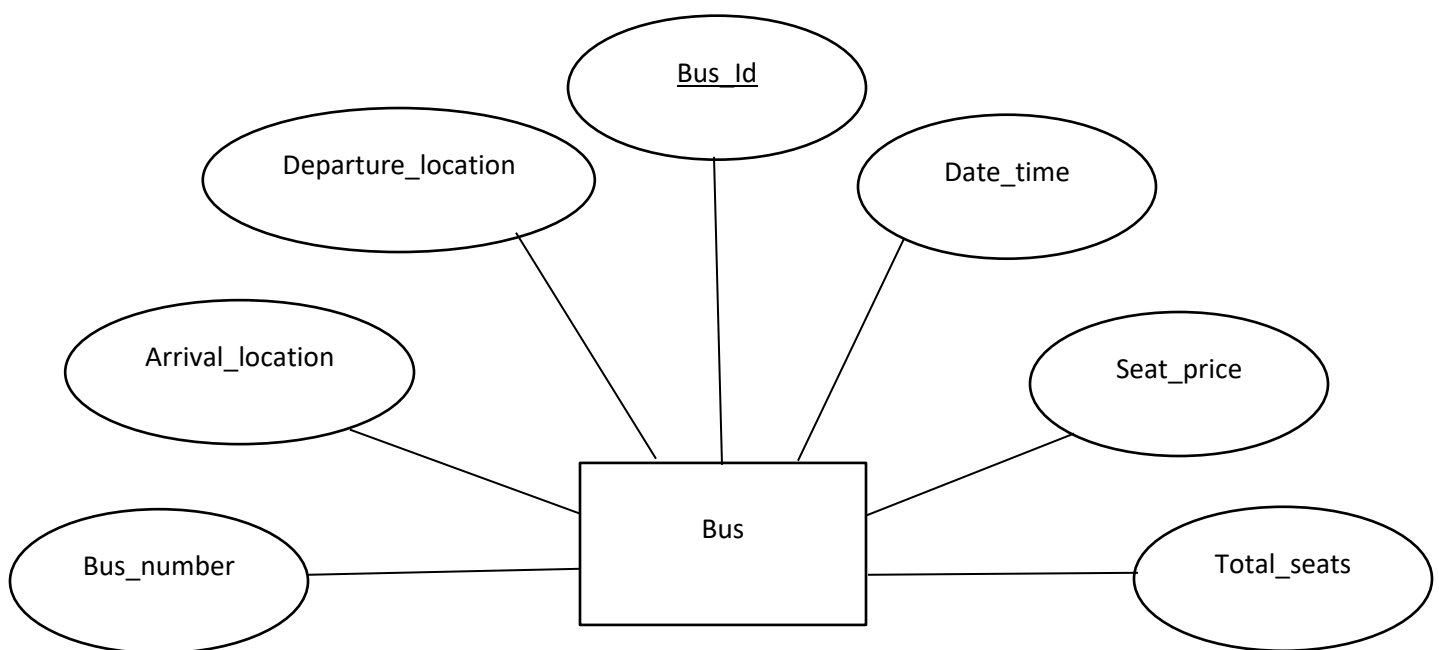
Problem Statement

Our project is to develop a Bus Ticketing System. The aim of this project was to automate the already existing transport system tasks such as ticket booking. This projects' goal is to facilitate the user of this transport system all over the country in smooth booking of tickets and in getting answers to their queries regarding the different buses departure and arrival and cancellation of their tickets within time without any delay or inconvenience.

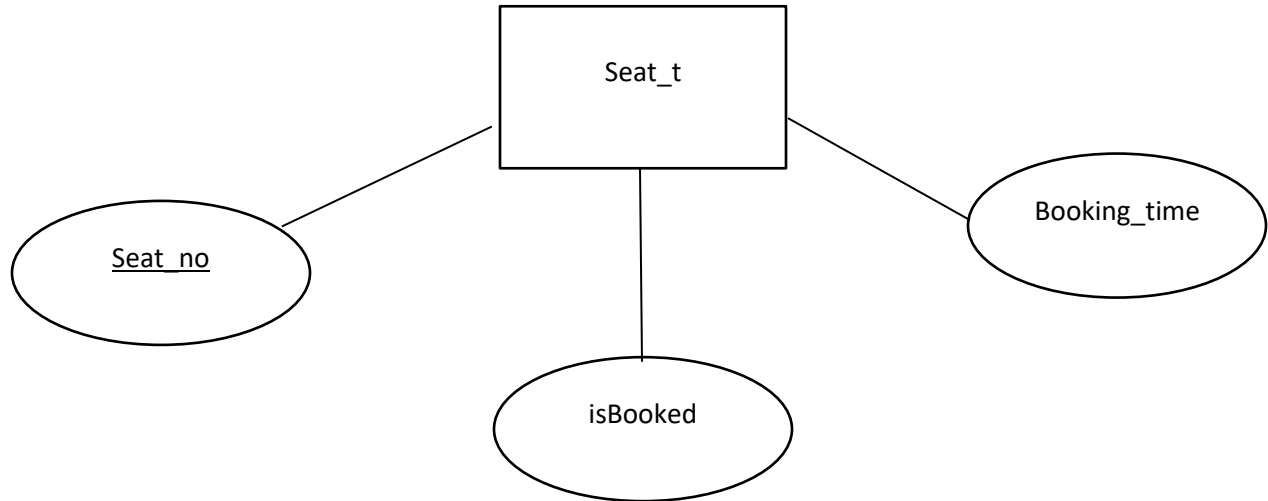
Database Design

Entities and their Attributes:

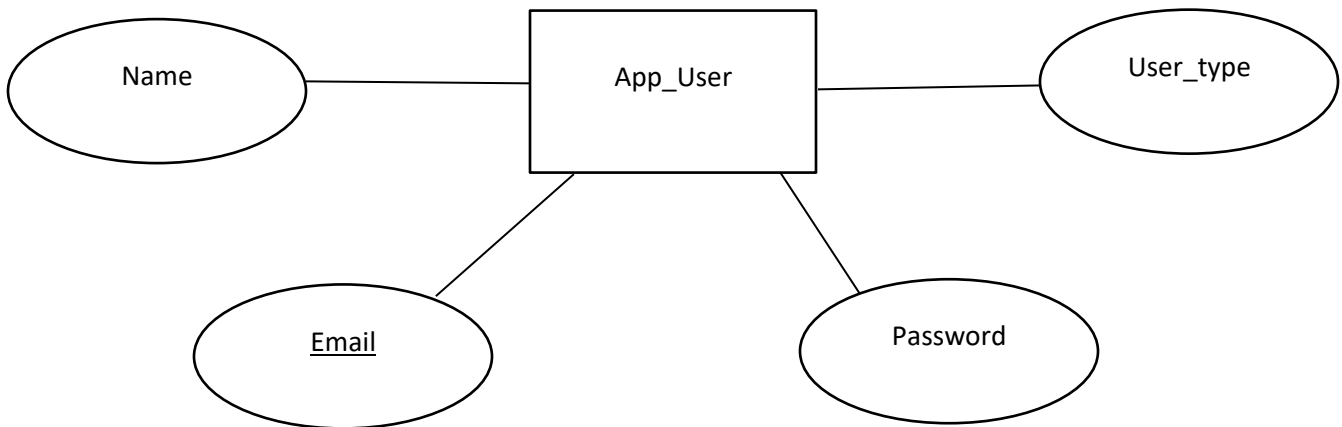
1. Bus:



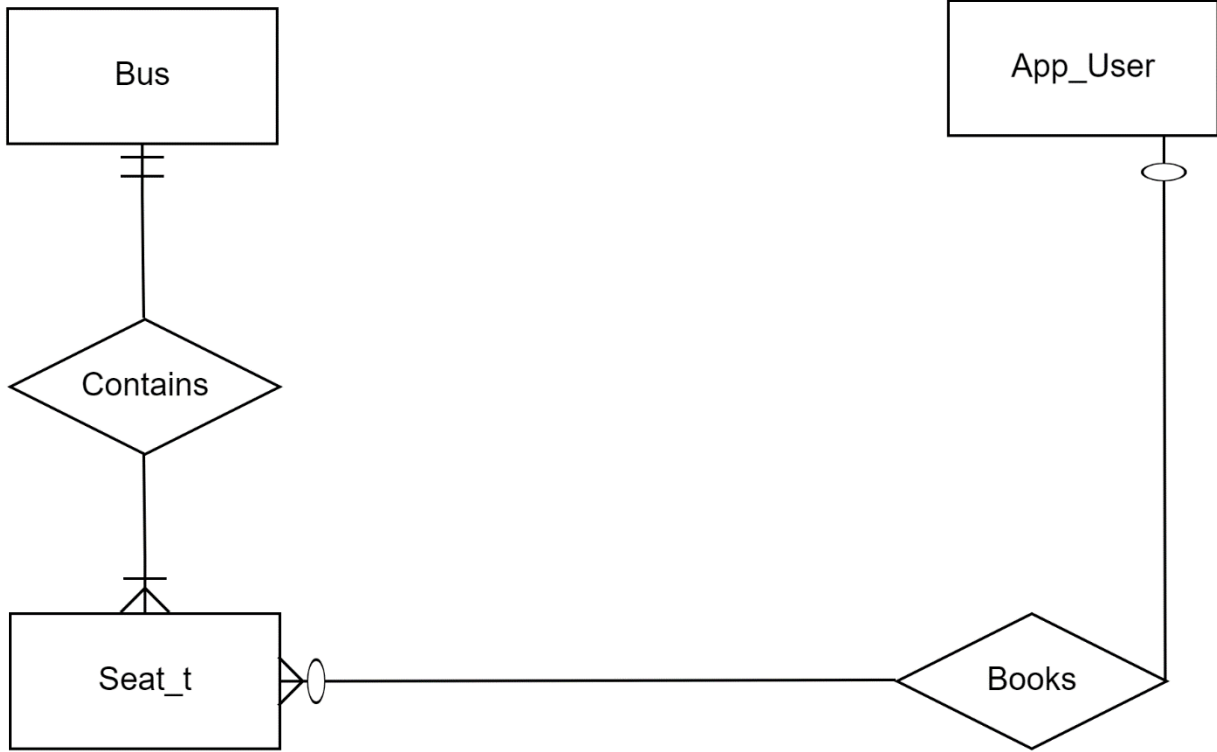
2. Seat:



3. App User:



ER Diagram:



Relational Model:

Bus:

<u>Bus_id</u>	Bus_number	Arrival_location	Departure_location	Date_time	Seat_price	Total_seats
---------------	------------	------------------	--------------------	-----------	------------	-------------

Seat_t:

<u>Seat_no</u>	isBooked	Booking_time	<u>Passenger_email</u>	Bus_number	<u>Bus_id</u>
----------------	----------	--------------	------------------------	------------	---------------

App_User:

<u>Email</u>	Name	Password	User_type
--------------	------	----------	-----------

Physical Model:

Bus_t

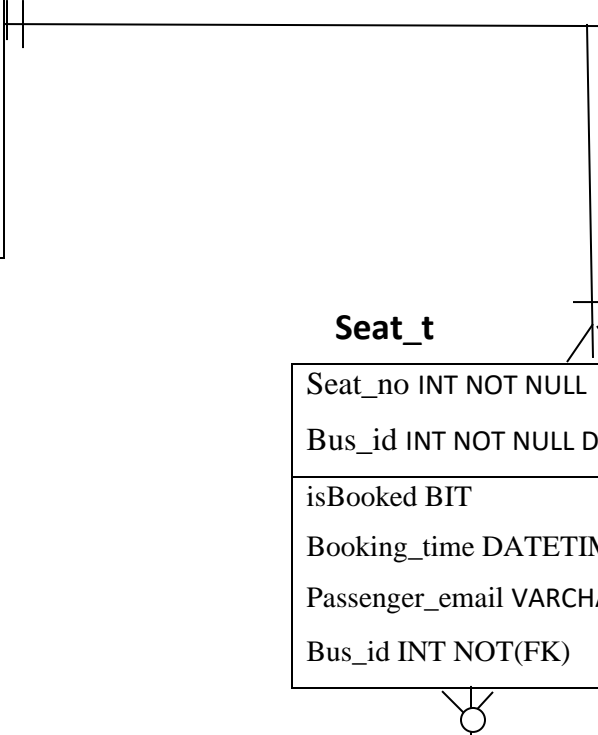
Bus_id INT IDENTITY(1,1)
Bus_number VARCHAR(10)
Arrival_location VARCHAR(70)
Departure_location VARCHAR(70)
Date_time DATETIME
Seat_price INT NOT NULL
Total_seats INT NOT NULL

