

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 data¹. 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 passenger² manifest
 - Display list of passengers on a given flight instance
 - Display a list of flight instances for a particular passenger name

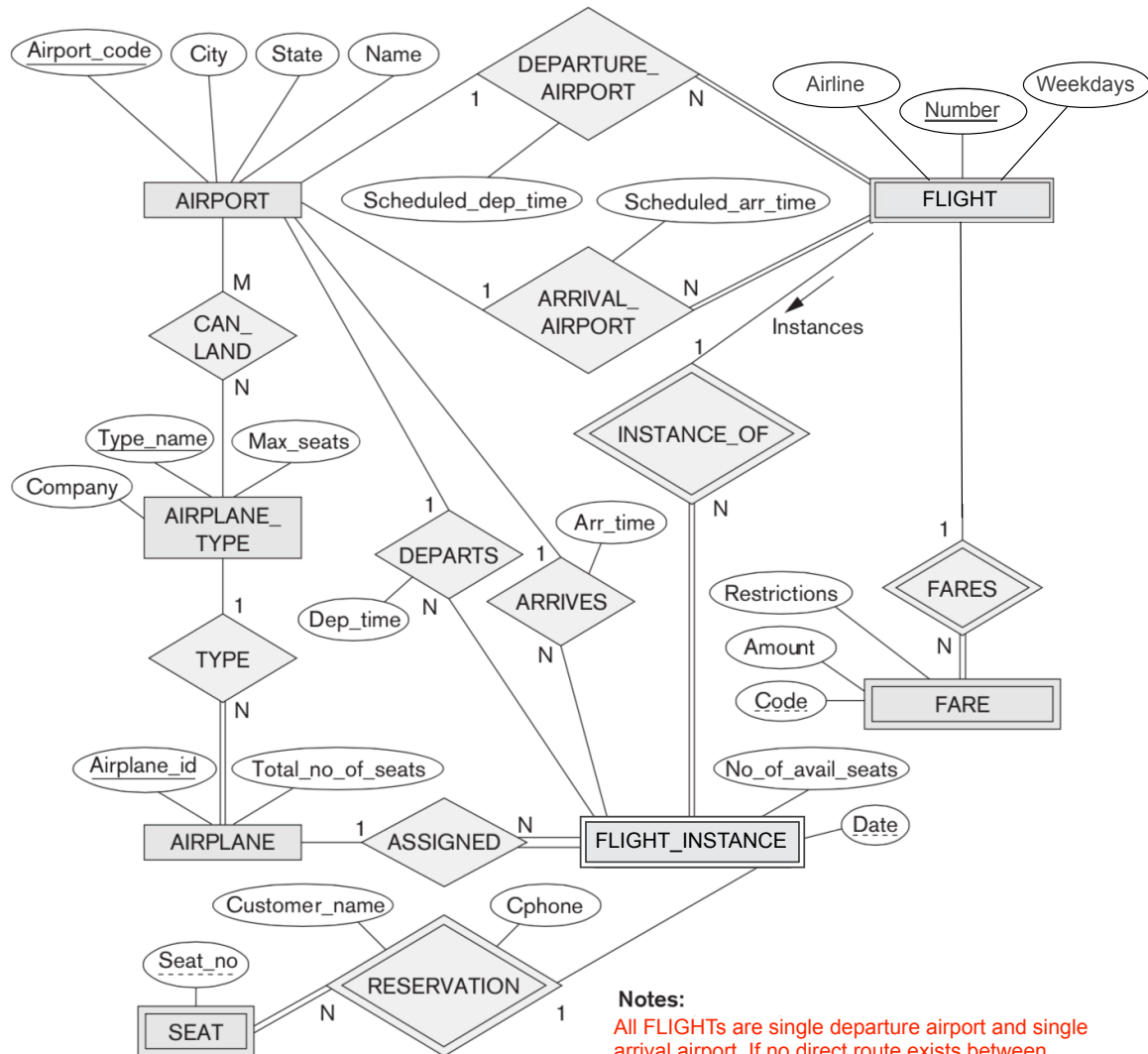
Note: Requirements may be³ added or modified before the due date.

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



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

AIRPORT

<u>Airport_code</u>	Name	City	State
---------------------	------	------	-------

FLIGHT

<u>Flight_number</u>	Airline	Weekdays	Departure_airport_code	Scheduled_departure_time
				Arrival_airport_code
				Scheduled_arrival_time

FLIGHT_LEG

<u>Flight_number</u>	<u>Leg_number</u>	Departure_airport_code	Scheduled_departure_time
		Arrival_airport_code	Scheduled_arrival_time

REMOVED

FLIGHT_INSTANCE

<u>Flight_number</u>		<u>Date</u>	Number_of_available_seats	Airplane_id
			Departure_time	Arrival_time

FARE

<u>Flight_number</u>	<u>Fare_code</u>	Amount	Restrictions
----------------------	------------------	--------	--------------

AIRPLANE_TYPE

<u>Airplane_type_name</u>	Max_seats	Company
---------------------------	-----------	---------

CAN_LAND

<u>Airplane_type_name</u>	<u>Airport_code</u>
---------------------------	---------------------

AIRPLANE

<u>Airplane_id</u>	Total_number_of_seats	Airplane_type
--------------------	-----------------------	---------------

SEAT_RESERVATION

<u>Flight_number</u>	<u>Date</u>	<u>Seat_number</u>	Customer_name	Customer_phone
----------------------	-------------	--------------------	---------------	----------------

FLIGHT_LEG removed