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Homework 8

There are 8 entities: Airport, Airplane Type, Airplane, Seat, Leg Instance, Flight leg, Flight, Fare

The **Airport** entity has 4 attributes: Airport code (which is also a key attribute), City, State, Name.

The **Airplane\_ Type** entity has 3 attributes: Type name (which is also a key attribute), Company, Max seat.

The **Airplane** entity has 2 attributes: Airplane id (which is also a key attribute), Total no of seats.

The **Seat** entity is a weak entity that depends on the **Leg\_ Instance** weak entity for its existence via the **Reservation** relationship, which depends on the **Flight\_ Leg** weak entity for its existence via the **Instance** relationship, which depends on the **Airport** entity for its existence via the **Departure\_ Airport** and **Arrival\_ Airport** relationship. It has 1 attribute: Seat\_no (which is also a partial key attribute).

The **Leg Instance** entity is a weak entity that depends on the **Flight\_ Leg** weak entity for its existence via the **Instance** relationship, which depends on the **Airport** entity for its existence via the **Departure\_** **Airport** and **Arrival\_ Airport** relationship. It has 2 attributes: Date (which is also a partial key attribute), No\_ of\_ avail\_ seats.

The **Flight\_ Leg** entity is a weak entity that depends on the **Airport** entity for its existence via the **Departure\_ Airport** and **Arrival\_ Airport** relationships. It has 1 attribute: Leg no (which is also a partial key attribute)

The **Flight** entity is a weak entity that depends on the **Flight** entity via the **Fares** relationship. It has 3 attributes: Number (which is also a key attribute), Airline, Weekdays.

The **Fare** entity has 3 attributes: Code (which is also a partial key attribute), Amount, Restrictions.

There are 11 binary relationships identified in this ER diagram: Can Land, Type, Reservation, Assigned, Departs, Arrives, Departure Airport, Arrival Airport, Instance Of, Legs, Fares.

Can Land relationship between the Airport and Airplane Type entity: Some Airports can accept one or more airplane types. Some Airplane Type can land on one or more Airport.

Type relationship between the Airplane Type and the Airplane entity: Some Airplane Types have one or more type of airplane. Every Airplane must have one type of Airplane Type.

Reservation identifying relationship between the Seat and the Leg Instance entity: Every Seats are reserved for one Leg Instance. The Cphone of the reservation is tracked as an attribute of the Reservation relationship. Some Leg Instances have reservations for many seats. The Customer name of the reservation is tracked as an attribute of the Reservation relationship.

Assigned relationship between the Airplane and the Leg Instance entity: Some Airplanes are assigned to many Leg Instances. Every Leg Instances are assigned to one Airplane.

Departs relationship between the Airport and the Leg instance entity: Some Airports are associated with many Leg Instances. The Departure time of the departure is tracked as an attribute of the Depart relationship. Some Leg Instances departs from one Airport.

Arrives relationship between the Airport and the Leg Instance entity: Some Airports are associated with many Leg Instances. Some Leg Instances arrives to one airport. The Arrival time of the Arrival is tracked as an attribute of the Arrives relationship.

Departure Airport relationship between Airport and Flight Leg entity: Some Airports have departure Airport to many Flight Legs. Every Flight Leg must be associated with one Airport. The Scheduled departing time of the Departure Airport is tracked as an attribute of the Departure Airport.

Arrival Airport relationship between Airport and Flight Leg entity: Some Airports are associated to many Flight Legs. The scheduled arrival time of the Arrival Airport is tracked as an attribute of the Arrival Airport. Every Flight Leg must be associated with one Airport.

Instance of relationship between Flight Leg and Leg Instance entity: Some flight Legs must be associated with many leg Instances. Every Leg instances must be associated with one Flight Leg.

Legs identifying relationship between Flight leg and Flight entity: Every Flight leg must be associated with one Flight. Some flights have many Flight legs.

Fares identifying relationship between Flight and Fare entity: Some Flights are associated with many Fares. Every Fare is associated with one Flight.