



CMPE353/CMSE354

Database Management Systems

Labs 2-6

Design of a Simplified Airline Ticket Reservation System

Fall 2023 Semester

Task: You are asked to design a relational database according to the given schema diagram below using Oracle Live SQL software. The task has several subtasks and each of them is described below. Each task will be carried out during weekly lab hours (Labs 2-6). Therefore, each subtask must be completed weekly in accordance with the set lab dates (see dates below).

Problem: The aim is to develop a simple database scheme that represents an example of a used dataset in an Airline Ticket Reservation System.

The schema diagram below is designed to keep the data of an airline company. The data includes the fleets' information, routes, flight schedules, passengers, and reserved tickets.

In an airline ticket reservation system, an airline provides flights in specified routes according to the market need and available fleets. Passengers according to their schedule and the offered flights by the airline reserve their tickets. At the time of ticket reservation companies usually ask for more personal information which is used later for sending advertisements or announcements. In this system,

1. There are 6 tables in total. "aircraft", "flight_schedule", "transaction", "route", "passenger", and "contact_details".
2. Each airplane has a unique ID and their information including their type, their capacity, and their manufacture year are saved in a table named "aircraft".
3. Available routes including the departure and arrival points are saved in the "route" table with a unique ID. Departure and arrival points are the abbreviation of the airport name.
4. The information of customers regardless of reserving a ticket or not is saved in the "contact_details" table. Information includes a unique ID for each person, name, age, nationality, email, and phone number.
5. A list of scheduled flights by the airline is saved in the flight_schedule table. Each entry in this table includes a unique ID for each flight, the ID of the aircraft assigned to that route, the ID of the route, date, and departure and arrival airports.
6. Each passenger is saved in the "passenger" table with a unique ID and the customer ID from the "contact_details" table.
7. Information on the reserved tickets is saved in the "transaction" table. Each transaction has a unique ID. Other information includes flight ID, passenger ID, and reservation date.
8. Each passenger can have many reservations. However, each reservation is assigned to a single passenger.
9. Each aircraft can be used in many scheduled flights. However, each flight is performed by a specific aircraft.
10. There can be many transactions for a specific scheduled flight.
11. Each entry of the "contact_details" table goes to many entries of the "passenger" table.
12. Each scheduled flight has a specific route, however, the reverse is not correct.