**Scenario**

I want to develop a C# software for a airline ticket booking. first the admin should be able to login and if the username and password is correct he will be redirected to the dashboard which contains of 4 buttons named search flights, View my booking, My profile and logout. if we click the search button it will redirect to a search flight form which consists of flight number, departure airport, arrival airport, departure date and number of passengers with a search button. the flight number, departure airport and arrival airport is a combo box, when we click the drop down it should display the flight number the relevant field data from the database. after we click the search button it will redirect to the confirmation form with displaying the selected options from the search form to reconfirm from the passenger and the passenger has the privilege to select the relevant seat and tick the relevant checkboxes. This form also allows the passenger to select the food type as veg or no veg and after clicking the select button it will redirect to the booking form and we should input the name, passport number, age, gender and click submit then the system will redirect to a booking confirmation form and output the flight number, departure date, departure airport, arrival airport, food type and total price to a data grid and after we click the print button the system will output the ticket as a crystal report for the relevant passenger ticket. please give me the database tables and attributes to the above scenario to create using Microsoft sql server management studio and the relevant codes to develop in C#.

**Database Design**

First, let's design the database tables in Microsoft SQL Server Management Studio (SSMS).

**1. Admin Table**

CREATE TABLE Admin (

AdminID INT PRIMARY KEY IDENTITY(1,1),

Username NVARCHAR(50) NOT NULL,

Password NVARCHAR(50) NOT NULL

);

**2. Flight Table**

CREATE TABLE Flight (

FlightID INT PRIMARY KEY IDENTITY(1,1),

FlightNumber NVARCHAR(10) NOT NULL,

DepartureAirport NVARCHAR(50) NOT NULL,

ArrivalAirport NVARCHAR(50) NOT NULL,

DepartureDate DATETIME NOT NULL

);

**3. Booking Table**

CREATE TABLE Booking (

BookingID INT PRIMARY KEY IDENTITY(1,1),

FlightID INT FOREIGN KEY REFERENCES Flight(FlightID),

PassengerName NVARCHAR(50) NOT NULL,

PassportNumber NVARCHAR(20) NOT NULL,

Age INT NOT NULL,

Gender NVARCHAR(10) NOT NULL,

FoodType NVARCHAR(10) NOT NULL,

SeatNumber NVARCHAR(5) NOT NULL,

TotalPrice DECIMAL(10, 2) NOT NULL,

BookingDate DATETIME NOT NULL

);

**C# Code for Frontend**

**2. Dashboard Form**

Create a form named Dashboard with buttons: Search Flights, View My Booking, My Profile, Logout.

csharp

Copy code

private void btnSearchFlights\_Click(object sender, EventArgs e)

{

SearchFlightForm searchFlightForm = new SearchFlightForm();

searchFlightForm.Show();

this.Hide();

}

**3. Search Flight Form**

Create a form named SearchFlightForm.

csharp

Copy code

private void SearchFlightForm\_Load(object sender, EventArgs e)

{

using (SqlConnection con = new SqlConnection("your\_connection\_string"))

{

string query = "SELECT FlightNumber FROM Flight";

SqlCommand cmd = new SqlCommand(query, con);

con.Open();

SqlDataReader reader = cmd.ExecuteReader();

while (reader.Read())

{

cmbFlightNumber.Items.Add(reader["FlightNumber"].ToString());

}

}

}

private void btnSearch\_Click(object sender, EventArgs e)

{

// Gather data and redirect to confirmation form

string flightNumber = cmbFlightNumber.SelectedItem.ToString();

string departureAirport = txtDepartureAirport.Text;

string arrivalAirport = txtArrivalAirport.Text;

DateTime departureDate = dtpDepartureDate.Value;

int numberOfPassengers = Convert.ToInt32(txtNumberOfPassengers.Text);

ConfirmationForm confirmationForm = new ConfirmationForm(flightNumber, departureAirport, arrivalAirport, departureDate, numberOfPassengers);

confirmationForm.Show();

this.Hide();

}

**4. Confirmation Form**

Create a form named ConfirmationForm.

csharp

Copy code

public partial class ConfirmationForm : Form

{

private string flightNumber;

private string departureAirport;

private string arrivalAirport;

private DateTime departureDate;

private int numberOfPassengers;

public ConfirmationForm(string flightNumber, string departureAirport, string arrivalAirport, DateTime departureDate, int numberOfPassengers)

{

InitializeComponent();

this.flightNumber = flightNumber;

this.departureAirport = departureAirport;

this.arrivalAirport = arrivalAirport;

this.departureDate = departureDate;

this.numberOfPassengers = numberOfPassengers;