Seat_t

Seat_no INT NOT NULL
Bus_id INT NOT NULL DEFAULT 0
isBooked BIT
Booking_time DATETIME
Passenger_email VARCHAR(100)(FK)
Bus_id INT NOT(FK)

App_User

Email
Name VARCHAR(70) NOT NULL
Password VARCHAR(70) NOT NULL
User_type VARCHAR(15) NULL
NOT



SQL Tables:

1. App User:

```
CREATE TABLE App_User (  
    Name VARCHAR(70) NOT NULL,  
    Email VARCHAR(100) NOT NULL,  
    Password VARCHAR(70) NOT NULL,  
    User_type VARCHAR(15) NOT NULL,  
    CONSTRAINT User_Credentials_PK PRIMARY KEY (Email)  
);
```

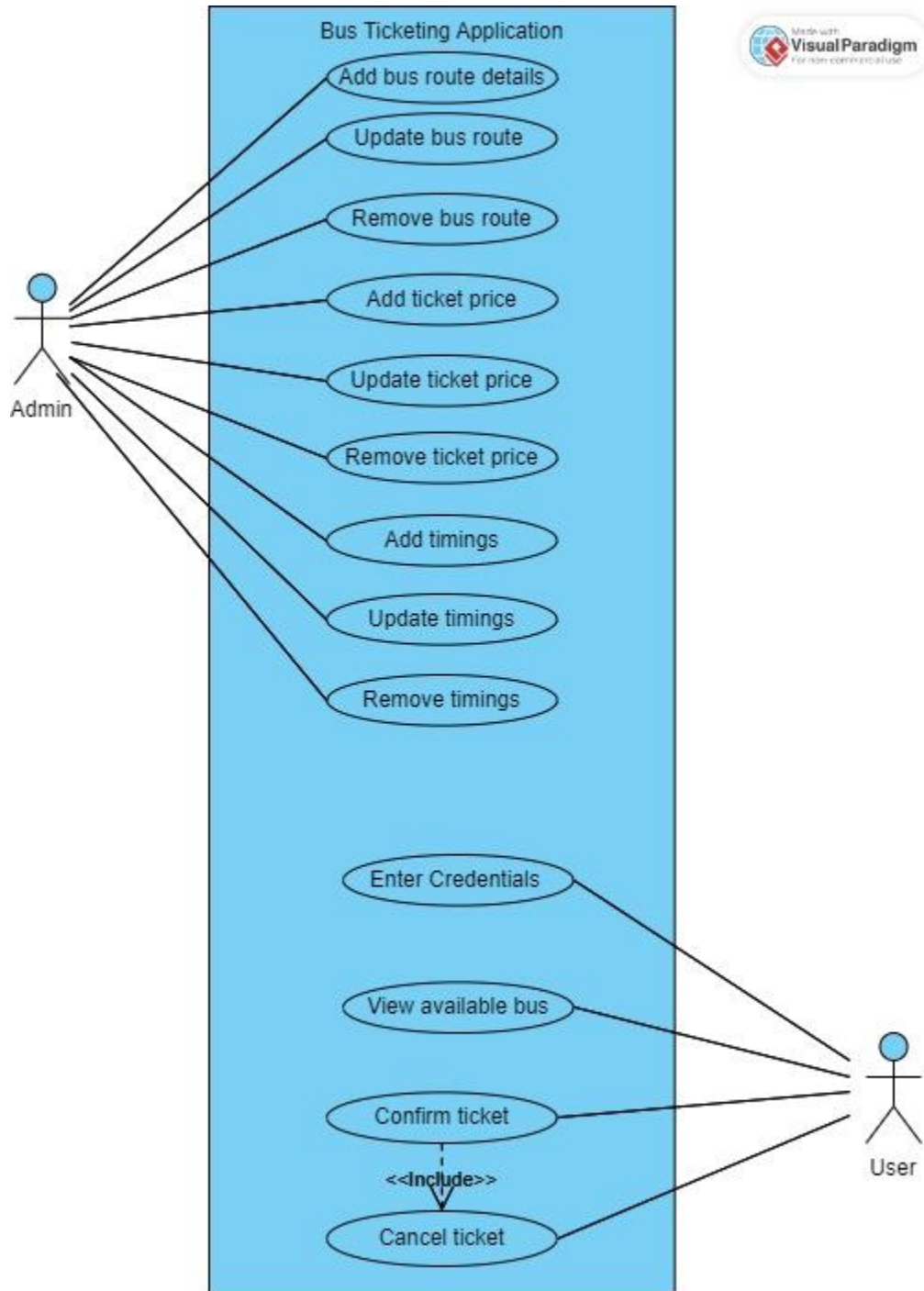
2. Bus Table:

```
CREATE TABLE Bus (  
    Bus_id INT IDENTITY(1,1),  
    Bus_number VARCHAR(10) NOT NULL,  
    Arrival_location VARCHAR(70) NOT NULL,  
    Departure_location VARCHAR(70) NOT NULL,  
    Date_time DATETIME,  
    Seat_price INT NOT NULL,  
    Total_seats INT NOT NULL  
    CONSTRAINT Bus_Credentials_PK PRIMARY KEY (Bus_id)  
);
```

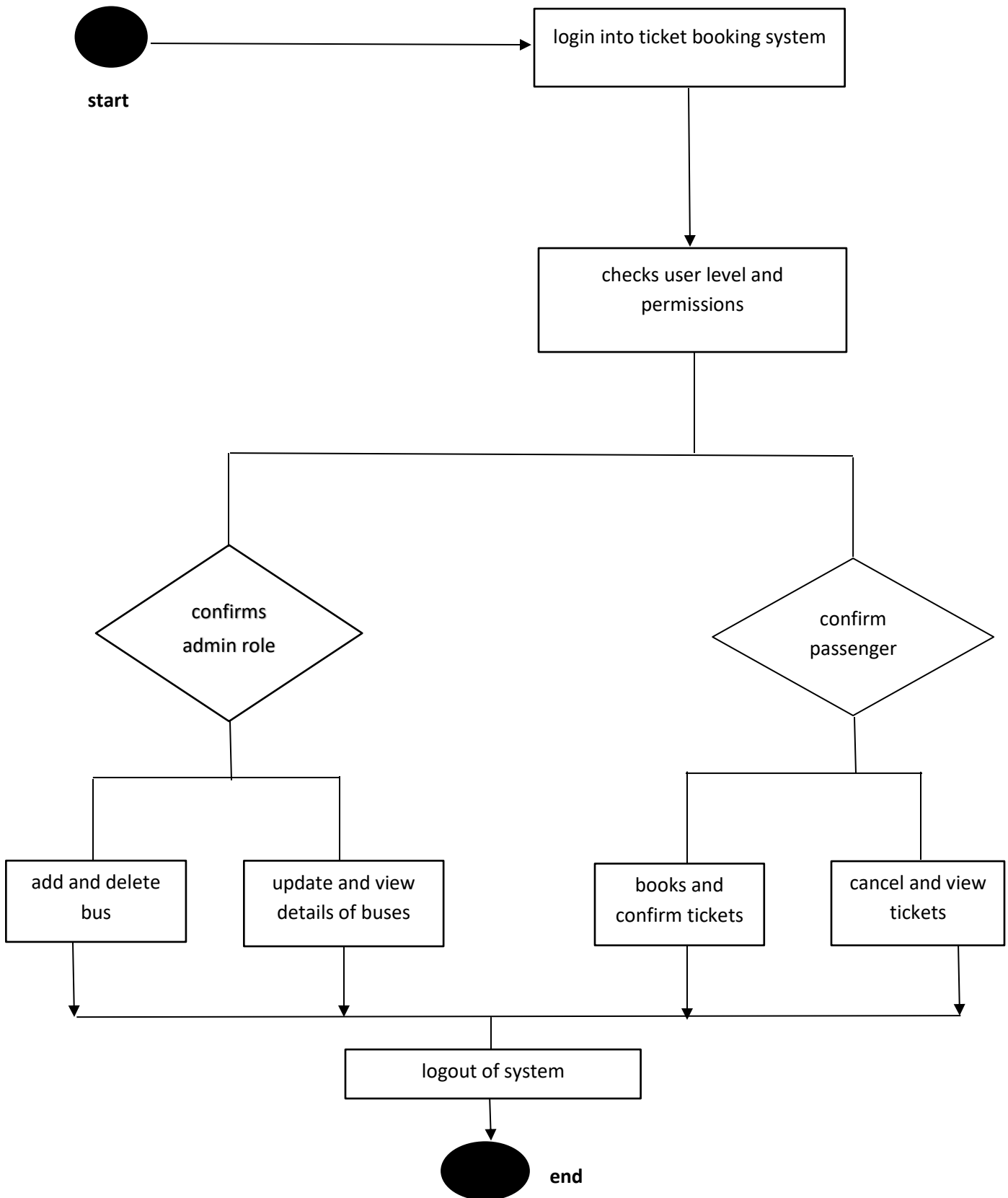
3. Seat Table:

```
CREATE TABLE Seat_t (  
    Seat_no INT NOT NULL,  
    isBooked BIT NOT NULL DEFAULT 0,  
    Booking_time DATETIME,  
    Passenger_email VARCHAR(100),  
    Bus_id INT NOT NULL,  
    CONSTRAINT Seat_Credentials_PK PRIMARY KEY (Seat_no, Bus_id),  
    CONSTRAINT Seat_Credentials_FK_1 FOREIGN KEY (Passenger_email) REFERENCES  
App_User(Email),  
    CONSTRAINT Seat_Credentials_FK_2 FOREIGN KEY (Bus_id) REFERENCES Bus(Bus_id)  
ON DELETE CASCADE  
);
```

Use Case Diagram:

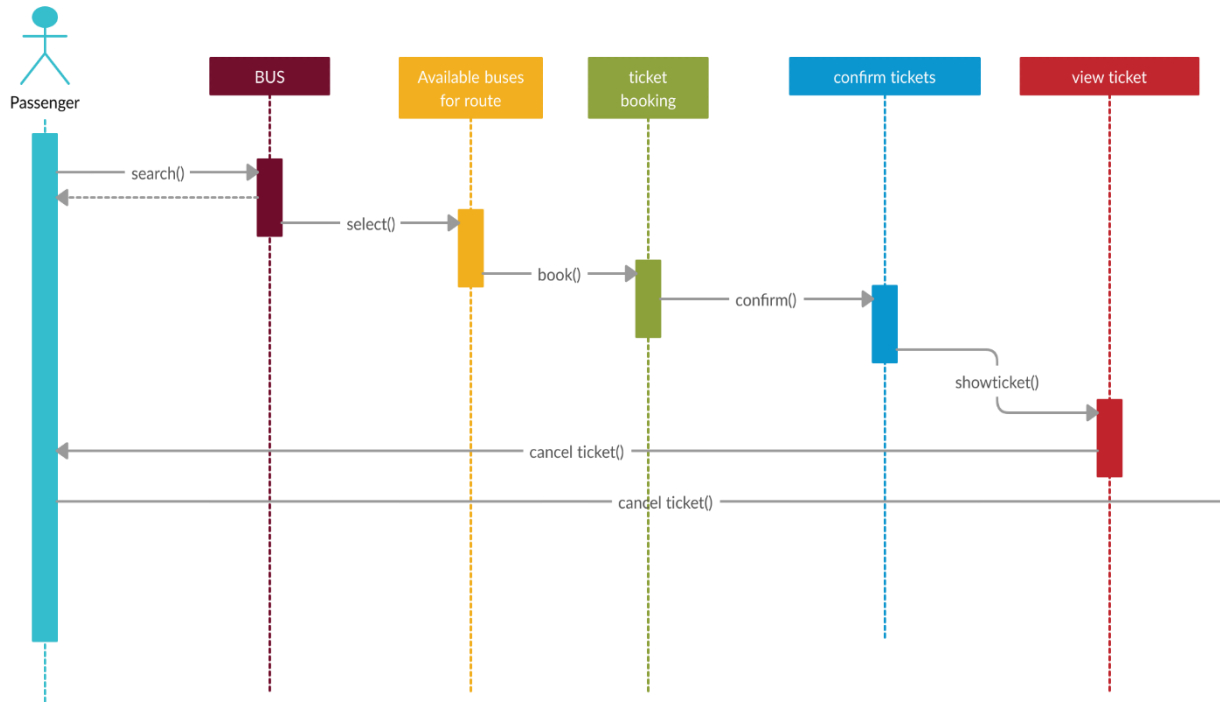


Activity Diagram:

