Database Assignment 2

Database Design

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COMP20240: Rel DB & Info Sys

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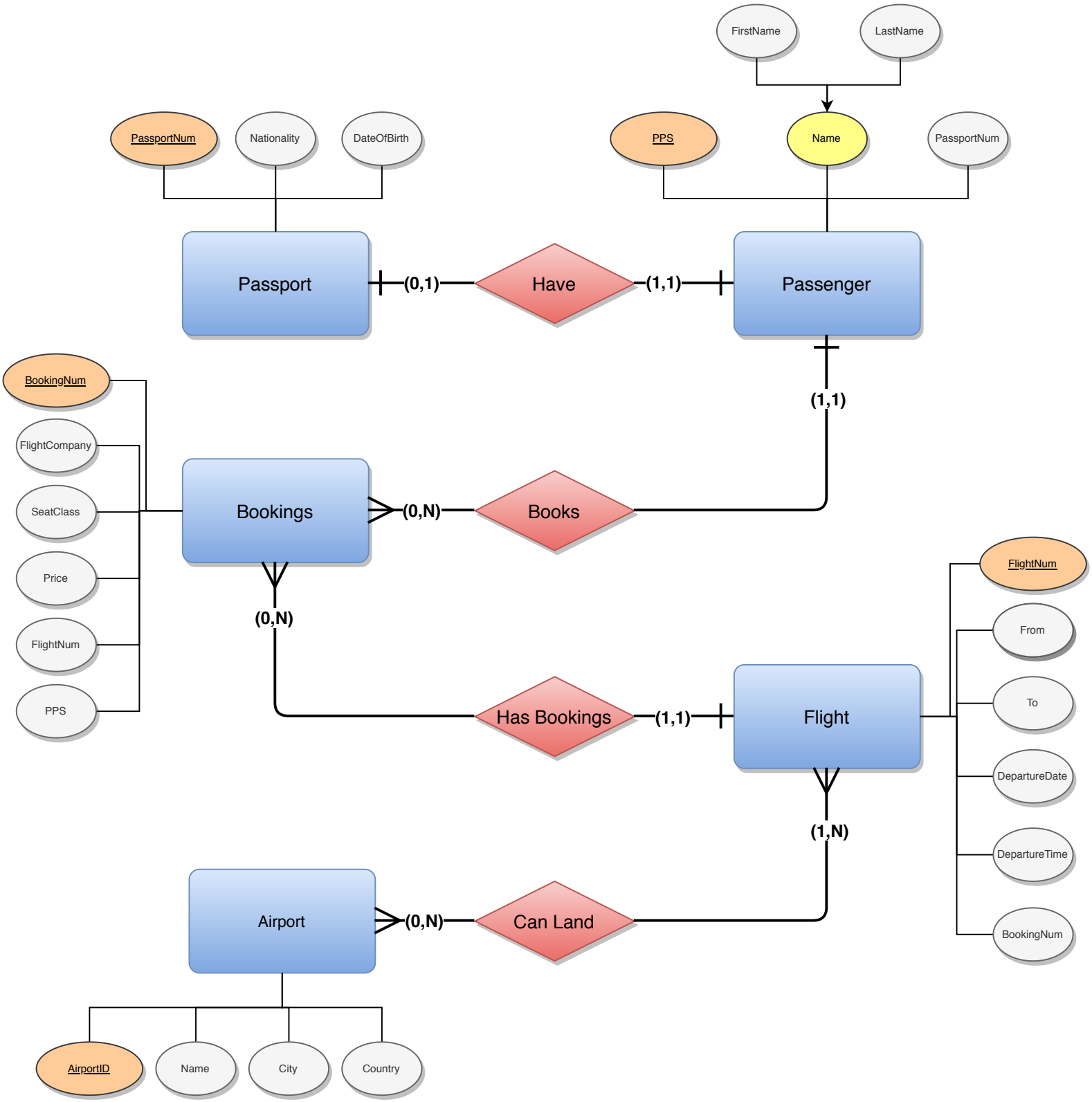
Task 1:

ER Diagram For Airport Management System



Task 2:

This is a database designed for an Airport Management System. It stores information regarding the passenger, his/her passport, bookings made, the flight, and the airport it can land.

For each passport, the details surrounding the passport number, nationality and date of birth are stored in the database. The passport number is the primary key for this table.

Each passenger has information regarding their PPS number, first name, last name, and passport number. Name is a composite attribute in this table, it contains both the first name and last name of the passenger. PPS number is the primary key and passport number is a foreign key that is linked to the passport table.

There is a one-to-one relationship between passport and passenger. Each passport can only be assigned to one passenger.

The details surrounding the bookings are also stored, it contains the booking number, the company flying, seat class, price, flight number and PPS number of the passenger. Booking number is a primary key and PPS number is a foreign key tied to the passenger table.

There is a one-to-many relationship between passenger and bookings as each passenger can make multiple bookings.

The next piece of information that is stored is the flight. Flight has the attributes of flight number, where the flight is from, where the flight is going to, the departure date, the departure time, and the booking number. The flight number is the primary key, and the booking number is the foreign key tied to the bookings table.

There is a one-to-many relationship between the flight and the bookings as each flight can be tied to multiple bookings.

Information on the airport is also stored. Airport contains the airport ID, the name of the airport, the city, and the country of the airport. The airport is the primary key.

There is a many-to-many relationship between the flight and the airports. For multiple flights, there are multiple airports it can land at. Flight number and airport ID are the primary keys and foreign keys tying these two pieces of data together.

