Customer is a subtype passenger, but passenger doesn’t have to be the customer, So the passenger to customer is a partial completeness relation.

Members and the  booking agent are subtypes of the customer, but the customer can be neither a member or booking agent, so there is partial completeness constraint for the customer, member and booking agent table.

Customer will purchase the insurance for her/himself or for other passengers in the flight, we assume that a passenger can’t have multiple insurance plans, so the insurance plan is one to many relationship to the passenger. In addition, it is optional for the passenger, because not every passenger will get the insurance.

In the purchase table, purchaseID  is the primary key. A customer can have multiple purchaseIDs, since customers can buy insurance for many passengers. The purchase table has the plan purchased and coverage person name to keep the record, so it is easy to check who has purchased the ticket.

Then one or many purchases will generate an invoice for the customer. One invoice can have multiple payments, since the customer might split the payment with different cards, so there is one to many relationship between invoice and payment table. It also required that the payment date should be three days before the flight.

The passenger and the flight have many to many relationship, so we need an associate entity in between . The meal plan and cabin class will be included in the passenger\_flight entity to connect the passenger and flight entity.

There are two relationships from the flight table to the airport, one is for departure airport, another is for arrival airport. The airline and the flight have the relationship of one to many because every airline can have multiple flights, but one flight only belongs to one airline.

Airline and airplane model should have many-to-many relationship because one airline can have different models, and one model of airplane is usually owned by multiple airlines, so there is an airline\_model table to demonstrate the quantity of each airplane model in each airline.

The relationship between Passenger and SpeicialRequest is many-to-many. To solve this an associated entity is created.