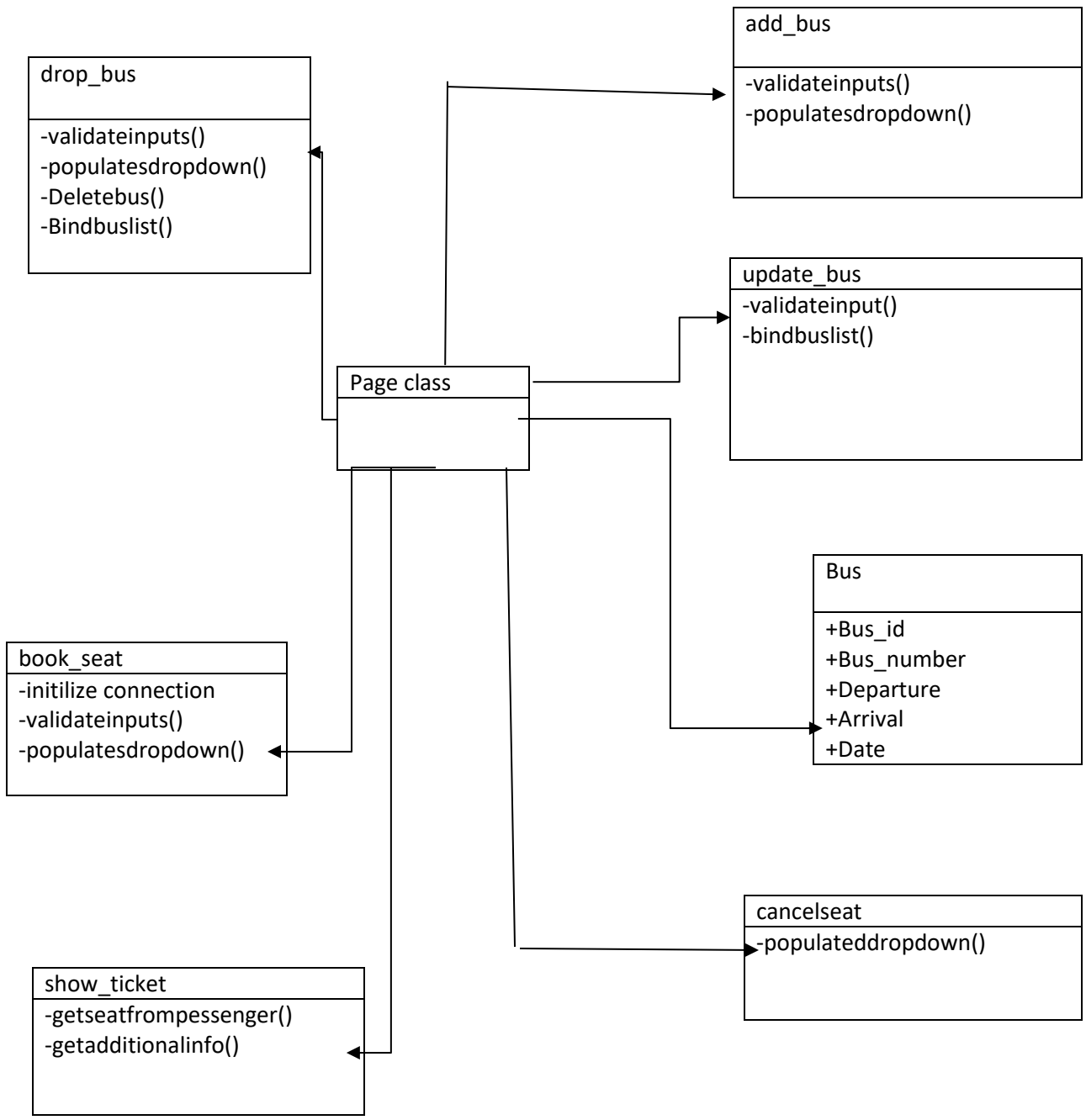


Sequence Diagram:

Sequence Diagram for online booking system



Class Diagram:



Bus Ticketing System Implementation

Roles in the System:

First, the app will ask the users about their role in the system.

There are two main roles in the system:

- Admin.
- User.

After the users select their roles, they will be prompted to register in the system (if it is their 1st time in the system) or login to the system (their credentials already exist in database). Users will be directed to appropriate menu interfaces where they can perform their desired tasks.

Admin Functionalities:

Admin can perform following main duties in the system:

- Add a bus into the database.
- Update an already added bus.
- View available buses in the system.
- View details of a particular bus.

Add a bus into Database:

Admin will be authorized to add a bus with unique bus number in the database and schedule the destination ,timing and date of bus's departure and arrival.

Once bus is done in delivering the expected service of the day, admin the add the bus into database again for the same or some other destination.

Code

Admin_page.aspx:

```
<%@ Page Language="VB" AutoEventWireup="false" CodeFile="admin_page.aspx.vb"
Inherits="admin_page" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>Admin Portal</title>
    <link href=" ../Styles/admin_page.css" rel="stylesheet" />
</head>
<body>
    <h1>Welcome to Admin Portal</h1>
    <form id="form1" runat="server">
        <div class="options-container">
            <asp:Button ID="btnViewBuses" runat="server" Text="View Available Buses"
CssClass="admin-button" />
            <asp:Button ID="btnUpdateBus" runat="server" Text="Update Bus"
CssClass="admin-button" />
            <asp:Button ID="btnAddBus" runat="server" Text="Add Bus" CssClass="admin-
button" />
            <asp:Button ID="btnDropBus" runat="server" Text="Drop Bus" CssClass="admin-
button" />
            <asp:Button ID="btnLogout" runat="server" Text="Logout" CssClass="admin-
button" />
        </div>
    </form>
</body>
</html>
```

Admin_page.aspx.vb:

```
Partial Class admin_page
    Inherits System.Web.UI.Page

    Private Sub admin_page_Load(sender As Object, e As EventArgs) Handles Me.Load
        If Session("adminLoggedIn") Is Nothing OrElse CBool(Session("adminLoggedIn")) =
False Then
            Response.Redirect("../login_page.aspx")
        End If
    End Sub

    Private Sub btnLogout_Click(sender As Object, e As EventArgs) Handles btnLogout.Click
        Response.Redirect("../Default.aspx")
    End Sub

    Private Sub btnAddBus_Click(sender As Object, e As EventArgs) Handles btnAddBus.Click
        Response.Redirect("add_bus.aspx")
    End Sub

    Private Sub btnUpdateBus_Click(sender As Object, e As EventArgs) Handles
btnUpdateBus.Click
```

```

        Response.Redirect("update_bus.aspx")
    End Sub

    Private Sub btnViewBuses_Click(sender As Object, e As EventArgs) Handles
btnViewBuses.Click
        Response.Redirect("update_bus.aspx")
    End Sub

    Private Sub btnDropBus_Click(sender As Object, e As EventArgs) Handles
btnDropBus.Click
        Response.Redirect("drop_bus.aspx")
    End Sub
End Class

```

Add_bus.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="add_bus.aspx.vb"
Inherits="add_bus" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>Add Bus</title>
    <link href=" ../Styles/add_bus.css" rel="stylesheet" />
</head>
<body>
    <form id="ticketForm" runat="server">
        <h2>Add Buss</h2>
        <div>
            <label for="busNumber">Bus Number:</label>
            <asp:TextBox ID="busNumber" runat="server"></asp:TextBox>
        </div>
        <div>
            <label for="departureLocation">Departure Location:</label>
            <asp:TextBox ID="departureLocation" runat="server"></asp:TextBox>
        </div>
        <div>
            <label for="arrivalLocation">Arrival Location:</label>
            <asp:TextBox ID="arrivalLocation" runat="server"></asp:TextBox>
        </div>
        <div>
            <label for="dateInput">Date:</label>
            <asp:DropDownList ID="dateInput" runat="server" CssClass="drop-down-
control"></asp:DropDownList>
        </div>
        <div>
            <label for="time">Time:</label>
            <asp:TextBox ID="time" runat="server" type="time"></asp:TextBox>
        </div>
        <div>
            <label for="seatPrice">Seat Price:</label>
            <asp:TextBox ID="seatPrice" runat="server" type="number"></asp:TextBox>
        </div>
        <asp:Button ID="btnSubmit" runat="server" Text="Submit" CssClass="btn" />
    </form>

```

```

        <asp:Label ID="lblErrorMessage" runat="server" CssClass="error-message"
Visible="False"></asp:Label>
        <div class="admin-portal-link">
            <p>Go back to <a href="admin_page.aspx">Admin Portal</a></p>
        </div>
    </form>
</body>
</html>

```

Add_bus.aspx.vb:

```

Imports System.Data.SqlClient
Partial Class add_bus
    Inherits System.Web.UI.Page
    Private Sub add_bus_Load(sender As Object, e As EventArgs) Handles Me.Load
        If Session("adminLoggedIn") Is Nothing OrElse CBool(Session("adminLoggedIn")) =
False Then
            Response.Redirect("../login_page.aspx")
        End If

        If Not Me.IsPostBack Then
            PopulateDateDropdown()
        End If

    End Sub

    Protected Sub SubmitButton_Click(sender As Object, e As EventArgs) Handles
btnSubmit.Click
        If validateInputs() Then
            Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

            Try
                Using connection As New SqlConnection(connectionString)
                    connection.Open()

                    Dim query As String = "INSERT INTO Bus (Bus_number,
Departure_location, Arrival_location, Date_time, Seat_price, Total_seats) VALUES
(@BusNumber, @DepartureLocation, @ArrivalLocation, @DateTime, @SeatPrice, @TotalSeats)"

                    Using command As New SqlCommand(query, connection)
                        command.Parameters.AddWithValue("@BusNumber", busNumber.Text)
                        command.Parameters.AddWithValue("@DepartureLocation",
departureLocation.Text)
                        command.Parameters.AddWithValue("@ArrivalLocation",
arrivalLocation.Text)
                        command.Parameters.AddWithValue("@DateTime",
DateTime.Parse(dateInput.SelectedValue & " " & time.Text))
                        command.Parameters.AddWithValue("@SeatPrice",
Integer.Parse(seatPrice.Text))
                        command.Parameters.AddWithValue("@TotalSeats", 45)

                        command.ExecuteNonQuery()
                    End Using
                End Using

                ' Insertion successful,
lblErrorMessage.Visible = False

```

```

        ClientScript.RegisterStartupScript(Me.GetType(), "alert", "alert('Bus
added successfully.');" , True)
        emptyInputFields()
        Catch ex As Exception
            lblErrorMessage.Text = "An error occurred while processing your request.
Please try again later."
        End Try

    End If
End Sub

Private Function validateInputs() As Boolean
    If String.IsNullOrEmpty(busNumber.Text) OrElse
        String.IsNullOrEmpty(departureLocation.Text) OrElse
        String.IsNullOrEmpty(arrivalLocation.Text) OrElse
        String.IsNullOrEmpty(dateInput.Text) OrElse
        String.IsNullOrEmpty(time.Text) OrElse
        String.IsNullOrEmpty(seatPrice.Text) Then
        lblErrorMessage.Text = "Please fill in all the required fields."
        lblErrorMessage.Visible = True
        Return False
    End If

