Programming Project #1
CS-6360 Database Design

Airline Reservation System – SQL Application with GUI

This programming project involves developing a Airline Reservation System for use by travel professionals (i.e. not passengers). It should be a Java-based GUI application that interfaces with a backend MySQL database to manage its data[1]. Your GUI may be either a native application or browser-based (e.g JSP, ASP).

Your database schema should be based on Figure 3.8 (page 82) in your textbook. A description of the high-level functionality can be found in Exercise 3.12 (page 81). An ER diagram can be found in Figure 7.20 (page 236), which provides a conceptual model.

You must provide a GUI interface of your own design to implement the required Use Cases. You do not have to provide a GUI interface for importing bulk data sets. You may assume that this task can be done by a DBA via the command line. You will be provided with a data set for grading.

Use Cases

- Display the flight numbers and weekdays of all flights
  - Given a Departure Airport Code and Arrival Airport Code
  - If no direct flight exists, determine multiple connecting flights which have compatible scheduled departure and arrival times and weekdays.
- ~~Display information for all legs~~
  - ~~Given a flight number~~
- Display the number of available seats on a particular flight instance
  - Given a flight number and Date
- Display all Fare information
  - Given a flight number
- User shall be able to query a passenger[2] manifest
  - Display list of passengers on a given flight instance
  - Display a list of flight instances for a particular passenger name

Note: Requirements may be[3] added or modified before the due date.

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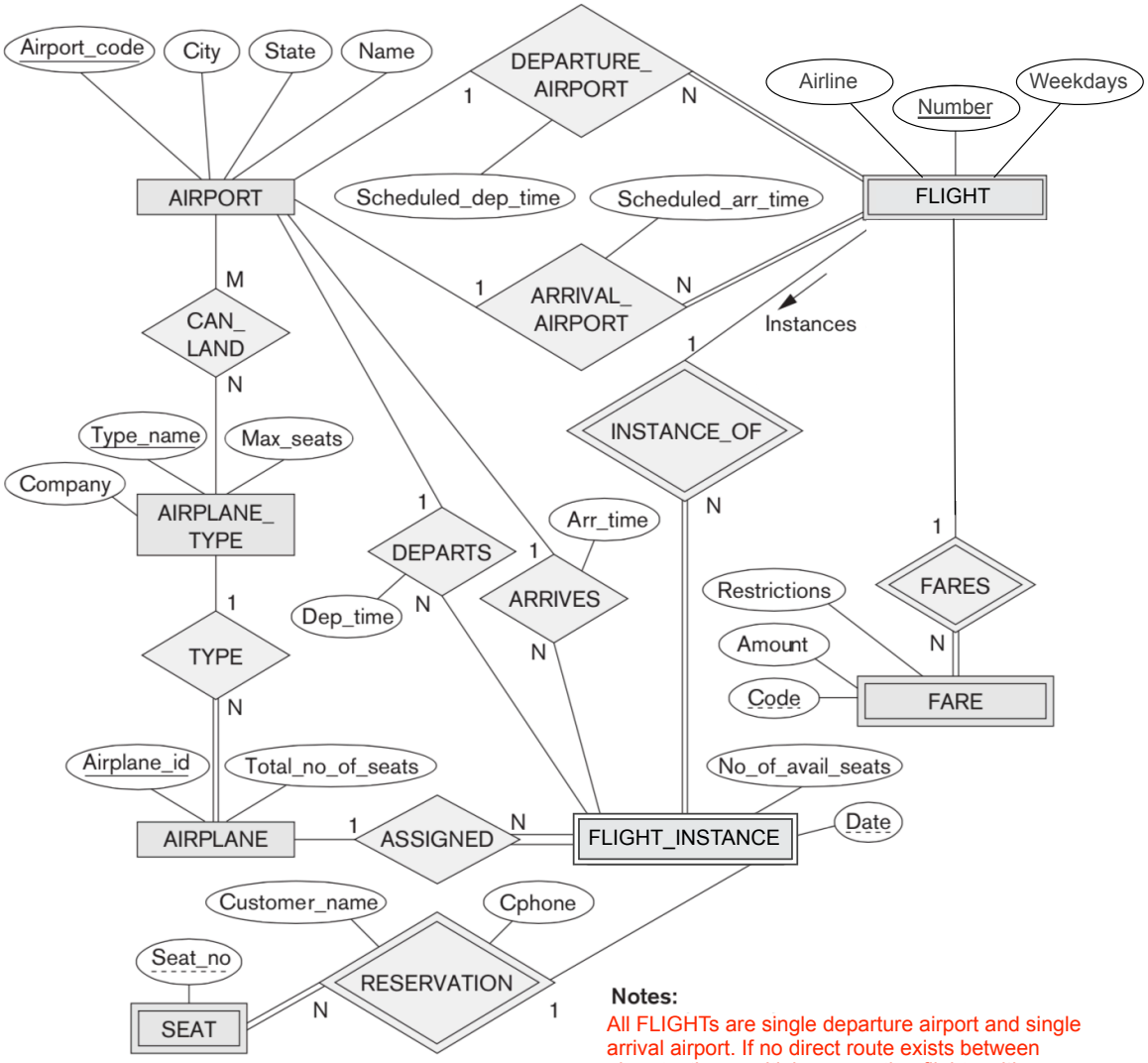
[1] You may also use C# for your application language and/or MS SQL Server for your back end database.

[2] "Passenger" is the same as Customer

[3] *will be* ☺

Figure 7.20 Modified
An ER diagram for an AIRLINE database



Notes:
All FLIGHTs are single departure airport and single arrival airport. If no direct route exists between airports, then multiple connecting flights *with compatible scheduled times* must be combined.

FLIGHT_INSTANCE.Number_of_available_seats should be a derived attribute from AIRPLANE.Total_no_of_seats of a FLIGHT_INSTANCE minus the number (i.e. COUNT) of reserved seats on the same FLIGHT_INSTANCE.

AIRPORT

Airport_code	Name	City	State

FLIGHT

Flight_number	Airline	Weekdays	Departure_airport_code	Scheduled_departure_time
			Arrival_airport_code	Scheduled_arrival_time

FLIGHT_LEG

Flight_number	Leg_number	Departure_airport_code	Scheduled_departure_time
		Arrival_airport_code	Scheduled_arrival_time

REMOVED

FLIGHT_INSTANCE

Flight_number		Date	Number_of_available_seats	Airplane_id
		Departure_time	Arrival_time	

FARE

Flight_number	Fare_code	Amount	Restrictions

AIRPLANE_TYPE

Airplane_type_name	Max_seats	Company

CAN_LAND

Airplane_type_name	Airport_code

AIRPLANE

Airplane_id	Total_number_of_seats	Airplane_type

SEAT_RESERVATION

Flight_number	Date	Seat_number	Customer_name	Customer_phone

FLIGHT_LEG removed