1. Flight:

- Why: A flight is a central entity in the airline scheduling system as it represents the transportation service provided by the airline. It includes essential details such as flight number, departure/arrival airports, timings, and aircraft assignment.

- How: Flight information is critical for various stakeholders involved in the scheduling process, including passengers, crew members, and ground staff. By capturing flight details, the system can facilitate booking, scheduling, and operational planning.

2. Aircraft:

- Why: Aircraft represent the physical resources used for providing flight services. Understanding aircraft details like type and current status is essential for scheduling and maintenance purposes.

- How: The availability and characteristics of aircraft impact flight scheduling, crew assignment, and maintenance planning. By including aircraft information in the system, it becomes easier to assign appropriate aircraft to flights and ensure smooth operations.

3. Crew:

- Why: Crew members are essential personnel involved in flight operations. Different crew types (e.g., pilots, flight attendants) have specific roles and qualifications, making crew assignment a crucial aspect of scheduling.

- How: By maintaining a database of crew members and their qualifications, the system can efficiently assign suitable crews to flights based on factors like flight duration, crew availability, and regulatory requirements.

4. Terminal/Gate:

- Why: Terminals and gates are physical infrastructure elements at airports used for passenger boarding and deplaning. Managing terminal and gate assignments is essential for organizing flight operations and ensuring smooth passenger flow.

- How: By tracking terminal and gate assignments for each flight, the system can optimize resource utilization, minimize congestion, and provide accurate boarding information to passengers.

5. Passenger:

- Why: Passengers are the customers of the airline service. Managing passenger information, including names and ticket details, is crucial for booking, ticketing, and passenger service purposes.

- How: By maintaining passenger records, the system can facilitate booking, check-in, and boarding processes, providing personalized services and ensuring a positive travel experience for passengers.

6. Weather:

- Why: Weather conditions significantly impact flight operations, affecting safety, scheduling, and route planning. Monitoring weather at source, destination, and en-route airports is crucial for making informed decisions and mitigating risks.

- How: By integrating weather data into the scheduling system, operators can anticipate potential disruptions, adjust flight schedules, and provide timely updates to passengers and crew members.

7. Airport:

- Why: Airports serve as key locations where flights originate, terminate, and transit. Understanding airport details such as codes, names, and locations is fundamental for routing flights, managing resources, and providing passenger services.

- How: By including airport information in the system, operators can efficiently manage flight routes, terminal assignments, and ground services, ensuring effective coordination across various airport facilities.