    Dim numberRegex As String = "^[A-Z]+-\d+$"
    If Not System.Text.RegularExpressions.Regex.IsMatch(busNumber.Text.Trim(),
numberRegex) Then
        lblErrorMessage.Text = "Bus number is not valid. Please enter a valid number"
        lblErrorMessage.Visible = True
        Return False
    End If

    Return True
End Function

Private Sub PopulateDateDropdown()
    Dim datesList As New List(Of ListItem)()
    For i As Integer = 0 To 4
        Dim nextDate As DateTime = DateTime.Today.AddDays(i)
        datesList.Add(New ListItem(nextDate.ToString("dd MMMM yyyy"),
nextDate.ToString("MM-dd-yyyy")))
    Next
    dateInput.DataSource = datesList
    dateInput.DataBind()
End Sub

Private Sub emptyInputFields()
    busNumber.Text = ""
    departureLocation.Text = ""
    arrivalLocation.Text = ""
    dateInput.Text = ""
    time.Text = ""
    seatPrice.Text = ""
End Sub

End Class

```


Drop_bus.aspx:

```
<%@ Page Language="VB" AutoEventWireup="false" CodeFile="drop_bus.aspx.vb"
Inherits="drop_bus" %>

<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title>Drop Bus</title>
<link href="../Styles/drop_bus.css" rel="stylesheet" />
</head>
<body>
    <form id="ticketForm" runat="server">
        <div class="container">
            <h2>Search Bus to drop</h2>
            <div class="select-container">
                <label for="departureLocation">Departure Location:</label>
                <asp:DropDownList ID="departureLocation"
runat="server"></asp:DropDownList>
            </div>
            <div class="select-container">
                <label for="arrivalLocation">Arrival Location:</label>
                <asp:DropDownList ID="arrivalLocation" runat="server"></asp:DropDownList
>
            </div>
            <asp:Button ID="btnSubmit" runat="server" Text="Search" CssClass="btn" />
            <asp:Label ID="lblErrorMessage" runat="server" CssClass="error-message"
Visible="False"></asp:Label>
            <div class="admin-portal-link">
                <p>Go back to <a href="admin_page.aspx">Admin Portal</a></p>
            </div>
        </div>

        <ContentTemplate>
            <table id="busTable" runat="server" class="bus-table" visible="false">
                <thead>
                    <tr>
                        <th>Bus Number</th>
                        <th>Date</th>
                        <th>Time</th>
                        <th>Departure Location</th>
                        <th>Arrival Location</th>
                        <th>Select to Drop</th>
                    </tr>
                </thead>
                <tbody>
                    <%-- Bus rows will be dynamically added here --%>
                </tbody>
            </table>
        </ContentTemplate>

    </form>
</body>
</html>
```

Drop_bus.aspx.vb:

```

Imports System.Data.SqlClient
Public Class bus_to_drop
    Public Property BusNumber As String
    Public Property BusId As String
    Public Property busDate As String
    Public Property Time As String
    Public Property DepartureLocation As String
    Public Property ArrivalLocation As String
    Public Property Price As Int64
End Class

Partial Class drop_bus
    Inherits System.Web.UI.Page
    Protected Sub Page_Load(ByVal sender As Object, ByVal e As EventArgs) Handles Me.Load
        If Session("adminLoggedIn") Is Nothing OrElse CBool(Session("adminLoggedIn")) =
False Then
            Response.Redirect("../login_page.aspx")
        End If

        If Not IsPostBack Then
            PopulateDropdownLists()
            DeleteBus()
        End If

    End Sub

    Protected Sub btnSubmit_Click(sender As Object, e As EventArgs) Handles
btnSubmit.Click

        Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString
        If validateInputs() Then
            Dim busList As New List(Of bus_to_drop)()

            Dim query As String = "SELECT Bus_number, Bus_id, CONVERT(varchar, Date_time,
106) AS Date, CONVERT(varchar, Date_time, 108) AS Time, Departure_location,
Arrival_location, Seat_price FROM Bus WHERE Departure_location = @DepartureLocation AND
Arrival_location = @ArrivalLocation"

            Try
                Using connection As New SqlConnection(connectionString)
                    connection.Open()

                    Using command As New SqlCommand(query, connection)
                        command.Parameters.AddWithValue("@DepartureLocation",
departureLocation.Text)
                        command.Parameters.AddWithValue("@ArrivalLocation",
arrivalLocation.Text)

                        Using reader As SqlDataReader = command.ExecuteReader()
                            While reader.Read()
                                Dim bus As New bus_to_drop()
                                bus.BusNumber = reader("Bus_number").ToString()
                                bus.BusId = reader("Bus_id").ToString()
                                bus.busDate = reader("Date").ToString()
                                bus.Time = reader("Time").ToString()
                                bus.DepartureLocation =
reader("Departure_location").ToString()

```

```

        bus.ArrivalLocation =
reader("Arrival_location").ToString()
        bus.Price = Convert.ToInt32(reader("Seat_price"))
        busList.Add(bus)
            End While
        End Using
    End Using
End Using

    Session("BusList") = busList
    BindBusList(busList)
    Catch ex As Exception
        lblErrorMessage.Text = "An error occurred while processing your request.
Please try again later." &
        lblErrorMessage.Visible = True
    End Try
End If

End Sub

Private Sub BindBusList(busList As List(Of bus_to_drop))
    If busList.Count > 0 Then
        busTable.Visible = True

        For Each bus As bus_to_drop In busList
            Dim row As New HtmlTableRow()

            Dim cellBusNumber As New HtmlTableCell()
            cellBusNumber.InnerText = bus.BusNumber
            row.Cells.Add(cellBusNumber)

            Dim cellDate As New HtmlTableCell()
            cellDate.InnerText = bus.busDate
            row.Cells.Add(cellDate)

            Dim cellTime As New HtmlTableCell()
            cellTime.InnerText = bus.Time
            row.Cells.Add(cellTime)

            Dim cellDepartureLocation As New HtmlTableCell()
            cellDepartureLocation.InnerText = bus.DepartureLocation
            row.Cells.Add(cellDepartureLocation)

            Dim cellArrivalLocation As New HtmlTableCell()
            cellArrivalLocation.InnerText = bus.ArrivalLocation
            row.Cells.Add(cellArrivalLocation)

            Dim queryString As String = "BusId=" & bus.BusId

            Dim DropLink As New HtmlAnchor()
            DropLink.InnerText = "Drop Bus"
            DropLink.HRef = "drop_bus.aspx?" & queryString
            DropLink.Attributes("class") = "btn btn-primary"

            Dim cellDropLink As New HtmlTableCell()
            cellDropLink.Controls.Add(DropLink)

            row.Cells.Add(cellDropLink)
        
```

```

        busTable.Rows.Add(row)
    Next
    lblErrorMessage.Visible = False
Else
    lblErrorMessage.Text = "No buses found for the given criteria."
    lblErrorMessage.Visible = True
End If
End Sub
Private Sub PopulateDropdownLists()
    Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

    Try
        Using connection As New SqlConnection(connectionString)
            connection.Open()
            departureLocation.Items.Add(New ListItem("Departure Location", ""))
            Dim departureQuery As String = "SELECT DISTINCT Departure_location FROM
Bus"

            Using departureCommand As New SqlCommand(departureQuery, connection)
                Using reader As SqlDataReader = departureCommand.ExecuteReader()
                    While reader.Read()
                        departureLocation.Items.Add(New
ListItem(reader("Departure_location").ToString(),
reader("Departure_location").ToString()))
                    End While
                End Using
            End Using

            arrivalLocation.Items.Add(New ListItem("Arrival Location", ""))

            Dim arrivalQuery As String = "SELECT DISTINCT Arrival_location FROM Bus"
            Using arrivalCommand As New SqlCommand(arrivalQuery, connection)
                Using reader As SqlDataReader = arrivalCommand.ExecuteReader()
                    While reader.Read()
                        arrivalLocation.Items.Add(New
ListItem(reader("Arrival_location").ToString(), reader("Arrival_location").ToString()))
                    End While
                End Using
            End Using
        End Using

        lblErrorMessage.Visible = False
    Catch ex As Exception
        lblErrorMessage.Text = "An error occurred while connecting to the database.
Please try again."
        lblErrorMessage.Visible = True
    End Try
End Sub

Private Sub DeleteBus()
    Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

    Dim queryString As String = Request.QueryString("BusId")
    If Not String.IsNullOrEmpty(queryString) Then
        Dim busId As String = queryString

```

```

Dim query As String = "DELETE FROM Bus WHERE Bus_Id = @BusId"

Try
    Using connection As New SqlConnection(ConnectionString)
        connection.Open()
        Using command As New SqlCommand(query, connection)
            command.Parameters.AddWithValue("@BusId", busId)
            command.ExecuteNonQuery()
        End Using
    End Using

    Dim busList As List(Of bus_to_drop) = CType(Session("BusList"), List(Of
bus_to_drop))

    If busList IsNot Nothing Then
        Dim busToRemove As bus_to_drop = busList.FirstOrDefault(Function(bus)
bus.BusId = busId)
        If busToRemove IsNot Nothing Then
            busList.Remove(busToRemove)
        End If
    End If

    lblErrorMessage.Visible = False
    ClientScript.RegisterStartupScript(Me.GetType(), "alert", "alert('Bus
deleted successfully');", True)
    If busList.Count > 0 Then
        BindBusList(busList)
    End If
Catch ex As Exception
    lblErrorMessage.Text = "An error occurred while deleting the bus."
    lblErrorMessage.Visible = True
End Try
End If
End Sub

Private Function validateInputs() As Boolean
    If departureLocation.SelectedValue = "" Then
        lblErrorMessage.Text = "Please select a departure location."
        lblErrorMessage.Visible = True
        Return False
    End If
    If arrivalLocation.SelectedValue = "" Then
        lblErrorMessage.Text = "Please select an arrival location."
        lblErrorMessage.Visible = True
        Return False
    End If
    lblErrorMessage.Visible = False
    Return True
End Function

End Class

```

Update_bus.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="update_bus.aspx.vb"
Inherits="update_bus" %>

```

```

<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title>Search Bus</title>
<link href=" ../Styles/drop_bus.css" rel="stylesheet" />
</head>
<body>
    <form id="ticketForm" runat="server">
        <div class="container">
            <h2>Search a Bus</h2>
            <div class="select-container">
                <label for="departureLocation">Departure Location:</label>
                <asp:DropDownList ID="departureLocation"
runat="server"></asp:DropDownList>
            </div>
            <div class="select-container">
                <label for="arrivalLocation">Arrival Location:</label>
                <asp:DropDownList ID="arrivalLocation"
runat="server"></asp:DropDownList >
            </div>
            <div>
                <label for="dateInput">Date:</label>
                <asp:TextBox ID="dateInput" runat="server" type="date"></asp:TextBox>
            </div>
            <asp:Button ID="btnSubmit" runat="server" Text="Search" CssClass="btn" />
            <asp:Label ID="lblErrorMessage" runat="server" CssClass="error-message"
Visible="False"></asp:Label>
            <div class="admin-portal-link">
                <p>Go back to <a href="admin_page.aspx">Admin Portal</a></p>
            </div>
        </div>

        <table id="busTable" runat="server" class="bus-table" visible="false">
            <thead>
                <tr>
                    <th>Bus Number</th>
                    <th>Date</th>
                    <th>Time</th>
                    <th>Departure Location</th>
                    <th>Arrival Location</th>
                </tr>
            </thead>
            <tbody>
                <%-- Bus rows will be dynamically added here --%>
            </tbody>
        </table>
    </form>
</body>
</html>

```

Update_bus.aspx.vb:

```

Imports System.Data.SqlClient
Public Class Bus
    Public Property BusNumber As String
    Public Property busDate As String
    Public Property Time As String
    Public Property DepartureLocation As String

