UC Name	***UC1-New Hire Onboarding***
Summary	*An administrator creates an employee profile in the system, assigning a role, department, permissions, and contact information.*
Dependency	*None*
Actors	*Primary: Administrator*
Preconditions	*The administrator has access to the airport management system and new hire information.*
Description of the Main Sequence	1. *Administrator enters new hire information into the system, including name, contact information, department, and role.* 2. *Administrator assigns permissions to the new hire's profile based on their role.* 3. *The system saves the new employee profile.*
Description of the Alternative Sequence	*If the admin encounters errors while creating a new employee profile, the system should provide helpful features to guide them through resolving the issue.* • *Error correction tools, highlighting mistakes in data entry for easy correction.* • *Offering clear instructions to diagnose and fix technical glitches.*
Nonfunctional requirements	*The system should be secure and restrict unauthorized access to employee data.*
Postconditions	*A new employee profile is created in the system with assigned role, department, permissions, and contact information.*

UC Name	***UC2-Schedule Management***
Summary	*A administrator assigns tasks and schedules to employees within their department (landside, airside, security) for the upcoming week.*
Dependency	*None*
Actors	*Primary: Supervisor (Administrator)*
Preconditions	*The administrator has access to the airport management system and employee schedules.*
Description of the Main Sequence	1. *Administrator selects the department and timeframe for which they want to create a schedule.* 2. *Administrator assigns tasks and shifts to employees within their department.* 3. *The system saves the employee schedule.*
Description of the Alternative Sequence	*The administrator may need to adjust the schedule based on employee availability or unforeseen circumstances.*
Nonfunctional requirements	*The system should be user-friendly and allow administrators to easily view and modify employee schedules.*
Postconditions	*An updated employee schedule is created for the selected department and timeframe.*

UC Name	***UC3-Training and Certification Tracking***
Summary	*The system tracks employee training records and certifications, notifying managers when renewals are approaching.*
Dependency	*None*
Actors	*Primary: Timer Actor*
Preconditions	*Employee training records and certification information are entered into the system.*
Description of the Main Sequence	1. *The system automatically tracks employee training expiration dates.* 2. *When an expiration date approaches, the system generates a notification for the employee's manager.*
Description of the Alternative Sequence	*If the system encounters technical difficulties in tracking or generating notifications:* • *It may attempt to resolve the issue automatically.* • *It may notify administrators for manual intervention if automatic resolution fails.*
Nonfunctional requirements	*The system should be reliable and ensure accurate tracking of training records.*
Postconditions	*Managers are notified of upcoming employee training renewals.*

UC Name	***UC4- Employee Self-Service***
Summary	*Employees log into the system to view their work schedule, request shift changes, or submit leave requests.*
Dependency	*None*
Actors	*Primary: Employee*
Preconditions	*The employee has access to the airport management system and their login credentials.*
Description of the Main Sequence	1. *Employee logs in to the system.* 2. *Employee selects the desired function (view schedule, request shift change, submit leave request).* 3. *The employee enters the necessary information and submits the request.* 4. *The system processes the request and provides a confirmation or notification to the employee.*
Description of the Alternative Sequence	*In case of login issues (e.g., forgotten credentials, system errors), the system offers options to recover passwords, report issues, or contact IT support.*
Nonfunctional requirements	*The system should be accessible and user-friendly for employees with varying technical skills.*
Postconditions	*The employee views their work schedule, submits a shift change request, or submits a leave request (depending on the chosen function).*

UC Name	***UC5- Internal Communication***
Summary	*An employee sends a message through the system to a colleague or department for quick communication.*
Dependency	*None*
Actors	*Primary: Employee*
Preconditions	• *The employee has access to the airport management system and their login credentials.* • *The recipient (colleague or department) has a valid account within the system.*
Description of the Main Sequence	1. *Employee logs in to the system.* 2. *The employee selects the internal communication module.* 3. *The employee chooses the recipient of the message (specific colleague or entire department).* 4. *The employee composes the message, attaches any relevant files and sends the message.* 5. *The system delivers the message to the recipient's inbox or displays a notification (depending on system configuration).*
Description of the Alternative Sequence	*There could be technical issues that prevent the message from being delivered. The system should:* • *Notify the sender of the delivery failure, if possible.* • *Allow the sender to resend the message or take other actions.*
Nonfunctional requirements	*The system should deliver messages reliably and securely.*
Postconditions	*The employee's message is sent to the designated recipient(s) through the internal communication system.*

