Question 1.

Simplified schema for an airline reservations system

The AIRPORT entity has attributes City, State, Name and a primary key of Airport_code, in which this describes where different AIRPLANE_TYPES can land. An AIRPLANE consists of a Total_no_of_seats and a key of Airplane_id, in which each one has an AIRPLANE_TYPE that CAN_LAND at many AIRPORTS. The AIRPLANE_TYPE entity has attributes of Max_seats and Company, then uses Type_name as a primary key to identify the entity.

An AIRPLANE must be assigned to however many LEG_INSTANCEs where the N_of_avail_seats and Date are known. The many LEG_INSTANCEs may DEPART or ARRIVE at an airport, whilst also marking the Dep_time or Arr_time. However, an individual must make a RESERVATION for however many seats are desired. Each RESERVATION has attributes Customer_name and Cphone. As well, SEATS are specified with a key of Seat_no.

A LEG_INSTANCE is an INSTANCE_OF a FLIGHT_LEG, that has a key of Leg_no. There may be many FLIGHT_LEGs that involve an ARRIVAL_AIRPORT with the Scheduled_arr_time, or DEPARTURE_AIRPORT with a Scheduled_dep_time from an AIRPORT. The weak entity of FLIGHT_LEG will have a certain amount of LEGS for every FLIGHT entity, with Airline and Weekdays attributes and a Number key.

Every one Flight gives out however many FARES, where a FARE entity consists of Restrictions and Amount attributes and a Code key.