

**Scenario Overview:** The Flight Database System is designed to support an aviation maintenance and operations company by managing data related to aircraft, maintenance schedules, personnel, and customer interactions. The system records flight details, manages aircraft maintenance, and tracks employee skills to ensure safety and efficiency.

### Entity Breakdown and Relationships:

#### 1. Aircraft Management:

- The **Aircraft** entity holds details about each aircraft, including its registration number, type, capacity, and current location.
- **Aircraft\_Type** and **Aircraft\_Size** categorize aircraft based on specifications and size, providing critical information for maintenance and scheduling.

#### 2. Maintenance Tracking:

- **Maintenance\_Schedule** and **Maintenance\_Service\_Record** entities are used to manage maintenance activities. Each aircraft has a prescribed maintenance schedule based on hours of operation or calendar months.
- **Maintenance\_Parts** stores data on parts required for each maintenance task, ensuring all components are accounted for.

#### 3. Personnel and Skills Management:

- **Person** entity records individuals involved, including **Pilot** and **Employee** entities derived from it.
- **Skill\_Set** and **Aircraft\_Type\_Skillset** entities ensure employees are matched to tasks based on qualifications, improving efficiency and safety.

#### 4. Customer and Lease Information:

- The **Customer** and **Lease\_Agreement** entities manage client data and lease details, respectively, allowing the company to track aircraft leased to external clients.
- **Ownership\_History** records past leases and ownership changes for each aircraft.

#### 5. Flight and Parking Information:

- **Flight\_Record** and **Flight\_Logs** store flight data and logs for auditing and regulatory purposes.
- **Parking\_Slot** and **Parking\_Reservation** manage aircraft parking, providing structured space allocation for incoming and outgoing flights.

#### 6. Fuel and Cleaning Services:

- **Fueling\_Record** logs all fueling events with details on amount and cost, while **Cleaning\_Service\_Record** keeps track of cleaning activities.

**Overall Data Flow:** Data flows from customer interactions to aircraft operation and maintenance, ensuring each aspect of the business is covered. By structuring these entities and relationships, the flight database system provides a comprehensive view of the company's operations, aiding in efficient decision-making and resource allocation.