```

```

    Public Property ArrivalLocation As String
    Public Property Price As Int64
    Public Property BusId As String
End Class
Partial Class update_bus
    Inherits System.Web.UI.Page

    Protected Sub Page_Load(ByVal sender As Object, ByVal e As EventArgs) Handles Me.Load
        If Session("adminLoggedIn") Is Nothing OrElse CBool(Session("adminLoggedIn")) =
False Then
            Response.Redirect("../login_page.aspx")
        End If

        If Not IsPostBack Then
            PopulateDropdownLists()
        End If
    End Sub
    Protected Sub btnSubmit_Click(sender As Object, e As EventArgs) Handles
btnSubmit.Click
        If validateInputs() Then
            Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

            Dim busList As New List(Of Bus)()

            Dim query As String = "SELECT Bus_Id,Bus_number, CONVERT(varchar, Date_time,
106) AS Date, CONVERT(varchar, Date_time, 108) AS Time, Departure_location,
Arrival_location, Seat_price FROM Bus WHERE Departure_location = @DepartureLocation AND
Arrival_location = @ArrivalLocation AND CONVERT(date, Date_time) = @Date"

            Try
                Using connection As New SqlConnection(connectionString)
                    connection.Open()

                    Using command As New SqlCommand(query, connection)
                        command.Parameters.AddWithValue("@DepartureLocation",
departureLocation.Text)
                        command.Parameters.AddWithValue("@ArrivalLocation",
arrivalLocation.Text)
                        command.Parameters.AddWithValue("@Date",
Date.Parse(dateInput.Text))

                        Using reader As SqlDataReader = command.ExecuteReader()
                            While reader.Read()
                                Dim bus As New Bus()
                                bus.BusNumber = reader("Bus_number").ToString()
                                bus.BusId = reader("Bus_id").ToString()
                                bus.busDate = reader("Date").ToString()
                                bus.Time = reader("Time").ToString()
                                bus.DepartureLocation =
reader("Departure_location").ToString()
                                bus.ArrivalLocation =
reader("Arrival_location").ToString()
                                bus.Price = Convert.ToInt32(reader("Seat_price"))
                                busList.Add(bus)
                            End While
                        End Using
                    End Using
                End Try
            End Using

```

```

        End Using
        lblErrorMessage.Visible = False
        BindBusList(busList)
    Catch ex As Exception
        lblErrorMessage.Text = "Something went wrong. Please try again later."
        lblErrorMessage.Visible = True
    End Try
End If

End Sub

Private Sub BindBusList(busList As List(Of Bus))
    If busList.Count > 0 Then
        busTable.Visible = True

        For Each bus As Bus In busList
            Dim row As New HtmlTableRow()

            Dim cellBusNumber As New HtmlTableCell()
            cellBusNumber.InnerText = bus.BusNumber
            row.Cells.Add(cellBusNumber)

            Dim cellDate As New HtmlTableCell()
            cellDate.InnerText = bus.busDate
            row.Cells.Add(cellDate)

            Dim cellTime As New HtmlTableCell()
            cellTime.InnerText = bus.Time
            row.Cells.Add(cellTime)

            Dim cellDepartureLocation As New HtmlTableCell()
            cellDepartureLocation.InnerText = bus.DepartureLocation
            row.Cells.Add(cellDepartureLocation)

            Dim cellArrivalLocation As New HtmlTableCell()
            cellArrivalLocation.InnerText = bus.ArrivalLocation
            row.Cells.Add(cellArrivalLocation)

            Dim queryString As String = "BusId=" & bus.BusId & "&BusNumber=" &
bus.BusNumber & "&Date=" & bus.busDate & "&Time=" & bus.Time & "&DepartureLocation=" &
bus.DepartureLocation & "&ArrivalLocation=" & bus.ArrivalLocation & "&SeatPrice=" &
bus.Price

            Dim updateLink As New HtmlAnchor()
            updateLink.InnerText = "Update"
            updateLink.HRef = "update_singleBus.aspx?" & queryString
            updateLink.Attributes("class") = "btn btn-primary"

            Dim cellUpdateLink As New HtmlTableCell()
            cellUpdateLink.Controls.Add(updateLink)
            row.Cells.Add(cellUpdateLink)

            busTable.Rows.Add(row)
        Next
    Else
        lblErrorMessage.Text = "No buses found for the given criteria."
        lblErrorMessage.Visible = True
    End If

```



```

End Sub

Private Sub PopulateDropdownLists()
    Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

    Try
        Using connection As New SqlConnection(connectionString)
            connection.Open()

            departureLocation.Items.Add(New ListItem("Departure Location", ""))

            Dim departureQuery As String = "SELECT DISTINCT Departure_location FROM
Bus"

            Using departureCommand As New SqlCommand(departureQuery, connection)
                Using reader As SqlDataReader = departureCommand.ExecuteReader()
                    While reader.Read()
                        departureLocation.Items.Add(New
ListItem(reader("Departure_location").ToString(),
reader("Departure_location").ToString()))
                    End While
                End Using
            End Using

            arrivalLocation.Items.Add(New ListItem("Arrival Location", ""))

            Dim arrivalQuery As String = "SELECT DISTINCT Arrival_location FROM Bus"
            Using arrivalCommand As New SqlCommand(arrivalQuery, connection)
                Using reader As SqlDataReader = arrivalCommand.ExecuteReader()
                    While reader.Read()
                        arrivalLocation.Items.Add(New
ListItem(reader("Arrival_location").ToString(), reader("Arrival_location").ToString()))
                    End While
                End Using
            End Using

            lblErrorMessage.Visible = False
        Catch ex As Exception
            lblErrorMessage.Text = "An error occurred while Connecting to the database."
            lblErrorMessage.Visible = True
        End Try

    End Sub

Private Function validateInputs() As Boolean
    If departureLocation.SelectedValue = "" Then
        lblErrorMessage.Text = "Please select a departure location."
        lblErrorMessage.Visible = True
        Return False
    End If

    If arrivalLocation.SelectedValue = "" Then
        lblErrorMessage.Text = "Please select an arrival location."
        lblErrorMessage.Visible = True
        Return False
    End If

```

```

    If dateInput.Text = "" Then
        lblErrorMessage.Text = "Please select a date."
        lblErrorMessage.Visible = True
        Return False
    End If

    lblErrorMessage.Visible = False
    Return True
End Function

```

End Class

Update_singleBus.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="update_singleBus.aspx.vb"
Inherits="update_singleBus" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>Update Bus</title>
    <link href=" ../Styles/add_bus.css" rel="stylesheet" />
</head>
<body>
    <form id="ticketForm" runat="server">
        <h2>Update Bus</h2>
        <div>
            <label for="busNumber">Bus Number:</label>
            <asp:TextBox ID="busNumber" runat="server" ReadOnly="true"></asp:TextBox>
        </div>
        <div>
            <label for="departureLocation">Departure Location:</label>
            <asp:TextBox ID="departureLocation" runat="server"></asp:TextBox>
        </div>
        <div>
            <label for="arrivalLocation">Arrival Location:</label>
            <asp:TextBox ID="arrivalLocation" runat="server"></asp:TextBox>
        </div>
        <div>
            <label for="dateInput">Date:</label>
            <asp:DropDownList ID="dateInput" runat="server" CssClass="drop-down-
control"></asp:DropDownList>
        </div>
        <div>
            <label for="time">Time:</label>
            <asp:TextBox ID="time" runat="server" type="time"></asp:TextBox>
        </div>
        <div>
            <label for="seatPrice">Seat Price:</label>
            <asp:TextBox ID="seatPrice" runat="server" type="number"></asp:TextBox>
        </div>
        <asp:Button ID="btnSubmit" runat="server" Text="Submit" CssClass="btn" />
        <asp:Label ID="lblErrorMessage" runat="server" CssClass="error-message"
Visible="False"></asp:Label>
        <div class="admin-portal-link">
            <p>Go back to <a href="admin_page.aspx">Admin Portal</a></p>

```

```
        </div>
    </form>

</body>
</html>
```

Update_singleBus.aspx.vb:

```
Imports System.Data.SqlClient

Partial Class update_singleBus
    Inherits System.Web.UI.Page
    Dim connectionString As String =
        ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

    Private Sub update_singleBus_Load(sender As Object, e As EventArgs) Handles Me.Load
        If Session("adminLoggedIn") Is Nothing OrElse CBool(Session("adminLoggedIn")) =
            False Then
            Response.Redirect("../login_page.aspx")
            End If

        If Not IsPostBack Then
            Dim oldBusNumber As String = Request.QueryString("BusNumber")
            Dim BusId As String = Request.QueryString("BusId")

            Dim old_bus_date As String = Request.QueryString("Date")
            Dim oldTime As String = Request.QueryString("Time")
            Dim oldDepartureLocation As String = Request.QueryString("DepartureLocation")
            Dim oldArrivalLocation As String = Request.QueryString("ArrivalLocation")
            Dim busPrice As Int32 = Request.QueryString("SeatPrice")

            busNumber.Text = oldBusNumber

            PopulateDateDropdown(old_bus_date)
            time.Text = oldTime
            departureLocation.Text = oldDepartureLocation
            arrivalLocation.Text = oldArrivalLocation
            seatPrice.Text = busPrice

            End If
        End Sub

    Protected Sub btnUpdate_Click(sender As Object, e As EventArgs) Handles
        btnSubmit.Click
        Dim BusId As String = Request.QueryString("BusId")
        Dim originalDate As String = Request.QueryString("Date")
        Dim originalTime As String = Request.QueryString("Time")
        Dim originalDepartureLocation As String =
            Request.QueryString("DepartureLocation")
        Dim originalArrivalLocation As String = Request.QueryString("ArrivalLocation")
        Dim originalPrice As Int32 = Convert.ToInt32(Request.QueryString("SeatPrice"))

        If validateInputs() Then
            Dim newDate As String = dateInput.SelectedValue
            Dim newTime As String = time.Text
            Dim newDepartureLocation As String = departureLocation.Text
            Dim newArrivalLocation As String = arrivalLocation.Text
            Dim newPrice As Int32 = Convert.ToInt32(seatPrice.Text)
```

```

        If newDate <> originalDate OrElse newTime <> originalTime OrElse
newDepartureLocation <> originalDepartureLocation OrElse newArrivalLocation <>
originalArrivalLocation OrElse newPrice <> originalPrice Then

            Dim isDone = UpdateBusData(BusId, busNumber.Text, newDate, newTime,
newDepartureLocation, newArrivalLocation, newPrice)

            If isDone Then
                Response.Redirect("update_bus.aspx")
            Else
                lblErrorMessage.Text = "Something went wrong. Try again"
                lblErrorMessage.Visible = True
            End If

        Else
            Response.Redirect("update_bus.aspx")
        End If
    End If

End Sub

Private Function UpdateBusData(busId As String, busNumber As String, new_date As
String, new_time As String, departureLocation As String, arrivalLocation As String, price
As Int32) As Boolean
    Dim isDone As Boolean
    Dim query As String = "UPDATE Bus SET Date_time = @Date_time, Departure_location
= @DepartureLocation, Arrival_location = @ArrivalLocation, Seat_price = @Price WHERE
Bus_id = @BusId"
    Try
        Using connection As New SqlConnection(ConnectionString)
            Using command As New SqlCommand(query, connection)
                command.Parameters.AddWithValue("@Date_time", DateTime.Parse(new_date
& " " & new_time))
                command.Parameters.AddWithValue("@DepartureLocation",
departureLocation)
                command.Parameters.AddWithValue("@ArrivalLocation", arrivalLocation)
                command.Parameters.AddWithValue("@Price", price)
                command.Parameters.AddWithValue("@BusId", busId)

                connection.Open()
                command.ExecuteNonQuery()

            End Using
        End Using
        isDone = True
    Catch ex As Exception
        isDone = False
    End Try

    Return isDone
End Function

Private Function validateInputs() As Boolean

    If String.IsNullOrEmpty(busNumber.Text) OrElse
String.IsNullOrEmpty(departureLocation.Text) OrElse
String.IsNullOrEmpty(arrivalLocation.Text) OrElse

```

```

String.IsNullOrEmpty(dateInput.Text) OrElse
String.IsNullOrEmpty(time.Text) OrElse
String.IsNullOrEmpty(seatPrice.Text) Then
    lblErrorMessage.Text = "Please fill in all the required fields."
    lblErrorMessage.Visible = True
    Return False
End If

Return True
End Function

Private Sub PopulateDateDropdown(old_date As String)
    Dim datesList As New List(Of ListItem)()