UC Name	***UC6: Performance Review***
Summary	*A manager generates a report analyzing employee productivity and identifies areas for improvement.*
Dependency	*UC2: Schedule Management*
Actors	*Primary Actor: Flight Administrator* *Secondary Actors: Employees*
Preconditions	*The Flight Administrator is logged into the system and employee performance has been recorded.*
Description of the Main Sequence	1. *The Flight Administrator keeps track of the number of flights.* 2. *The Flight Administrator calculates the ratio: number of flights/number of staff.* 3. *The obtained data is used to generate a report for the Flight Administrator, which shows the productivity of the employees.*
Description of the Alternative Sequence	1. *The Flight Administrator is given troubleshooting instructions if the system produces an incorrect report.*
Non functional requirements	*The productivity data is secured and the system can generate the report fairly quickly after this action is requested by the manager.*
Postconditions	*The manager has obtained a performance review of the airport employees.*

UC Name	**UC 7: Passenger ticket validation**
Summary	A passenger purchases a ticket and after validation, he is registered as a valid passenger.
Dependency	*UC 15:* Flight Information Logging
Actors	• Passenger • Passenger Service Employee
Preconditions	• The passenger has a valid e-ticket or boarding pass for a specific flight. • The passenger has arrived at the airport for check-in. • The Passenger Service Employee has access to the airline's check-in system and the Airport Management System (AMS).
Description of the Main Sequence	• 1: Passenger presents e-ticket/boarding pass at check-in. • 2: Check-in agent scans barcode and sends information to AMS. • 3: AMS validates passenger record (against airline & government data). • 4: AMS sends confirmation back to check-in system. • 5: Passenger Service Employee completes process if validation is successful.
Description of the Alternative Sequence	• Case *1:* Invalid Ticket: If the AMS identifies the ticket as invalid (e.g., expired, cancelled, fraudulent), the check-in agent receives a notification on their screen. • *Case 2:* Passenger Data Mismatch: If the AMS detects a mismatch between the passenger information provided and the data in the system (e.g., name misspelling), the check-in agent is notified.
Non functional requirements	*The systems response should be fast and always reliable*
Postconditions	• The passenger's ticket is validated by the Airport Management System. • The passenger is confirmed for the flight and receives a boarding pass (if needed).

UC Name	UC 8: Passenger Reports Lost Luggage
Summary	A passenger reports a lost luggage in the airport
Dependency	*None*
Actors	• Passenger • Passenger Service Employee
Preconditions	• The passenger has reported their luggage as lost and a reasonable amount of time has passed • The passenger may have documented proof of the contents of their lost luggage (receipts, photos) – (This may not be required by all airlines)
Description of the Main Sequence	• Passenger reports missing luggage to Passenger Service Employee. • Staff enters details and searches for matching reports. • New report is created with tracking number (if not found). • Passenger receives report copy and tracking number.
Description of the Alternative Sequence	• Claim Denied: If the claim is denied due to insufficient documentation or exceeding policy limitations, the airline informs the passenger and explains the reasoning. The passenger may have the option to appeal the decision. • Luggage Found After Claim: If the airline locates the lost luggage after the claim is processed, they will notify the passenger and arrange for its return. The compensation may still be awarded depending on the airline's policy and the inconvenience caused to the passenger.
Non functional requirements	• Security: Passenger information and claim details
Postconditions	1. Lost Luggage Report Created: This report contains details about the passenger, their flight information, a description of the lost luggage, and a unique tracking number for reference. A copy of this report should be given the passenger and sometimes the airline company can be notified

UC Name	**UC 9: System keeps track of lost baggage reports.**
Summary	*After some time has passed without the luggage being found, The Passenger Service Employee receives a notification*
Dependency	*UC 8 : Passenger reports lost luggage*
Actors	• Primary Actor: Timer Actor
Preconditions	• A passenger has made a report for lost luggage
Description of the Main Sequence	• The system keep track of the time a lost baggage report has been in the system for • If a certain amount of time has passed the Passenger Service Employee is notified of the passed time, signifying that the lost baggage might be lost forever.
Description of the Alternative Sequence	If the time tracing process raises an exception then the Passenger Service Employee is notified troubleshooting steps.
Non functional requirements	• Security: Passenger information and claim details
Postconditions	The system keeps track of the lost baggage properly.

