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Database Design for

Airline Reservation System

Airline Reservation system

The **Airline Reservation System (ARS)** is a comprehensive software solution designed to manage and streamline the booking and management of airline flights. It enables users to search for available flights, select the preferred class (economy or business), book tickets, and make secure payments online. The system also allows users to manage bookings, including cancellations and rescheduling, while storing passenger details, flight schedules, and payment information securely in a database.

The **main objective** of the ARS is to automate the entire process of booking flights, enhancing the user experience by providing a seamless and efficient way to reserve seats, check flight availability, and handle payments. The system benefits both the passengers and the airlines by reducing manual tasks, minimizing errors, and increasing operational efficiency. Furthermore, it ensures data accuracy by maintaining detailed records of all transactions, flights, passengers, and payments, thus making it easier to track bookings, manage customer data, and optimize resource allocation for flights. By providing an online platform, ARS improves convenience for users, allowing them to book flights from anywhere at any time, without the need to visit physical ticket counters.

Designing a database for Airline Reservation System includes different entities, attributes along with their relationships.

**Entities:**

* Users
* Tickets
* Flights
* Airlines
* Class
* Payments

**Entity-Relationships:**

1. User and Ticket: A user can book multiple tickets, indicating a one-to-many relationship. This means that a single user can book multiple flights, but each ticket is associated with only one user.
2. Ticket and payment: This is a one- to-one relationship, where each ticket corresponds to a single payment transaction, and each payment is linked to single ticket.
3. User and Flight: This is one-to-many relationship, where each user can check for different flights.
4. Airline and Flight: The relationship between Airline and Flight is one-to-many. Each airline can have multiple flights associated with it, but each flight belongs to only one airline.
5. Class and Flight: The class entity has a many-to-one relationship with the flight entity.

Attributes are the fields of entities that refer to the characteristics or properties of entities within the database.

**1.Users**

* User\_id
* Username
* DOB
* Mobile
* Gender
* Address

**2.Flights**

* Flight\_id
* Source
* Destination
* Departure\_time
* Arrival\_timeseat\_available
* Class\_id
* Airline\_id

**3. Tickets**

* Ticket\_id
* Pnr\_no
* Flight\_id
* Passenger\_name
* Date\_time
* Class\_id
* Transaction\_id

**4. Payments**

* Payment\_id
* Transcation\_id
* Amount
* Payment\_mode

**5. Airlines**

* Airline\_id
* Airline\_name
* Contact\_no

**6. Class**

* Class\_id
* Class\_type
* fare

**Entity Relationship Diagram- Airline Reservation System**

User

receive

has

book

Cancel

Checks for

Ticket

Flight

Class

Belong to

Payment

Airline