    For i As Integer = 0 To 4
        Dim nextDate As DateTime = DateTime.Today.AddDays(i)
        datesList.Add(New ListItem(nextDate.ToString("dd MMMM yyyy"),
nextDate.ToString("MM-dd-yyyy")))
    Next

    dateInput.DataSource = datesList
    dateInput.DataBind()

    Dim selectedItem As ListItem = dateInput.Items.FindByValue(old_date)
    If selectedItem IsNot Nothing Then
        dateInput.ClearSelection()
        selectedItem.Selected = True
    End If
End Sub
End Class

```

Book_seat.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="book_seat.aspx.vb"
Inherits="book_seat" %>

<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>Search Bus</title>
    <link href=" ../Styles/drop_bus.css" rel="stylesheet" />
    <link href=" ../Styles/navbar.css" rel="stylesheet" />
</head>
<body>
    <div class="navbar">
        <a href="book_seat.aspx">Book Seats</a>
        <a href="ShowTickets.aspx">See Tickets</a>
        <a href=" ../Default.aspx" class="right">Logout</a>
    </div>
    <form id="ticketForm" runat="server">
        <div class="container">
            <h2>Search a Bus to book seat</h2>
            <div class="select-container">
                <label for="departureLocation">Departure Location:</label>
                <asp:DropDownList ID="departureLocation"
runat="server"></asp:DropDownList>
            </div>

```

```

        <div class="select-container">
            <label for="arrivalLocation">Arrival Location:</label>
            <asp:DropDownList ID="arrivalLocation"
runat="server"></asp:DropDownList >
        </div>
        <div class="select-container">
            <label for="dateInput">Date:</label>
            <asp:DropDownList ID="dateInput" runat ="server"
type="date"></asp:DropDownList>
        </div>
        <asp:Button ID="btnSubmit" runat="server" Text="Search" CssClass="btn" />
        <asp:Label ID="lblErrorMessage" runat="server" CssClass="error-message"
Visible="False"></asp:Label>
        <div class="admin-portal-link">
            <p>Go back to <a href="../admin_funcs/admin_page.aspx">Admin
Portal</a></p>
        </div>
    </div>

    <table id="busTable" runat="server" class="bus-table" visible="false">
        <thead>
            <tr>
                <th>Bus Number</th>
                <th>Date</th>
                <th>Time</th>
                <th>Departure Location</th>
                <th>Arrival Location</th>
            </tr>
        </thead>
        <tbody>
            <%-- Bus rows will be dynamically added here --%>
        </tbody>
    </table>
</form>
</body>

</html>

```

Book_seat.aspx.vb:

```
Imports System.Data.SqlClient
```

```
Imports System.Web.UI.HtmlControls
```

```
Partial Class book_seat
```

```
    Inherits System.Web.UI.Page
```

```
    Dim connectionString As String =
```

```
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString
```

```
    Protected Sub Page_Load(ByVal sender As Object, ByVal e As EventArgs) Handles Me.Load
```

```
        If Session("passengerLoggedIn") Is Nothing OrElse
```

```
CBool(Session("passengerLoggedIn")) = False Then
```

```
            Response.Redirect("../login_page.aspx")
```

```
        End If
```

```
        If Not IsPostBack Then
```

```
            PopulateDropdownlists()
```

```
        End If
```

```

End Sub

Protected Sub btnSubmit_Click(sender As Object, e As EventArgs) Handles
btnSubmit.Click
    Dim currentDateTime As DateTime = DateTime.Now
    Dim formattedDateTime As String = currentDateTime.ToString("MM/dd/yyyy HH:mm:ss")

    Dim busList As New List(Of Bus)()
    Dim query As String = "SELECT Bus_id, Bus_number, CONVERT(varchar, Date_time,
106) AS Date, CONVERT(varchar, Date_time, 108) AS Time, Departure_location,
Arrival_location, Seat_price " &
        "FROM Bus " &
        "WHERE Departure_location = @DepartureLocation " &
        "AND Arrival_location = @ArrivalLocation " &
        "AND CAST(Date_time AS DATE) = @SelectedDate " &
        "AND Date_time > @formattedDateTime"

    Try
        Using connection As New SqlConnection(ConnectionString)
            connection.Open()

            Using command As New SqlCommand(query, connection)
                command.Parameters.AddWithValue("@DepartureLocation",
departureLocation.Text)
                command.Parameters.AddWithValue("@ArrivalLocation",
arrivalLocation.Text)
                command.Parameters.AddWithValue("@SelectedDate",
Convert.ToDateTime(dateInput.Text))
                command.Parameters.AddWithValue("@formattedDateTime",
formattedDateTime)

                Using reader As SqlDataReader = command.ExecuteReader()
                    While reader.Read()
                        Dim bus As New Bus()
                        bus.Bus_id = reader("Bus_id").ToString()
                        bus.BusNumber = reader("Bus_number").ToString()
                        bus.busDate = reader("Date").ToString()
                        bus.Time = reader("Time").ToString()
                        bus.DepartureLocation =
reader("Departure_location").ToString()
                        bus.ArrivalLocation = reader("Arrival_location").ToString()
                        bus.Price = Convert.ToInt32(reader("Seat_price"))
                        busList.Add(bus)
                    End While
                End Using
            End Using
        End Using

        BindBusList(busList)

    Catch ex As Exception
        lblErrorMessage.Text = "An error occurred while processing your request.
Please try again later."
        lblErrorMessage.Visible = True
    End Try
End Sub

Private Sub BindBusList(busList As List(Of Bus))

```

```

If busList.Count > 0 Then
    busTable.Visible = True
    lblErrorMessage.Visible = False

    For Each bus As Bus In busList
        Dim row As New HtmlTableRow()

        Dim cellBusNumber As New HtmlTableCell()
        cellBusNumber.InnerText = bus.BusNumber
        row.Cells.Add(cellBusNumber)

        Dim cellDate As New HtmlTableCell()
        cellDate.InnerText = bus.busDate
        row.Cells.Add(cellDate)

        Dim cellTime As New HtmlTableCell()
        cellTime.InnerText = bus.Time
        row.Cells.Add(cellTime)

        Dim cellDepartureLocation As New HtmlTableCell()
        cellDepartureLocation.InnerText = bus.DepartureLocation
        row.Cells.Add(cellDepartureLocation)

        Dim cellArrivalLocation As New HtmlTableCell()
        cellArrivalLocation.InnerText = bus.ArrivalLocation
        row.Cells.Add(cellArrivalLocation)

        Dim bookSeatsLink As New HtmlAnchor()
        bookSeatsLink.InnerText = "Choose Seats"
        bookSeatsLink.HRef = "choose_seats.aspx?BusId=" & bus.Bus_id
        bookSeatsLink.Attributes("class") = "btn btn-primary"
        Dim cellUpdateLink As New HtmlTableCell()
        cellUpdateLink.Controls.Add(bookSeatsLink)
        row.Cells.Add(cellUpdateLink)

        busTable.Rows.Add(row)
    Next
Else
    lblErrorMessage.Text = "No buses found for the given criteria."
    lblErrorMessage.Visible = True
End If
End Sub

Private Function InitializeConnection() As SqlConnection
    Dim connection As New SqlConnection(ConnectionString)
    connection.Open()
    Return connection
End Function
Private Sub PopulateDropdownlists()
    Dim currentDateTime As DateTime = DateTime.Now
    Dim formattedDateTime As String = currentDateTime.ToString("MM/dd/yyyy HH:mm:ss")

    Try
        Using connection As SqlConnection = InitializeConnection()
            Dim departureQuery As String = "SELECT DISTINCT Departure_location FROM
Bus WHERE Date_time >@formattedDateTime"
            Using departureCommand As New SqlCommand(departureQuery, connection)

```



```

formattedDateTime)
        departureCommand.Parameters.AddWithValue("@formattedDateTime",
        Using reader As SqlDataReader = departureCommand.ExecuteReader()
            While reader.Read()
                departureLocation.Items.Add(New
                ListItem(reader("Departure_location").ToString(),
                reader("Departure_location").ToString()))
            End While
        End Using
    End Using
    Dim arrivalQuery As String = "SELECT DISTINCT Arrival_location FROM Bus
WHERE Date_time > @formattedDateTime"
    Using arrivalCommand As New SqlCommand(arrivalQuery, connection)
        arrivalCommand.Parameters.AddWithValue("@formattedDateTime",
        formattedDateTime)
        Using reader As SqlDataReader = arrivalCommand.ExecuteReader()
            While reader.Read()
                arrivalLocation.Items.Add(New
                ListItem(reader("Arrival_location").ToString(), reader("Arrival_location").ToString()))
            End While
        End Using
    End Using
    For i As Integer = 0 To 2
        Dim nextDate As DateTime = DateTime.Today.AddDays(i)
        dateInput.Items.Add(New ListItem(nextDate.ToString("dd MMMM yyyy"),
        nextDate.ToString("yyyy-MM-dd")))
    Next
    Catch ex As Exception
        lblErrorMessage.Text = "An error occurred."
        lblErrorMessage.Visible = True
    End Try
End Sub

```

End Class

```

Public Class Bus
    Public Property Bus_id As String
    Public Property BusNumber As String
    Public Property busDate As String
    Public Property Time As String
    Public Property DepartureLocation As String
    Public Property ArrivalLocation As String
    Public Property Price As Int64
End Class

```

Cancel_booking.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="cancel_booking.aspx.vb"
Inherits="cancel_booking" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>Booking Cancel</title>

```

```

<link href="../Styles/navbar.css" rel="stylesheet" />
<link href="../Styles/cancel_booking.css" rel="stylesheet" />
</head>
<body>
  <div class="navbar">
    <a href="book_seat.aspx">Book Seats</a>
    <a href="ShowTickets.aspx">See Tickets</a>
    <a href="../Default.aspx" class="right">Logout</a>
  </div>
  <form id="form1" runat="server">
    <div class="card">
      <h2 id="message" runat="server"></h2>
    </div>
  </form>
</body>
</html>

```

Cancel_booking.aspx.vb:

```

Imports System
Imports System.Configuration
Imports System.Data.SqlClient
Imports System.Web.UI.HtmlControls
Imports System.Web.UI.WebControls

```

```

Partial Class cancel_booking
  Inherits System.Web.UI.Page

```

```

  Private Sub cancel_booking_Load(sender As Object, e As EventArgs) Handles Me.Load
    If Session("passengerLoggedIn") Is Nothing OrElse
      CBool(Session("passengerLoggedIn")) = False Then
        Response.Redirect("../login_page.aspx")
      End If

    If Not IsPostBack Then
      Dim busId As String = Request.QueryString("bus_id")
      Dim seatNo As String = Request.QueryString("seat_no")

      If Not String.IsNullOrEmpty(busId) AndAlso Not String.IsNullOrEmpty(seatNo)
        Then
          Dim connectionString As String =
            ConfigurationManager.ConnectionStrings("conn_string").ConnectionString
          Dim query As String = "UPDATE Seat_t SET isBooked = 0, Passenger_email =
            NULL WHERE Seat_no = @SeatNo AND Bus_id = @BusId"

          Try
            Using connection As New SqlConnection(connectionString)
              Using command As New SqlCommand(query, connection)
                command.Parameters.AddWithValue("@SeatNo",
                  Convert.ToInt32(seatNo))
                command.Parameters.AddWithValue("@BusId",
                  Convert.ToInt32(busId))

                connection.Open()
                Dim rowsAffected As Integer = command.ExecuteNonQuery()

```

```

        connection.Close()

        If rowsAffected > 0 Then
            message.InnerText = "Successfully canceled the Booking"
        Else
            message.InnerText = "Seat not found or already updated"
        End If
    End Using
End Using
Catch ex As Exception
    message.InnerText = "Something went wrong. Please try later"
End Try
Else
    Response.Redirect("ShowTickets.aspx")
End If
End If
End Sub
End Class

```

Choose_seats.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="choose_seats.aspx.vb"
Inherits="User_func_choose_seats" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>Choose Seats</title>
    <link href="../Styles/choose_seat.css" rel="stylesheet" />
    <link href="../Styles/navbar.css" rel="stylesheet" />
</head>
<body>
    <div class="navbar">
        <a href="book_seat.aspx">Book Seats</a>
        <a href="ShowTickets.aspx">See Tickets</a>
        <a href="../Default.aspx" class="right">Logout</a>
    </div>
    <form id="form1" runat="server">
<h1 style="padding-top: 13px;">Choose Seats</h1>
        <div>
            <asp:Placeholder ID="phSeats" runat="server"></asp:Placeholder>
        </div>
        <div>
            <asp:Button ID="cmdNext" runat="server" text="Next" Enabled="false" />
        </div>
    </form>
</body>
</html>