UC Name	**UC 10: Passenger Self-Service Check-In**
Summary	A passenger uses a self-service kiosk to check in for their flight, print their boarding pass, and select their seat.
Dependency	UC 7 : Passenger ticket validation
Actors	• Primary Actor: Passenger
Preconditions	• The passenger has a valid ticket and travel document • The passenger has checked in any baggage they wish to travel with (or meets the criteria for carry-on luggage only). • The self-service kiosk is operational and connected to the airline's check-in system.
Description of the Main Sequence	● Passenger scans boarding pass or enters flight details. ● System retrieves reservation and flight information. ● Passenger completes check-in. ● Kiosk prints boarding pass (if not already an e-ticket).
Description of the Alternative Sequence	● Technical Issues: The passenger may be redirected to a customer service for assistance with check-in. ● Special Needs: If the passenger requires special assistance (e.g., traveling with a disability, unaccompanied minor), they may need to proceed to a dedicated check-in counter staffed by airline personnel. ● Checked Baggage Issues: The passenger may need to visit a dedicated baggage drop-off counter before completing self-service check-in.
Non functional requirements	• Availability: A sufficient number of self-service kiosks should be available during peak periods.
Postconditions	1. Passenger Checked In: 2. Boarding Pass Obtained: 3. Baggage Tags Printed (if applicable)

UC Name	**UC 11: Border Control**
Summary	A border control officer scans a passenger's passport using the border control system to verify their travel documents and grant entry.
Dependency	None
Actors	• Primary Actor: Border Control Officer
Preconditions	• The passenger has completed any required customs declarations. • The border control area is operational and staffed with officers.
Description of the Main Sequence	● Officer requests travel document (passport or ID). ● Officer gets document and scans it (if applicable). ● System uses the border control system and verifies document. ● Passenger is allowed entry. ● Officer instructs the passenger.
Description of the Alternative Sequence	Passenger Doesn't Have Valid Travel Documents: ● If the officer denies entry then this denial of entry will be logged into the system for security purposes.
Non functional requirements	• The system should be fast and reliable
Postconditions	1 Passenger’s documents verified 2 Entry accessed 3 The passenger is registered in the system

UC Name	**Use Case 12: Passenger Feedback and Complaint Management**
Summary	The system allows passengers to submit feedback and complaints regarding their airport experience. It manages the feedback process, routes complaints to relevant departments, and tracks the resolution progress.
Dependency	None
Actors	• Passenger • Passenger Service Employee
Preconditions	• Passenger has used our airport previously • Passengers have access to the feedback and complaint submission interface (website, mobile app, kiosks).
Description of the Main Sequence	Passenger accesses the feedback and complaint submission interface. Passenger selects the type of feedback or complaint and provides details, including any supporting documents or media. Passenger submits the feedback or complaint.
Description of the Alternative Sequence	If something goes wrong during the feedback submission process the passenger is shown troubleshooting steps.
Non functional requirements	• The system should be efficient and accurate
Postconditions	The Passenger Service Employee has access to reviews made by the passengers

UC Name	***UC13: Registering a New Flight***
Summary	*The flight operations staff register a new flight in the airport management system.*
Dependency	*None*
Actors	*Primary Actor: Flight Administrator*
Preconditions	*The flight operations staff member is logged into the system and has the necessary information to register a new flight in the system.*
Description of the Main Sequence	1. *The user goes to the specific part of the system that can perform the registration.* 2. *The user enters all the flight details, such as: airline, flight number, departure and arrival time, flight duration, airports etc.* 3. *The user submits the information and the new flight is recorded in the system.*
Description of the Alternative Sequence	1. *If the new flight could not be registered, the user will be asked to try again later or be given troubleshooting instructions.*
Non functional requirements	*The system has a fast response.*
Postconditions	*A new flight has been successfully registered by the flight operations staff.*

