**Flight Reservation System Report**

**Introduction**:

The Flight Reservation System is a software application designed to facilitate the booking and management of flights. It allows users to search for available flights, make reservations, view existing reservations, and cancel reservations. The system is designed to provide a user-friendly interface for passengers to interact with.

**Classes**:

**1. Flight:**

- Represents a flight with attributes such as flight number, origin, destination, departure date, ticket price, and seat availability.

- Provides methods to check seat availability, book seats, get available seats, write flight information to a file, and parse flight information from a string.

- Contains lists for different seat classes (economy, business, and first class) and reservations made for the flight.

**2. Passenger:**

- Represents a passenger with attributes like name, email, phone number, and special requests.

- Provides methods to access passenger information.

3. Reservation:

- Represents a reservation made by a passenger for a flight.

- Contains information about the passenger, flight, seat class, seat number, and whether the reservation is canceled.

- Provides methods to cancel the reservation and calculate the refund amount.

4. User:

- Represents a user of the system with a username and password.

- Provides methods to access user information.

Functionality:

1. Login:

- Users can log in to the system using their username and password. If the credentials are valid, they are granted access to the system.

2. Search Flights:

- Users can search for available flights. The system displays the flight number, origin, destination, and departure date of each available flight.

3. Make Reservation:

- Users can make reservations for available flights by providing passenger details (name, email, phone number, special requests) and selecting a seat class and seat number.

- The system checks seat availability, allows the user to choose from available seats, and confirms the reservation if the seat is successfully booked.

4. Display Reservations:

- Users can view their reservations along with details such as flight information, passenger name, seat class, seat number, ticket price, refunded amount (if applicable), and reservation status (cancelled or not).

**5. Cancel Reservation:**

- Users can cancel their reservations by providing their name. The system cancels the reservation, adds the seat back to the available seats for that flight, and updates the reservation status as cancelled.

**Data Management:**

**- Flights Data:**

- Flight information is stored in a CSV file named "flights.csv". This file contains details like flight number, origin, destination, departure date, available seats for each class, and ticket price.

- Flights are loaded from and saved to this file using methods defined in the Flight class.

**- User Authentication:**

- User credentials (username and password) are stored in a CSV file named "users.csv".

- The system verifies user credentials during login by reading from this file.

**Conclusion**:

The Flight Reservation System provides a convenient platform for users to search for flights, make reservations, manage bookings, and cancel reservations. It offers an intuitive interface and efficient data management to ensure a seamless experience for passengers booking their travel tickets.

This system simplifies the flight reservation process, making it accessible and user-friendly for individuals looking to book their flights.