// Display the values in the form

lblFlightNumber.Text = flightNumber;

lblDepartureAirport.Text = departureAirport;

lblArrivalAirport.Text = arrivalAirport;

lblDepartureDate.Text = departureDate.ToString();

lblNumberOfPassengers.Text = numberOfPassengers.ToString();

}

private void btnSelect\_Click(object sender, EventArgs e)

{

// Redirect to booking form

BookingForm bookingForm = new BookingForm(flightNumber, departureAirport, arrivalAirport, departureDate, numberOfPassengers);

bookingForm.Show();

this.Hide();

}

}

**5. Booking Form**

Create a form named BookingForm.

csharp

Copy code

public partial class BookingForm : Form

{

private string flightNumber;

private string departureAirport;

private string arrivalAirport;

private DateTime departureDate;

private int numberOfPassengers;

public BookingForm(string flightNumber, string departureAirport, string arrivalAirport, DateTime departureDate, int numberOfPassengers)

{

InitializeComponent();

this.flightNumber = flightNumber;

this.departureAirport = departureAirport;

this.arrivalAirport = arrivalAirport;

this.departureDate = departureDate;

this.numberOfPassengers = numberOfPassengers;

}

private void btnSubmit\_Click(object sender, EventArgs e)

{

string passengerName = txtPassengerName.Text;

string passportNumber = txtPassportNumber.Text;

int age = Convert.ToInt32(txtAge.Text);

string gender = cmbGender.SelectedItem.ToString();

string foodType = cmbFoodType.SelectedItem.ToString();

string seatNumber = txtSeatNumber.Text;

decimal totalPrice = CalculateTotalPrice();

using (SqlConnection con = new SqlConnection("your\_connection\_string"))

{

string query = "INSERT INTO Booking (FlightID, PassengerName, PassportNumber, Age, Gender, FoodType, SeatNumber, TotalPrice, BookingDate) VALUES ((SELECT FlightID FROM Flight WHERE FlightNumber=@FlightNumber), @PassengerName, @PassportNumber, @Age, @Gender, @FoodType, @SeatNumber, @TotalPrice, @BookingDate)";

SqlCommand cmd = new SqlCommand(query, con);

cmd.Parameters.AddWithValue("@FlightNumber", flightNumber);

cmd.Parameters.AddWithValue("@PassengerName", passengerName);

cmd.Parameters.AddWithValue("@PassportNumber", passportNumber);

cmd.Parameters.AddWithValue("@Age", age);

cmd.Parameters.AddWithValue("@Gender", gender);

cmd.Parameters.AddWithValue("@FoodType", foodType);

cmd.Parameters.AddWithValue("@SeatNumber", seatNumber);

cmd.Parameters.AddWithValue("@TotalPrice", totalPrice);

cmd.Parameters.AddWithValue("@BookingDate", DateTime.Now);

con.Open();

cmd.ExecuteNonQuery();

}

BookingConfirmationForm bookingConfirmationForm = new BookingConfirmationForm(flightNumber, departureDate, departureAirport, arrivalAirport, foodType, totalPrice);

bookingConfirmationForm.Show();

this.Hide();

}

private decimal CalculateTotalPrice()

{

// Implement your logic to calculate total price

return 100.00m; // Example static price

}

}

**6. Booking Confirmation Form**

Create a form named BookingConfirmationForm.

csharp

Copy code

public partial class BookingConfirmationForm : Form

{

private string flightNumber;

private DateTime departureDate;

private string departureAirport;

private string arrivalAirport;

private string foodType;

private decimal totalPrice;

public BookingConfirmationForm(string flightNumber, DateTime departureDate, string departureAirport, string arrivalAirport, string foodType, decimal totalPrice)

{

InitializeComponent();

this.flightNumber = flightNumber;

this.departureDate = departureDate;

this.departureAirport = departureAirport;

this.arrivalAirport = arrivalAirport;

this.foodType = foodType;

this.totalPrice = totalPrice;

// Display the values in the form

lblFlightNumber.Text = flightNumber;

lblDepartureDate.Text = departureDate.ToString();

lblDepartureAirport.Text = departureAirport;

lblArrivalAirport.Text = arrivalAirport;

lblFoodType.Text = foodType;

lblTotalPrice.Text = totalPrice.ToString();

}

private void btnPrint\_Click(object sender, EventArgs e)

{

// Implement logic to generate and print the Crystal Report for the ticket

}

}