UC Name	***UC14: Flight Data Exchange***
Summary	*ATC sends critical flight information (weather, flight conditions) through the AFTN system to the Air Traffic Control tower.*
Dependency	*None*
Actors	*Primary Actor: ATC* *Secondary Actor: AFTN*
Preconditions	*AFTN can contact the ATC and has gathered all the information that needs to be transmitted.*
Description of the Main Sequence	1. *The AFTN system contacts our airport management system.* 2. *The system forwards the message to the Air Traffic Control tower.*
Description of the Alternative Sequence	1. *If the ATC tower does not receive the message,the flight administrator is notified an error has occurred during communication.*
Non functional requirements	*All the operations are performed during a small timeframe.*
Postconditions	*Critical flight information is properly transmitted.*

UC Name	***UC15:* Flight Information Logging**
Summary	The system automatically logs flight data upon arrival and departure for statistical purposes.
Dependency	*None*
Actors	*Primary Actor: Timer* *Actor* *Secondary Actor: None*
Preconditions	Flight data is received from external sources (e.g., radar, flight data etc).
Description of the Main Sequence	1. Upon arrival of an aircraft, the system logs registration and landing time. 2. Upon departure of an aircraft, the system logs registration and departure time.
Description of the Alternative Sequence	*The system alerts that something went wrong.*
Non-functional requirements	*The data is collected in a timely manner.*
Postconditions	Flight data is logged in the system for statistical analysis.

UC Name	***UC16:*** **Ground Crew Task Management**
Summary	A ground crew member uses the system to view assigned tasks for an aircraft, including boarding passengers, loading cargo,fueling.
Dependency	*None*
Actors	*Primary Actor: Ground Crew Members*
Preconditions	Ground crew members are logged into the system.
Description of the Main Sequence	1. The system displays a list of assigned tasks for the selected aircraft. the Main 2. Ground crew member views details of each task, including boarding passengers, loading cargo, and fueling.
Description of the Alternative Sequence	*None*
Non-functional requirements	*Task assignment and completion are recorded and updated in real-time.*
Postconditions	Ground crew member has accessed and viewed their assigned tasks for the aircraft.

UC Name	***UC17:* Ground Service Fee Calculation**
Summary	The system calculates fees for ground services provided to an aircraft based on factors like weight, cargo load, and passenger numbers.
Dependency	*UC16:* Ground Crew Task Management
Actors	*Primary Actor:* *Input/Output Device*
Preconditions	*Performance of Ground Crew Members has been recorded.*
Description of the Main Sequence	*1. The system retrieves information about Ground Crew Member performance.* *2. Based on the retrieved information, the system calculates the correspondent fee.*
Description of the Alternative Sequence	*1. The manager is given troubleshooting instructions if the system produces an incorrect fee.*
Non-functional requirements	*Fee information is securely stored into the system and retrieved by the manager.*
Postconditions	Ground service fees are calculated and available for billing.

UC Name	***UC18:* Real-time Flight Information**
Summary	A ground crew member retrieves real-time flight information and service requirements for the aircraft they are assigned to.
Dependency	*UC15:* Flight Information Logging
Actors	*Primary Actor: Ground Crew Member* *Secondary Actors: System*
Preconditions	*Flight information has been correctly logged into the system*
Description of the Main Sequence	*1. The Ground Crew Member logs into the system* *2. The Ground Crew Member retrieves information from the system about a flight.*
Description of the Alternative Sequence	*Ground Crew Member reports that a problem has occurred with the retrieval process.*
Non-functional requirements	*The retrieval process should be fast and accurate.*
Postconditions	Ground crew member has accessed real-time flight information for the assigned aircraft and may act accordingly.

UC Name	***UC19:* Ground Crew - ATC Communication**
Summary	A ground crew member initiates communication with the Air Traffic Control tower through the system to request clearance or relay information.
Dependency	*UC15:* Flight Information Logging
Actors	Primary Actor: Ground Crew Member Secondary Actors: Air Traffic Control (ATC)
Preconditions	Ground crew member is logged into the system and has authorization to communicate with ATC.
Description of the Main Sequence	1. The ground crew member initiates communication with ATC through the system. 2. The Ground Crew Member retrieves information from the system after it has been provided by the ATC.
Description of the Alternative Sequence	*3. The manager is given troubleshooting instructions if the system produces an incorrect report.*
Non-functional requirements	*The system must provide the Ground Crew Member a reliable, fast and secure connection with Air Traffic Control.*
Postconditions	*4. Ground Crew Members have successfully communicated with ATC through the system.*