```

Choose_seats.aspx.vb:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="choose_seats.aspx.vb"
Inherits="User_func_choose_seats" %>

<!DOCTYPE html>

```

```

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
  <title>Choose Seats</title>
  <link href=" ../Styles/choose_seat.css" rel="stylesheet" />
  <link href=" ../Styles/navbar.css" rel="stylesheet" />
</head>
<body>
  <div class="navbar">
    <a href="book_seat.aspx">Book Seats</a>
    <a href="ShowTickets.aspx">See Tickets</a>
    <a href=" ../Default.aspx" class="right">Logout</a>
  </div>
  <form id="form1" runat="server">
<h1 style="padding-top: 13px;">Choose Seats</h1>
    <div>
      <asp:Placeholder ID="phSeats" runat="server"></asp:Placeholder>
    </div>
    <div>
      <asp:Button ID="cmdNext" runat="server" text="Next" Enabled="false" />
    </div>
  </form>
</body>
</html>

```

Confirm_booking.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="confirm_booking.aspx.vb"
Inherits="User_func_confirm_booking" %>

```

```

<!DOCTYPE html>

```

```

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
  <title>Confirm Booking</title>
  <link href=" ../Styles/confirm_booking.css" rel="stylesheet" />
  <link href=" ../Styles/navbar.css" rel="stylesheet" />
</head>
<body>
  <div class="navbar">
    <a href="book_seat.aspx">Book Seats</a>
    <a href="ShowTickets.aspx">See Tickets</a>
    <a href=" ../Default.aspx" class="right">Logout</a>
  </div>
  <form id="form1" runat="server">
    <div class="container">
      <div id="bookingSummary">
        <asp:Label ID="lblTotalSeats" runat="server"
CssClass="label"></asp:Label><br />
        <asp:Label ID="lblTotalPrice" runat="server"
CssClass="label"></asp:Label><br />
      </div>
      <div id="seatTickets" runat="server">
        <!-- Seat tickets will be dynamically added here -->
      </div>
      <asp:Label ID="lblerrorMessage" runat="server"></asp:Label>
    </div>
  </form>

```

```

        <asp:Button ID="cmdConfirm" runat="server" Text="Confirm" CssClass="btn-
confirm" />
    </div>
</form>
</body>
</html>

```

Confirm_booking.aspx.vb:

```
Imports System.Data.SqlClient
```

```
Partial Class User_func_confirm_booking
```

```
    Inherits System.Web.UI.Page
```

```
    Protected Sub Page_Load(ByVal sender As Object, ByVal e As EventArgs) Handles Me.Load
```

```
        If Session("passengerLoggedIn") Is Nothing OrElse
```

```
CBool(Session("passengerLoggedIn")) = False Then
```

```
            Response.Redirect("../login_page.aspx")
```

```
        End If
```

```
        Dim BusId As String = Session("BusId").ToString()
```

```
        If Not String.IsNullOrEmpty(BusId) Then
```

```
            Try
```

```
                Dim seatPrice As Integer = GetSeatPrice(BusId)
```

```
                Dim seatData As Dictionary(Of Integer, String) =
```

```
GetSeatDataFromSession()
```

```
                DisplayTotalSeatsAndPrice(seatData, seatPrice)
```

```
                DisplaySeatTickets(seatData, seatPrice)
```

```
            Catch ex As Exception
```

```
                DisplayErrorMessage("An error occurred while processing your request.
Please try again later.")
```

```
            End Try
```

```
        Else
```

```
            Response.Write("Invalid BusNumber")
```

```
        End If
```

```
    End Sub
```

```
    Protected Sub cmdConfirm_Click(sender As Object, e As EventArgs) Handles
```

```
cmdConfirm.Click
```

```
        Dim busId As String = Session("BusId").ToString()
```

```
        Dim seatData As Dictionary(Of Integer, String) = TryCast(Session("to_be_book"),
Dictionary(Of Integer, String))
```

```
        Dim passengerEmail As String = Session("passengerEmail").ToString()
```

```
        If seatData IsNot Nothing Then
```

```
            Try
```

```
                ConfirmSeatBookings(busId, seatData, passengerEmail)
```

```
                ClearSessionData()
```

```
                ConfirmBooking()
```

```
            Catch ex As Exception
```

```
                Response.Write("Invalid booking data. Please try again.")
```

```
            End Try
```

```
        Else
```

```
            Response.Write("Invalid booking data. Please try again.")
```

```
        End If
```

```
    End Sub
```

```

Private Sub ConfirmSeatBookings(busId As String, seatData As Dictionary(Of Integer,
String), passengerEmail As String)
    Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

    Using conn As New SqlConnection(connectionString)
        conn.Open()

        For Each seatId As Integer In seatData.Keys
            Dim bookingDate As String = seatData(seatId)

            Dim queryUpdateSeat As String = "UPDATE Seat_t SET isBooked = 1,
booking_time = @BookingTime, passenger_email = @PassengerEmail WHERE Bus_Id = @BusId AND
Seat_no = @SeatId"
            Using cmdUpdateSeat As New SqlCommand(queryUpdateSeat, conn)
                cmdUpdateSeat.Parameters.AddWithValue("@BookingTime", bookingDate)
                cmdUpdateSeat.Parameters.AddWithValue("@PassengerEmail",
passengerEmail)
                cmdUpdateSeat.Parameters.AddWithValue("@BusId", busId)
                cmdUpdateSeat.Parameters.AddWithValue("@SeatId", seatId)

                cmdUpdateSeat.ExecuteNonQuery()
            End Using
        Next
    End Using
End Sub

Private Sub ClearSessionData()
    Session.Remove("to_be_book")
End Sub

Private Sub ConfirmBooking()
    cmdConfirm.Enabled = False
    Response.Write("<script>alert('Booking Confirmed');</script>")

    Response.Redirect("ShowTickets.aspx")
End Sub

Private Function GetSeatPrice(BusId As String) As Integer
    Dim seatPrice As Integer = 0
    Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString
    Dim query As String = "SELECT seat_price FROM bus WHERE bus_id = @BusId"

    Using connection As New SqlConnection(connectionString)
        connection.Open()
        Using command As New SqlCommand(query, connection)
            command.Parameters.AddWithValue("@BusId", BusId)
            Using reader As SqlDataReader = command.ExecuteReader()
                If reader.Read() Then
                    seatPrice = Convert.ToInt32(reader("seat_price"))
                End If
            End Using
        End Using
    End Using
End Function

```

```

        End Using
    End Using
End Using

Return seatPrice
End Function

Private Function GetSeatDataFromSession() As Dictionary(Of Integer, String)
    Return TryCast(Session("to_be_book"), Dictionary(Of Integer, String))
End Function

Private Sub DisplayTotalSeatsAndPrice(seatData As Dictionary(Of Integer, String),
seatPrice As Integer)
    If seatData IsNot Nothing Then
        lblTotalSeats.Text = "Total Seats: " & seatData.Count.ToString()
        lblTotalPrice.Text = "Total Price: " & (seatData.Count *
seatPrice).ToString()
    End If
End Sub

Private Sub DisplaySeatTickets(seatData As Dictionary(Of Integer, String), seatPrice
As Integer)
    For Each seatId As Integer In seatData.Keys
        Dim passengerEmail As String = Session("passengerEmail").ToString()
        Dim passengerName As String = Session("passengerName").ToString()
        Dim bookingTime As String = If(seatData.ContainsKey(seatId),
seatData(seatId), "Not booked yet")

        Dim seatTicket As New Literal()
        seatTicket.Text = "<div class='seat-ticket'>" &
            "    <span>Seat Number: " & seatId.ToString() & "</span><br />"
&
            "    <span>Passenger Email: " & passengerEmail & "</span><br />"
&
            "    <span>Passenger Name: " & passengerName & "</span><br />" &
            "    <span>Booking Time: " & bookingTime & "</span><br />" &
            "    <span>Seat Price: " & seatPrice & "</span><br />" &
            "</div>"
        form1.Controls.Add(seatTicket)
    Next
End Sub

Private Sub DisplayErrorMessage(message As String)
    lblerrorMessage.Text = message
    lblerrorMessage.Visible = True
End Sub

End Class

```

showTickets.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="ShowTickets.aspx.vb"
Inherits="User_func_ShowTickets" %>

<!DOCTYPE html>

```

```

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
  <title>Booked Tickets</title>
  <link href=" ../Styles/show_tickets.css" rel="stylesheet" />
  <link href=" ../Styles/navbar.css" rel="stylesheet" />
</head>
<body>
  <div class="navbar">
    <a href="book_seat.aspx">Book Seats</a>
    <a href="ShowTickets.aspx">See Tickets</a>
    <a href=" ../Default.aspx" class="right">Logout</a>
  </div>
  <form id="form1" runat="server">
    <div class="container" id="ticketsContainer" runat="server">
      <h1>Following are your booked tickets</h1>
      <!-- Tickets will be dynamically added here -->
      <asp:Label ID="lblErrorMessage" runat="server" CssClass="error-message"
Visible="False"></asp:Label>
    </div>
  </form>
</body>
</html>

```

showTickets.aspx.vb:

```

Imports System.Data.SqlClient
Partial Class User_func_ShowTickets
  Inherits System.Web.UI.Page
  Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

  Protected Sub Page_Load(ByVal sender As Object, ByVal e As EventArgs) Handles Me.Load

    If Session("passengerLoggedIn") Is Nothing OrElse
CBool(Session("passengerLoggedIn")) = False Then
      Response.Redirect("../login_page.aspx")
    End If

    Dim passenger_email As String = Session("passengerEmail").ToString()
    Dim seats As List(Of Seat) = GetSeatsForPassenger(passenger_email)

    If seats.Count > 0 Then
      For Each seat As Seat In seats
        FormatTicket(seat)
      Next
    Else
      lblErrorMessage.Text = "No booked seats."
      lblErrorMessage.Visible = True
    End If

  End Sub

  Public Class Seat
    Public Property SeatId As Integer
    Public Property PassengerEmail As String

```



```
Public Property BookingTime As DateTime
Public Property BusNumber As String
Public Property BusId As String
```

```
Public Property SeatPrice As String
Public Property DepartureLocation As String
Public Property ArrivalLocation As String
Public Property DepartureTime As DateTime
```

```
End Class
```

```
Private Function GetSeatsForPassenger(ByVal passenger_email As String) As List(Of
Seat)
    Dim seats As New List(Of Seat)()
    Dim currentDateTime As DateTime = DateTime.Now
    Dim formattedDateTime As String = currentDateTime.ToString("MM/dd/yyyy HH:mm:ss")
```

```
    Dim seatQuery As String = "SELECT s.Seat_no, s.passenger_email, s.Booking_time,
s.bus_id, b.bus_number, b.seat_price, b.departure_location, b.arrival_location,
b.Date_time " &
        "FROM seat_t s " &
        "INNER JOIN bus b ON s.bus_id = b.bus_id " &
        "WHERE s.passenger_email = @PassengerEmail AND b.date_time
> @formattedDateTime"
```

```
Using connection As New SqlConnection(connectionString)
    Using command As New SqlCommand(seatQuery, connection)
        command.Parameters.AddWithValue("@PassengerEmail", passenger_email)
        command.Parameters.AddWithValue("@formattedDateTime", formattedDateTime)
        connection.Open()
```

