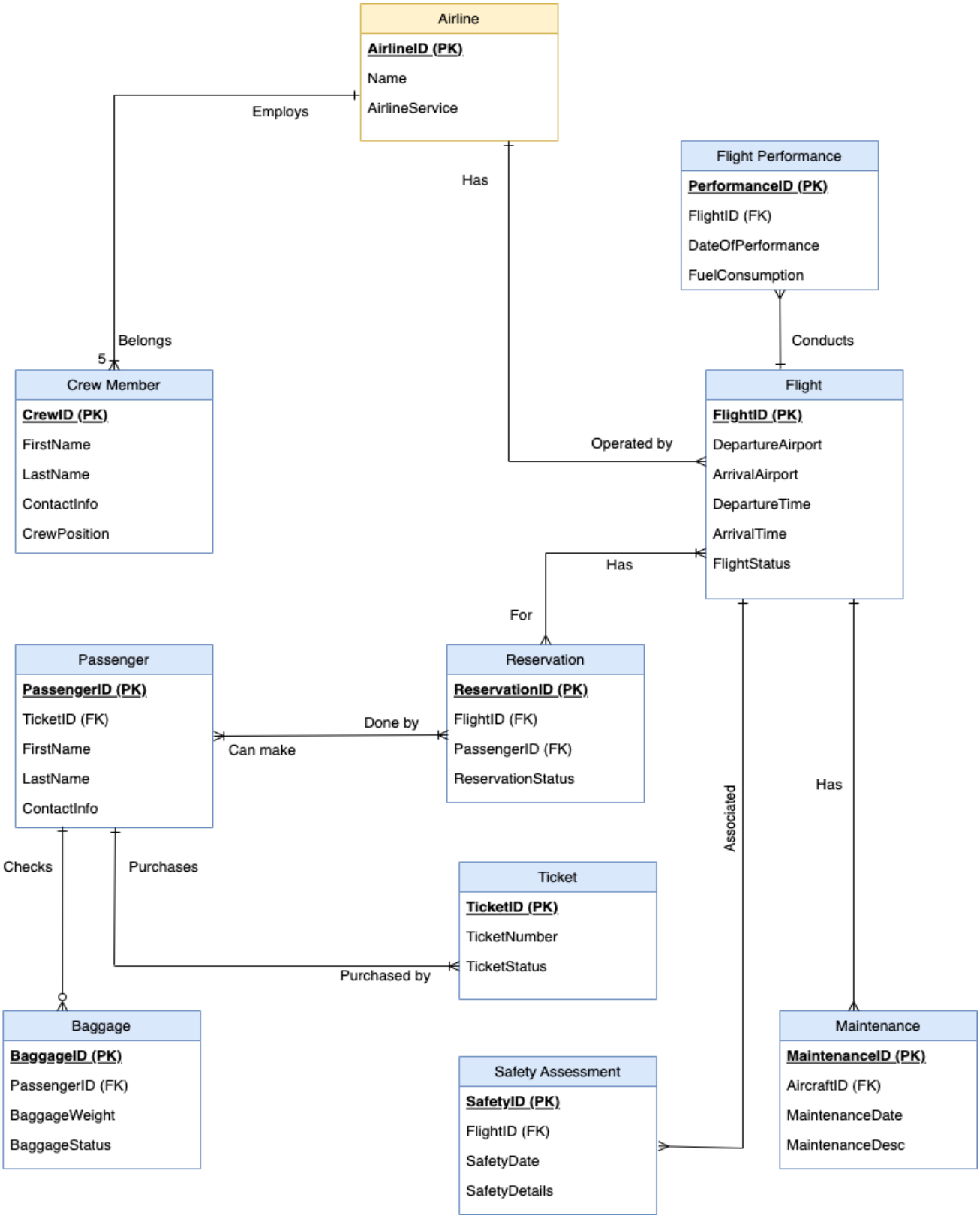
ER DIAGRAM - AIRLINE MANAGEMENT DATABASE SYSTEM



- Entities:

1. **Airline**: This entity, which has properties like AirlineID (Primary Key), Name and AirlineService represents the airline itself.

2. **Flight**: Contains the following attributes: FlightID (Primary Key), ArrivalAirport, DepartureAirport, DepartureTime, ArrivalTime, and FlightStatus. It represents a planned flight.

3. **Passenger**: This entity represents a traveler and has the following properties: PassengerID (Primary Key), TicketID(Foreign Key), FirstName, LastName, ContactInfo.

4. **Reservation**: Contains the properties ReservationID (Primary Key), FlightID (Foreign Key), PassengerID (Foreign Key), and ReservationStatus. Reservations are related to passengers.

5. **Ticket**: TicketID (Primary Key), TicketNumber, and TicketStatus are properties that provide the specifics of a passenger's ticket.

6. **Baggage**: This entity represents baggage details and has the following attributes: BaggageID (Primary Key), PassengerID (Foreign Key), BaggageWeight, BaggageStatus.

7. **CrewMember**: This entity represents the crew members of the airline and has the following attributes: CrewID (Primary Key), FirstName, LastName, ContactInfo and CrewPosition.

8. **Maintenance**: Contains the following attributes: MaintenanceID (Primary Key), AircraftID (Foreign Key), MaintenanceDate, and MaintenanceDescription. This represents records of aircraft maintenance.

9. **SafetyAssessment**: Contains the characteristics SafetyID (Primary Key), FlightID (Foreign Key), SafetyDate and SafetyDetails. It represents safety and security assessments.

10. **FlightPerformance**: This entity contains characteristics such as PerformanceID (Primary Key), FlightID (Foreign Key), FuelConsumption and DateOfPerformance that describe the performance of a flight.

- Relationships:

1. Airline operates Flight: Since an airline operates several flights, there is a one-to-many link between Airline and Flight.

2. A flight and a passenger are related in a many-to-many manner through reservations, a passenger may be on more than one trip, and a flight may have several passengers.

3. A passenger buys a ticket: There is a one-to-many link between the passenger and the ticket since a passenger can buy more than one ticket.

4. A person can check more than one piece of baggage. This creates a one-to-many link between the passenger and the baggage.

5. Airline hires CrewMember: Since an airline employs several crew members, there is a one-to-many link between Airline and CrewMember.

6. Maintenance Associated with Flight: There is a many-to-one linkage between maintenance and flight since a single flight is linked to several maintenance records.

7. The relationship between the safety assessment and the flight is many-to-one as a single flight is linked to several safety evaluations.

8. The link between FlightPerformance and Flight is many-to-one as a single flight might have several performance records attached to it.

- Key Design Decisions

The database records all the pertinent data about flights, travelers, reservations, crew, maintenance, safety evaluations, and flight operations.

Data integrity and effective management of airline operations are ensured by the linkages between organizations that have been formed based on the scope and purpose supplied.

To gather, analyze, and report data for the organization's goals and missions, this ERD serves as the basis for an extensive Airline Management System database.