Task 3:

1) **PASSPORT**(PassportNum, Nationality, DateOfBirth)

   Primary Key: PassportNum

2) **PASSENGER**(PPS, FirstName, LastName, PassportNum)

   Primary Key: PPS
   Foreign Key: PassportNum

3) **BOOKINGS**(BookingNum, FlightCompany, SeatClass, Price, FlightNum, PPS)

   Primary Key: BookingNum
   Foreign Key: PPS

4) **FLIGHT**(FlightNum, From, To, DepartureDate, DepartureTime, BookingNum)

   Primary Key: FlightNum
   Foreign Key: BookingNum

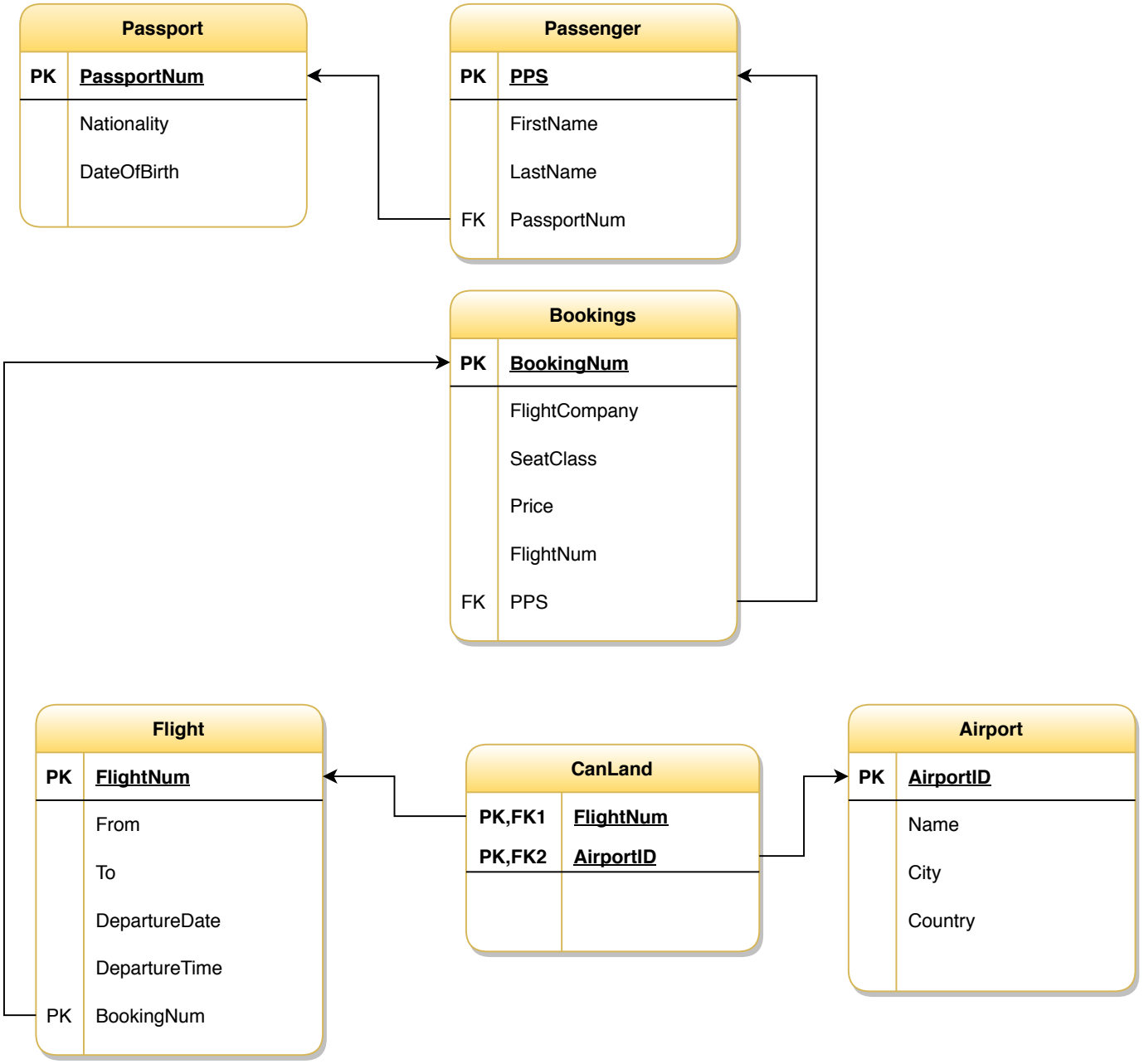
5) **CANLAND**(FlightNum, AirportID)

   Primary Keys: FlightNum, AirportID
   Foreign Keys: FlightNum, AirportID

6) **AIRPORT**(AirportID, Name, City, Country)

   Primary Key: AirportID

Relational Model



Task 4:

Q1:

Find the number of people who paid more than 150 for their flight.

Q2:

Find the names (First, Last & PPS number) of people who travel first class on Etihad.

Task 5:

Q1:

```
SELECT COUNT(DISTINCT PPS) AS ‘Number of People who Paid More than 150’
FROM Bookings WHERE Price > '150';
```

Q2:

```
SELECT p.FirstName, p.LastName, p.PPS FROM Passenger p
INNER JOIN Bookings b
ON p.PPS = b.PPS
WHERE b.SeatClass = 'First' AND b.FlightCompany = 'Etihad';
```