```
        Using reader As SqlDataReader = command.ExecuteReader()
            While reader.Read()
                Dim seat As New Seat()
                seat.SeatId = reader.GetInt32(0)
                seat.PassengerEmail = reader.GetString(1)
                seat.BookingTime = reader.GetDateTime(2)
                seat.BusId = reader.GetInt32(3)
                seat.BusNumber = reader.GetString(4)
                seat.SeatPrice = reader.GetInt32(5)
                seat.DepartureLocation = reader.GetString(6)
                seat.ArrivalLocation = reader.GetString(7)
                seat.DepartureTime = reader.GetDateTime(8)
                seats.Add(seat)
```

```
            End While
```

```
        End Using
```

```
    End Using
```

```
End Using
```

```
Return seats
```

```
End Function
```

```
Private Sub FormatTicket(ByVal seat As Seat)
```

```
    Dim seatTicket As New Panel()
    seatTicket.CssClass = "ticket"
```

```
    Dim seatNumber As New Label()
    seatNumber.Text = "<span>Seat Number: " & seat.SeatId.ToString() & "</span>"
```

```

seatTicket.Controls.Add(seatNumber)

Dim passengerEmail As New Label()
passengerEmail.Text = "<span>Passenger Email: " & seat.PassengerEmail & "</span>"
seatTicket.Controls.Add(passengerEmail)

Dim bookingTime As New Label()
bookingTime.Text = "<span>Booking Time: " & seat.BookingTime.ToString() &
"</span>"
seatTicket.Controls.Add(bookingTime)

Dim busNumber As New Label()
busNumber.Text = "<span>Bus Number: " & seat.BusNumber & "</span>"
seatTicket.Controls.Add(busNumber)

Dim seatPrice As New Label()
seatPrice.Text = "<span>Seat Price: " & seat.SeatPrice.ToString() & "</span>"
seatTicket.Controls.Add(seatPrice)

Dim departureLocation As New Label()
departureLocation.Text = "<span>Departure Location: " & seat.DepartureLocation &
"</span>"
seatTicket.Controls.Add(departureLocation)

Dim arrivalLocation As New Label()
arrivalLocation.Text = "<span>Arrival Location: " & seat.ArrivalLocation &
"</span>"
seatTicket.Controls.Add(arrivalLocation)

Dim departureTime As New Label()
departureTime.Text = "<span>Departure Time: " & seat.DepartureTime.ToString() &
"</span>"
seatTicket.Controls.Add(departureTime)

Dim cancelBookingLink As New HtmlAnchor()
cancelBookingLink.InnerText = "Cancel Booking"
cancelBookingLink.HRef = "cancel_booking.aspx?bus_id=" & seat.BusId & "&" &
"seat_no=" & seat.SeatId
cancelBookingLink.Attributes("class") = "cancel-booking-link"
seatTicket.Controls.Add(cancelBookingLink)

Dim ticketsContainer As Control = form1.FindControl("ticketsContainer")
ticketsContainer.Controls.Add(seatTicket)

ticketsContainer.Controls.Add(New LiteralControl("<hr />"))
End Sub

End Class

```

Login_page.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="login_page.aspx.vb"
Inherits="login" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">

```

```

<head runat="server">
  <title>Login</title>
  <link href="Styles/login.css" rel="stylesheet" />
</head>
<body>
  <h2>Bus Ticket Booking App</h2>
  <div class="login-container">
    <h2>Login</h2>
    <form id="form" runat="server">
      <asp:TextBox ID="txtEmail" runat="server" placeholder="Enter Your email address"
Required="true" />
      <asp:TextBox ID="txtPassword" runat="server" TextMode="Password"
placeholder="Enter your password" Required="true" />
      <asp:Button ID="cmdSubmit" runat="server" Text="Login" CssClass="submit-button"
/>
      <asp:Label ID="lblErrorMessage" runat="server" CssClass="error-message"
Visible="False"></asp:Label>
    </form>
    <div class="register-link">
      <p>New here? <a href="registration_page.aspx">Create Account</a></p>
    </div>
  </div>
</body>
</html>

```

Login_page.aspx.vb:

```

Imports System.Data.SqlClient
Imports System.Security.Cryptography
Partial Class login
  Inherits System.Web.UI.Page

  Private Sub cmdSubmit_Click(sender As Object, e As EventArgs) Handles cmdSubmit.Click

    Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

    If ValidateInputs() Then

      Dim email As String = txtEmail.Text.Trim()
      Dim password As String = txtPassword.Text.Trim()

      Dim query As String = "SELECT Name, Email, Password, User_Type FROM App_User
WHERE Email = @Email"
      Try

        Using connection As New SqlConnection(connectionString)
          connection.Open()
          Using command As New SqlCommand(query, connection)
            command.Parameters.AddWithValue("@Email", email)

            Dim reader As SqlDataReader = command.ExecuteReader()

            If reader.HasRows Then
              reader.Read()
              Dim name As String = reader("Name").ToString()
              Dim storedEmail As String = reader("Email").ToString()

```

```

        Dim storedPassword As String = reader("Password").ToString()
        Dim userType As String = reader("User_Type").ToString()

        Dim hashedPassword As String = HashPassword(password)
        If storedPassword = hashedPassword Then
            If userType = "admin" Then
                Session("adminLoggedIn") = True
                Response.Redirect("admin_funcs/admin_page.aspx")
            ElseIf userType = "passenger" Then
                Session("passengerLoggedIn") = True
                Session("passengerEmail") = storedEmail
                Session("passengerName") = name
                Response.Redirect("User_func/book_seat.aspx")
            End If
        Else
            lblErrorMessage.Text = "Invalid username or password"
            lblErrorMessage.Visible = True
        End If
    Else
        lblErrorMessage.Text = "Invalid username or password"
        lblErrorMessage.Visible = True
    End If
    reader.Close()
End Using
End Using

Catch ex As Exception
    lblErrorMessage.Text = "Connection error please try again."
    lblErrorMessage.Visible = True
End Try
End If

End Sub

Protected Function ValidateInputs() As Boolean

    Dim emailRegex As String = "\b[A-Za-z0-9._%+-]+@[A-Za-z0-9.-]+\.[A-Z|a-z]{2,}\b"
    If Not System.Text.RegularExpressions.Regex.IsMatch(txtEmail.Text.Trim(),
emailRegex) Then
        lblErrorMessage.Text = "Please enter a valid email address."
        lblErrorMessage.Visible = True
        Return False
    End If

    If String.IsNullOrEmpty(txtPassword.Text.Trim()) Then
        lblErrorMessage.Text = "Please enter your password."
        lblErrorMessage.Visible = True
        Return False
    End If

    Return True
End Function

Public Function HashPassword(password As String) As String
    Using sha256 As SHA256 = sha256.Create()
        Dim bytes As Byte() = Encoding.UTF8.GetBytes(password)
        Dim hash As Byte() = sha256.ComputeHash(bytes)
    End Using
End Function

```

```

        Dim builder As New StringBuilder()
        For Each b As Byte In hash
            builder.Append(b.ToString("x2"))
        Next
        Return builder.ToString()
    End Using
End Function

```

End Class

Registration_page.aspx:

```

<%@ Page Language="VB" AutoEventWireup="false" CodeFile="registration_page.aspx.vb"
Inherits="registration_page" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>Student Registration</title>
    <link href="Styles/registration_page.css" rel="stylesheet" />
</head>
<body>
    <form id="form1" runat="server">
        <div class="registration-container">
            <h2>User Registration</h2>
            <div class="form-group">
                <label for="txtFullName">Full Name:</label>
                <asp:TextBox ID="txtFullName" runat="server" placeholder="FirstName
LastName" />
            </div>
            <div class="form-group">
                <label for="txtEmail">Email Address:</label>
                <asp:TextBox ID="txtEmail" runat="server" type="email"
placeholder="someone@something.com" />
            </div>
            <div class="form-group">
                <label for="txtPassword">Password:</label>
                <asp:TextBox ID="txtPassword" runat="server" type="password"
placeholder="Enter your password" />
            </div>
            <div class="form-group">
                <label for="txtConfirmPassword">Confirm Password:</label>
                <asp:TextBox ID="txtConfirmPassword" runat="server" type="password"
placeholder="Confirm your password" />
            </div>
            <asp:Button ID="btnRegister" runat="server" Text="Register" CssClass="submit-
button" />
            <asp:Label ID="lblErrorMessage" runat="server" CssClass="error-message"
Visible="False"></asp:Label>
        </div>
    </form>
</body>
</html>

```

Registration_page.aspx.vb:

```
Imports System.Data.SqlClient
Imports System.Security.Cryptography
Partial Class registration_page
    Inherits System.Web.UI.Page

    Private Sub btnRegister_Click(sender As Object, e As EventArgs) Handles
btnRegister.Click
        Dim connectionString As String =
ConfigurationManager.ConnectionStrings("conn_string").ConnectionString

        If ValidateInputs() Then
            Try
                Dim emailExists As Boolean = False
                Using connection As New SqlConnection(connectionString)
                    connection.Open()
                    Dim query As String = "SELECT COUNT(*) FROM App_User WHERE Email =
@Email"

                    Using command As New SqlCommand(query, connection)
                        command.Parameters.AddWithValue("@Email", txtEmail.Text)
                        Dim count As Integer = Convert.ToInt32(command.ExecuteScalar())
                        emailExists = (count > 0)
                    End Using
                End Using

                If emailExists Then
                    lblErrorMessage.Text = "The email you entered is already present. Try
another"

                    lblErrorMessage.Visible = True
                Else

                    Using Connection As New SqlConnection(connectionString)
                        Connection.Open()

                        Dim query As String = "INSERT INTO App_User (Name, Email,
Password, User_type)" &
"VALUES (@Name, @Email, @Password, @User_type)"

                        Dim hashedPassword As String = HashPassword(txtPassword.Text)

                        Using command As New SqlCommand(query, Connection)
                            command.Parameters.AddWithValue("@Name", txtFullName.Text)
                            command.Parameters.AddWithValue("@Email", txtEmail.Text)
                            command.Parameters.AddWithValue("@Password", hashedPassword)
                            command.Parameters.AddWithValue("@User_type", "passenger")

                            command.ExecuteNonQuery()

                            lblErrorMessage.Visible = False
                            Session("passengerLoggedIn") = True
                            Session("passengerEmail") = txtEmail.Text
                            Session("passengerName") = txtFullName.Text
                            Response.Redirect("User_func/book_seat.aspx")
                        End Using
                    End Using
                End Using
            End Using
        End Using
    End Sub
End Class
```

```

        End If

        Catch ex As Exception
            lblErrorMessage.Text = "An error occurred while connecting to the
database."
            lblErrorMessage.Visible = True
        End Try
    End If

End Sub

Protected Function ValidateInputs() As Boolean
    If String.IsNullOrEmpty(txtFullName.Text.Trim()) Then
        lblErrorMessage.Text = "Please Enter Full Name"
        lblErrorMessage.Visible = True
        Return False
    End If

    Dim emailRegex As String = "\b[A-Za-z0-9._%+-]+@[A-Za-z0-9.-]+\.[A-Z|a-z]{2,}\b"
    If Not System.Text.RegularExpressions.Regex.IsMatch(txtEmail.Text.Trim(),
emailRegex) Then
        lblErrorMessage.Text = "Please enter a valid email address."
        lblErrorMessage.Visible = True
        Return False
    End If

    If String.IsNullOrEmpty(txtPassword.Text.Trim()) Then
        lblErrorMessage.Text = "Please enter your password."
        lblErrorMessage.Visible = True
        Return False
    End If

    If String.IsNullOrEmpty(txtConfirmPassword.Text.Trim()) Then
        lblErrorMessage.Text = "Please confirm your password."
        lblErrorMessage.Visible = True
        Return False
    End If

    If txtPassword.Text.Trim() <> txtConfirmPassword.Text.Trim() Then
        lblErrorMessage.Text = "Passwords do not match."
        lblErrorMessage.Visible = True
        Return False
    End If

    Return True
End Function

Public Function HashPassword(password As String) As String
    Using sha256 As SHA256 = sha256.Create()
        Dim bytes As Byte() = Encoding.UTF8.GetBytes(password)
        Dim hash As Byte() = sha256.ComputeHash(bytes)
        Dim builder As New StringBuilder()
        For Each b As Byte In hash
            builder.Append(b.ToString("x2"))
        Next
        Return builder.ToString()
    End Using

```

End Function

End Class