Description of a use case diagram for an Airline System:

Actor: Passenger

Use Case 1: Search for Flights.
      The passenger can search for available flights by providing criteria such as departure and destination airports, travel dates, and preferred class.

Use Case 2: Book Flight
      Book Flight: The passenger can book a flight by selecting a specific flight, providing passenger details, and making a payment.

Use Case 3: Cancel Reservation
      The passenger can cancel a booked flight reservation, subject to the airline's cancellation policy.

Use Case 4: Check-in Online
      The passenger can perform online check-in, select seats, and receive a digital boarding pass.

Actor: Airport Staff

Use Case 5: Check-in Counter Operations.
      Airport staff can assist passengers with check-in at the airport counter, issue boarding passes, and

handle special requests.

Use Case 6: Baggage Handling
    Airport staff can manage the aprosess of handling checked baggage, including tagging and loading onto the aircraft.

Actor: Flight Crew

Use Case 7: Conduct Flight
    The flight crew is responsible for conducting the flight, ensuring passenger safety and adhering to aviation regulations.

Actor: System

Use Case 8: Manage Flight Schedule
    The system allows administrators to manage and update the schedule of flights, including adding new flights and modifying existing ones.

Use Case 9: Manage Passenger Information
    The system manages passenger information, including reservations, check-in details, and preferences.

Use Case 10: Generate Reports
    The system generates various reports related to flight bookings, passenger statistics, and financial data.

Actor: Maintenance Crew

Use Case 11: Aircraft Maintenance
    The maintenance crew can use the system
to schedule and log maintenance activities for
aircraft to ensure their airworthiness.

Actor: External System (eg. Payment Gateway)
    The external payment gateway interacts
with the system to process payments for
flight bookings made by passengers.

    This use case diagram outlines the
interactions between different actors and the
Airline System. It provides a high-level view of
the functionalities of the system, including
passenger-related actions, airport operations,
flight management, and external interactions.

Description of an activity diagram for an Airline System:

Activity: Booking a flight

Activity 1: Search for Flights
The passenger initiates a search for available flights by specifying the departure and destination airports, travel dates, and other preferences.

Activity 2: Select flight.
The passenger chooses a specific flight from the search results. The system validates seat availability and provides the passenger with options.

Activity 3: Provide Passenger Information
The passenger enters personal and travel information required for booking, including names, contact details, and any special requests.

Activity 4: Confirm Booking
The passenger reviews the booking details, confirms the reservation, and makes the payment. The system updates the seat inventory and generates a booking confirmation.

Activity: Check-in process

Activity 5: Online Check-in
  The passenger initiates the online check-in process by providing booking details and passenger information.

Activity 6: Select Seats.
  The passenger selects preferred seats during the online check-in process. The system validates seat availability and updates the seating arrangement

Activity 7: Receive Boarding Pass
  Upon successful check-in, the system generates and provides the passenger with a digital boarding pass.

Activity: Airport Operations.

Activity 8: Bagged Drop
  The passenger drops off checked baggage at the airport. The system verifies baggage details and updates the handling process.

Activity 9: Security Check
  The passenger goes through the security check process. The system updates the passenger's status as cleared for boarding.

Activity: Boarding process.

Activity 10: Boarding: The passenger boards the flight. The system updates the boarding status and monitors passenger attendance.

Activity 11: Seat Verification
   The system verifies that each passenger is seated in their assigned seat, ensuring accurate passenger count and compliance with safety regulations.

Activity: In-flight Services

Activity 12: Food and Beverage Service
   The flight crew provides food and beverage services to passengers. The system tracks inventory and updates service records.

Activity 13: Entertainment.
   Passengers access in-flight entertainment services. The system monitors usage and updates entertainment logs.

Activity: Flight completion.

Activity 14: Landing
   The flight lands at the destination airport. The system updates the flight status to "landed."

Activity 15: Baggage Retrieval
    Passengers retrieve their checked baggage. The system updates the baggage status and records successful retrieval

Activity: System maintenance

Activity 16: Database Update
    The system performs routine maintenance tasks, updating databases with flight schedules, passenger information, and other relevant data.

    This activity diagram provides an overview of the process involved in booking a flight, passenger check-in, airport operations, the boarding process, in-flight services, and flight completion within an Airline system.