UC Name	***UC20:* Flight Information Display:**
Summary	A ground crew member requests information from the flight information system to display it to the passenger.
Dependency	*UC15:* Flight Information Logging
Actors	Primary Actor: Ground Crew Member Secondary Actor: Flight Administrator
Preconditions	The flights information are all logged in the system and the information system works properly
Description of the Main Sequence	*1.* Ground Crew Member seeks information from the flight information system. *2.* The flight information system displays the requested information.
Description of the Alternative Sequence	1.Send an error notification to the administrator in case there is a glitch in the system, causing the flight information not to be displayed properly. 2. Administrator forwards the error notification to the ground crew, so that they can act accordingly.
Non-functional requirements	The system must provide accurate and up-to date flightinformation in real-timing.
Postconditions	Flight information is displayed properly.

UC Name	***UC21* Gate Change Announcement**
Summary	The system triggers an announcement throughout the terminal notifying passengers of a gate change for their flight.
Dependency	*UC15:* Flight Information Logging
Actors	Primary Actor: Information department staff
Preconditions	A gate change has occurred for a specific flight.
Description of the Main Sequence	*1.* The system detects a gate change for a flight. *2.* The system gives an announcement throughout the terminal because of the gate change. *3.* Passengers in the terminal hear the announcement and receive notification of the gate change for their flight.
Description of the Alternative Sequence	Send notification to flight administrator.
Non-functional requirements	The announcement system should deliver notifications clearly to passengers throughout the terminal.
Postconditions	Passengers get informed of the gate change for their flight.

UC Name	*UC22:* **Flight Operations Manager**
Summary	The system dynamically assigns gates to incoming and outgoing flights based on real-time data, optimizing gate utilization and reducing delays.
Dependency	*None*
Actors	Primary: Flight Administrator Secondary: Ground Crew Staff, Airline
Preconditions	Real-time flight data (arrival and departure times) is available. Gate availability and status are tracked in the system. Ground staff and airline staff have access to the system for updates and notifications.
Description of the Main Sequence	1. The system continuously collects real-time data on flights and monitors gate availability. 2. The system dynamically assigns gates based on real-time data, considering factors like aircraft type, airline preferences, and passenger connections. 3. Updates are communicated to relevant parties. 4. Send a notification message.
Description of the Alternative Sequence	• The system reassigns the affected flight to an alternative gate. • Notifications are sent to all relevant parties about the new gate assignment.
Non-functional requirements	The system must process and update gate assignments in real-time with minimal latency. The system should be highly available and fault-tolerant to handle continuous operations.
Postconditions	Gates are efficiently assigned and utilized, reducing delays and improving operational efficiency. All relevant stakeholders are informed of gate assignments and changes in real-time.The system logs all gate assignments and adjustments for audit and analysis.

UC Name	***UC23:* Staff information access**
Summary	An airport employee logs in to the system to access relevant airport information, procedures, and safety manuals specific to their role.
Dependency	*UC 4 : EMPLOYEE SELF-SERVIECE*
Actors	Primary Actor: Certified Employees
Preconditions	Employees have valid login credentials.
Description of the Main Sequence	1. An airport employee logs in to the system. 2. The system authenticates the employee's credentials and gives access to the information based on their role. 3. The employee goes through the system to access airport information, procedures, and safety manuals specific to their job responsibilities.
Description of the Alternative Sequence	The airport management system gets a cybersecurity breach, compromising employee login credentials and sensitive information. • The system experiences server downtime, making it inaccessible to airport employees.
Non-functional requirements	The system should provide secure and specific role access to airport information for the employees.
Postconditions	The employee accesses the required information for their role.

UC Name	***UC24: Invoice Generation***
Summary	*After aircraft departure, the system automatically generates an invoice for the airline.*
Dependency	*None*
Actors	*Primary Actor: Input/Output Device*
Preconditions	*The system is running.*
Description of the Main Sequence	1. *The system obtains information (input) such as: aircraft registration, parking time, landing/departure fees and ground service fees whenever an aircraft departs.* 2. *The system uses this input to automatically generate an invoice.* 3. *The system sends the invoice to the respective airline.*
Description of the Alternative Sequence	1. *If the input is not collected normally, the system sends appropriate notifications to the managers and administrator.*
Non functional requirements	*The invoicing information is kept confidential and secured and the system performs at a good speed rate.*
Postconditions	*The system has sent the invoices to the respective airlines or has notified the managers and administrators in case of an error.*

