

PROJECT BASED LEARNING RECORD

On

UCS4001

DATABASE MANAGEMENT SYSTEM



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Airline Ticket Booking System ER Diagram - Detailed Explanation

1. System Overview

This ER diagram represents an Airline Ticket Booking System where users search flights, book tickets, make payments, and travel through flights operated by airlines.

2. Entities

- User – Stores passenger information (Username, Name, DOB, Age, Mob_no, Gender, Address).
- Flight – Stores flight details (Flight_no, Flight_name, Source, Destination, Dep_time, Arr_time, Distance, Seat_avl).
- Airline – Represents airline company operating flights.
- Class – Represents seating categories like Business and Economy.
- Ticket – Represents booking details with PNR number.
- Payment – Stores transaction details.

3. Attribute Types

- Simple Attribute: Gender
- Composite Attribute: Name (F_Name, L_Name), Address (City, State, Pin_code)
- Derived Attribute: Age (derived from DOB)
- Multivalued Attribute: Mob_no
- Key Attributes: Username, Flight_no, Pnr_no, Transaction_id

4. Relationships

- User checks Flights (Check For) – One user can check many flights.
- Flight has Class – One flight has multiple classes.
- Flight belongs to Airline – Many flights belong to one airline.
- User books Ticket – One user can book multiple tickets.
- User cancels Ticket – One user can cancel multiple tickets.
- Ticket receives Payment – One ticket has one payment.

5. Cardinality

- User to Flight: 1 : M
- Flight to Class: 1 : M
- Flight to Airline: M : 1
- User to Ticket: 1 : M
- Ticket to Payment: 1 : 1

6. Strong and Weak Entities

- Strong Entities: User, Flight, Airline, Class, Ticket, Payment
- No weak entity is present in this diagram.

7. Specialization

Class entity is specialized into Business and Economy using disjoint specialization, meaning a seat belongs to only one class.

8. Participation

All relationships show partial participation, meaning entities can exist without mandatory participation in relationships.

9. System Flow

- User registers and logs in.
- User searches available flights.
- Flight belongs to an airline.
- Flight contains Business/Economy classes.
- User books ticket and receives PNR.
- Payment is made for the ticket.
- User may cancel the ticket.