### **Summary of Changes:**

* Creation of the CrewAssignment relation: This resolves the many-to-many relationship between FlightCrew and Flight. Each CrewAssignment record represents the assignment of a single flight-type employee to a single flight.
* Creation of the MaintenanceTask relation: This resolves the many-to-many relationship between the MaintenanceCrew and ServiceRequest entities. This represents a task performed by a single maintenance-type employee in service of a single service request, and captures a brief description of the work performed as well as the amount of time the task required.
* Terminal and Gate information rolled into the ‘Flight’ relation: Since each flight interacts with exactly two airports, it makes sense to roll any associated attributes into the ‘Flight’ relation.Flights will also contain foreign keys for both origin and destination airports.
* Converted licenses from a multi-valued attribute into a new relation.
* Added attributes:
  + Added Price to the Ticket relation.
  + Added Manufacturer to the Plane relation.
  + Added Unit of Measure to the Part relation.
  + Calculated field Duration added to the Flight relation.
  + Calculated field Tenure added to the Employee relation.
* Modified attributes:
  + Name broken into FName, LName for employees, customers, and tickets.
  + Renamed some attributes to be more realistic

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1. Airport

- Represents: A physical location where planes take off and land (airports).

- Attributes:

- IATACode: A 3-letter unique identifier for the airport (e.g., LAX, JFK).

- Name: Name of the airport.

- Street, City, State, PostalCode, Country: Address details of the airport.

- ExactLocation: Geographic coordinates (latitude/longitude) representing the airport's physical location.

2. Customer

- Represents: A person booking a flight or using the airline’s services.

- Attributes:

- CustomerId: Unique identifier for each customer.

- FName, LName: First and last names of the customer.

- Email: Email address of the customer.

- PhoneCountryCode, PhoneSubscriberNumber: Telephone contact information.

3. Plane

- Represents: An aircraft in the airline's fleet.

- Attributes:

- RegistrationNumber: Unique identifier for each plane (tail number).

- Manufacturer: The company that built the plane (e.g., Boeing, Airbus).

- Model: The plane's specific model (e.g., 737, A320).

- Capacity: Number of passengers the plane can carry.

4. Part

- Represents: A part used in plane maintenance or repairs.

- Attributes:

- NSN (National Stock Number): Unique identifier for each part.

- Description: Details about the part.

- UOM (Unit of Measure): The unit of measurement for the part (e.g., 'EA' for Each, 'GAL' for Gallon).

5. Vendor

- Represents: A supplier providing parts to the airline.

- Attributes:

- VendorId: Unique identifier for each vendor.

- Name: The name of the vendor.

- City, State, PostalCode, Country: Vendor’s address information.

6. Employee

- Represents: A worker employed by the airline, including pilots, maintenance workers, or staff.

- Attributes:

- EmployeeId: Unique identifier for each employee.

- HomeAirport: The airport where the employee is based.

- FName, LName: First and last names of the employee.

- StartDt: Date the employee began working.

- Tenure: Automatically calculated number of months the employee has worked.

- JobCode: Code indicating the employee's role ('F' for Flight Crew, 'M' for Maintenance).

7. Flight

- Represents: An individual flight operated by the airline.

- Attributes:

- FlightNumber: Unique identifier for each flight.

- Plane: The plane (by registration number) used for the flight.

- Origin, Destination: The IATA codes for the departure and arrival airports.

- DepartureDtTm, ArrivalDtTm: Date and time of departure and arrival.

- DepartureTerminal, ArrivalTerminal, DepartureGate, ArrivalGate: Flight terminal and gate information.

- Duration: Automatically calculated flight duration.

8. Reservation

- Represents: A booking made by a customer for a flight.

- Attributes:

- ReservationId: Unique identifier for each reservation.

- Customer: The customer who made the reservation.

9. ServiceRequest

- Represents: A request for maintenance or repair work on a plane.

- Attributes:

- ServiceRequestNumber: Unique identifier for each request.

- Plane: The plane that requires maintenance.

- Priority: Level of urgency (1 = high, 3 = low).

- MaintenanceLevel: Scale of the maintenance required (1 = minimal, 5 = extensive).

- Description: Details of the maintenance request.

- CreationDt, ResolutionDt: Dates when the service request was created and completed.

10. Ticket

- Represents: A passenger's ticket for a flight.

- Attributes:

- TicketNumber: Unique identifier for each ticket.

- Flight: The flight the ticket is associated with.

- Price: Cost of the ticket.

- FName, LName: First and last names of the passenger.

- BirthDt: Passenger’s date of birth.

- Reservation: The associated reservation (if any).

11. MaintenanceWorker

- Represents: An employee responsible for maintenance tasks.

- Attributes:

- EmployeeId: Unique identifier for each worker (references the Employee table).

- MaintenanceLevel: The worker’s skill or certification level (1 = entry-level, 5 = expert).

12. Order

- Represents: A purchase order for a part from a vendor.

- Attributes:

- OrderId: Unique identifier for each order.

- PartNSN: The part being ordered.

- VendorId: The vendor supplying the part.

- ServiceRequest: The maintenance task requiring the part.

- Qty: Quantity of the part ordered.

- TotalPrice: Total cost of the order.

- UnitPrice: Automatically calculated price per unit.

13. License

- Represents: A certification allowing a pilot to fly specific planes.

- Attributes:

- LicenseNumber: Unique identifier for each license.

- PilotId: The employee (pilot) holding the license.

- Manufacturer, Model: The specific planes (manufacturer and model) the license applies to.

14. MaintenanceTask

- Represents: A specific task performed by a maintenance worker.

- Attributes:

- TaskId: Unique identifier for each task.

- MaintenanceWorker: The worker performing the task.

- ServiceRequest: The service request the task is part of.

- Description: Details about the task.

- TmSpentInMinutes: Time spent on the task.

15. CrewAssignment

- Represents: An assignment of a crew member to a specific flight.

- Attributes:

- CrewId: The employee (crew member) assigned to the flight.

- Flight: The flight the crew member is assigned to.

- Pilot: Indicates if the crew member is a pilot (1 = true, 0 = false).