UC Name	***UC25: Monthly Passenger Report***
Summary	*The system generates a monthly report detailing passenger information.*
Dependency	*None*
Actors	*Primary Actor: Timer Actor*
Preconditions	*The system is up and running.*
Description of the Main Sequence	1. *The system records the number of passengers arriving and departing during one month.* 2. *The system generates a report based on the collected information.*
Description of the Alternative Sequence	1. *The system fails to record the number of passengers arriving and departing.* 2. *The system provides troubleshooting instructions for the user.*
Non functional requirements	*The information is kept private and safe and the system generates the report at the required time.*
Postconditions	*A monthly passenger report is created by the system.*

UC Name	***UC26: Airline Traffic Report***
Summary	*The system generates a report summarizing the number of flights operated by each airline.*
Dependency	*UC13: Registering a New Flight* *UC15: Flight Information Logging*
Actors	*Primary Actor: Timer Actor*
Preconditions	*The system is up and running.*
Description of the Main Sequence	1. *The system records the number of flights operated by each airline during a certain time period (day, week, month, year).* 2. *The system generates a report based on the collected information.*
Description of the Alternative Sequence	1. *The system fails to record the information.* 2. *The system provides troubleshooting instructions for the user.*
Non functional requirements	*The information is kept private and safe and the system generates the report at the required time.*
Postconditions	*A proper airline traffic report is generated.*

UC Name	***UC27: Revenue Report***
Summary	*The system generates a report detailing the total earnings.*
Dependency	*UC24: Invoice Generation*
Actors	*Primary Actor: Timer Actor*
Preconditions	*The system is up and running.*
Description of the Main Sequence	*1. The system collects all the fees from airlines such as landing fees, facility fees and more.* *2. The system generates a report based on these fees.*
Description of the Alternative Sequence	*1. The system fails to obtain the fees.* *2. The system provides troubleshooting instructions for the user.*
Non functional requirements	*The information is kept private and safe and the system generates the report at the required time.*
Postconditions	*A total revenue report is generated.*

UC Name	***UC28: Passenger Fee Report***
Summary	*The system generates a report detailing passenger fees.*
Dependency	*UC10: Passenger Check-in* *UC25: Monthly Passenger Report*
Actors	*Primary Actor: Timer Actor*
Preconditions	*The system is up and running.*
Description of the Main Sequence	1. *The system collects passenger fees, such as the ones associated with checked baggage and seat selection.* 2. *The system generates a report based on the collected information.*
Description of the Alternative Sequence	1. *The system fails to collect the fees.* 2. *The system provides troubleshooting instructions for the user.*
Non functional requirements	*The information is kept private and safe and the system generates the report at the required time.*
Postconditions	*A passenger fee report is successfully generated.*

UC Name	***UC29: Terminal Report***
Summary	*The system generates a report on income generated from private terminals withing the airport.*
Dependency	*UC15: Flight Information Logging*
Actors	*Primary Actor: Timer Actor*
Preconditions	*The system is up and running.*
Description of the Main Sequence	*1. The system collects data about private terminals.* *2. The system generates a report about the income generated from private terminals.*
Description of the Alternative Sequence	*1. The system fails to generate a proper report.* *2. The system provides troubleshooting instructions for the user.*
Non functional requirements	*The information is kept private and safe and the system generates the report at the required time.*
Postconditions	*A complete private terminal report is generated.*

UC Name	***UC30: Cargo Report***
Summary	*The system generates a report containing details about every cargo operation.*
Dependency	*UC13: Registering a New Flight* *UC15: Flight Information Logging*
Actors	*Primary Actor: Timer Actor*
Preconditions	*The system is up and running.*
Description of the Main Sequence	1. *The system obtains information about the number of cargo flights handled, number of items processed and cargo taxes during a period of time (day, week, month, year).* 2. *The system generates a report based on this information for each time period.*
Description of the Alternative Sequence	1. *The system fails to gather information.* 2. *The system provides troubleshooting instructions.*
Non functional requirements	*The cargo information is kept private and safe, the system generates the report at the correct time.*
Postconditions	*A detailed cargo report is generated by the system.*