

Linh Pham, Keith Le, Ria Vadhavkar, Ethan Vasquez, Tony Phonemany, Mark Dang

Professor Meng

CS 3704

16 March 2022

Requirements Analysis - Airport Management

Actors

- Airport Travelers (Primary)
- Airport Workers
- Taxi Drivers
- Hotel Managers
- Management/Security

Fully Dressed Use Cases

1. RegisterBankingInfo
 - a. Primary Actor(s):
 - Airport Employees
 - Bank
 - b. Stakeholders and Interests:
 - Airport Employees: Submits data to be used for banking
 - Bank: Manages data from user
 - c. Preconditions
 - Employee has a valid bank account
 - d. Success Guarantee:
 - Bank account is connected to an employee.
 - Employees are able to receive payments.
 - e. Main Success Scenario:
 - Employer requests for employee bank account information through the app.
 - Employees securely send information through the app.
 - App queries bank to establish if information is valid
 - Employee is registered for direct deposit
 - f. Extensions:
 - Employee doesn't send information through app
 1. App re-requests employee information
 - Bank indicates information is invalid
 1. App re-requests employee information

2. Employee re enters information
 3. Bank attempts to verify information
 - Account used for payment does not have sufficient funds
 1. App notifies manager that there are insufficient funds
 2. Manager sends the required amount of funds to account
 3. Deposit is sent to employees
 - g. Special Requirements:
 - The system should secure the provided information from hackers
 - h. Technology and Data Variation:
 - Account data is entered via scanner or manual entry
 - Employees can manage accounts from apps or websites.
 - i. Frequency of Occurrence:
 - Occurs every time a new user is added to the system
2. DeliverWorkerPayment
- a. Primary Actor(s):
 - Airport Employees
 - Manager
 - Bank
 - b. Stakeholders and Interests:
 - Airport Employees: Receives direct deposit money
 - Manager: Can manage employees on payroll
 - Bank: Manages account and money of employee
 - c. Preconditions:
 - Employee has a valid bank account
 - d. Success Guarantee:
 - Payment profile for each employee can be managed
 - Employee receives money on scheduled days
 - e. Main Success Scenario:
 - Employer sets pay rate and pay schedule for employee
 - Employee works for a normal pay period
 - Employees are directly sent money at the end of the pay period.
 - f. Extensions:
 - Employer attempts to set an invalid pay rate or schedule
 1. Employer is notified of the error and prompts them to retry until a valid series of values is entered.
 - Employee works overtime
 1. Employer is able to set overtime rates
 2. Employee is sufficiently compensated for overtime hours
 - g. Special Requirements:

- The system should be able to deposit the wages into their bank account within 3 business days
- h. Technology and Data Variation:
 - Employees can manage their account from the app or website.
- i. Frequency of Occurrence:
 - Generally only occurs at the beginning of employment period for employees.

3. CollectRevenue

- a. Primary Actor(s):
 - Managers
 - Airport Employees
- b. Stakeholders and Interests:
 - Managers: Can monitor the revenue flow through the system
 - Airport Employees: Handles transaction for which revenue originates from
- c. Preconditions:
 - Employees are registered in the system to allow them to be the arbiter of a transaction
 - Managers are registered in the system to allow them to manage funds in the system.
- d. Success Guarantee:
 - Manager is able to manage the flow of revenue through each of the separate business entities in the airport.
 - Employees are able to conduct valid transactions with customers
- e. Main Success Scenario:
 - Employee conducts a valid transaction with a customer
 - Transaction is logged in the system, and combined with funds corresponding to the respective business entity.
 - Manager moves funds between business entities as necessary.
- f. Extensions:
 - An invalid transaction is made (rejected card)
 1. Funds are not logged in the system
 2. System awaits a valid transaction to occur.
 - Manager attempts to move an invalid amount of funds
 1. Manager is notified that the amount of funds that was attempted to have been moved is invalid.
 2. Manager is prompted to enter a valid amount of funds.
- g. Special Requirements:
 - The system should be able to deposit the revenue into the intended account in 3 business days

- h. Technology and Data Variation:
 - Managers can securely manage funds from the app or website.
 - i. Frequency of Occurrence:
 - As often as desired (at the discretion of the management)
4. WorkerPaymentNotification
- a. Primary Actor(s):
 - Airport Employees
 - b. Stakeholders and Interests:
 - Airport Employees: Can receive and manage the notifications they receive for payments.
 - c. Preconditions:
 - Employee has a direct deposit account set up
 - d. Success Guarantee:
 - Employees will receive notifications as soon as they are paid.
 - Employees will receive notifications indicating any information that is needed or should be updated in their account.
 - e. Main Success Scenario:
 - Employee is paid via direct deposit
 - Employee sets the visibility of notifications
 - Employee receives notifications as has been set
 - f. Extensions:
 - Employee does not set up custom visibility for notifications
 - 1. Default notification level is set, and the user is notified as normal.
 - g. Special Requirements:
 - N/A
 - h. Technology and Data Variation:
 - Employee can set the level of visibility of notifications
 - i. Frequency of Occurrence:
 - Occurs as often as Employee is paid or other information is requested.
5. AuthenticatePassengers
- a. Primary Actor(s): Passengers
 - b. Stakeholders and Interests:
 - Passenger: So that they can indicate that they have entered the airplane
 - Airport Manager: Compile a list of unboarded passengers
 - c. Preconditions: The passenger has a scannable identification number/ QR code
 - d. Success Guarantee: The list of boarded passengers will update with a new entry relating to that passenger who successfully entered.
 - e. Main Success Scenario:

1. Passenger arrives at the gate area
 2. Passenger gets called to board the plane
 3. Passenger brings up the identification QR code on their phone
 4. Passenger scans the QR code on the image scanner
 5. Passenger waits for the green light signaling them to continue
- f. Extensions:
- Passenger is shown a red light and a attendant will manually check the passenger and input them into the system
 - The QR code does not load, the passenger must go to a attendant and that attendant will manually check the passenger and input them into the system
- g. Special Requirements:
- Scans the QR in less that 1 second
- h. Technology and Data Variation:
- Camera
 - LED light
- i. Frequency of Occurrence: All boarding flights will use this method of authentication

6. UserLogin

- a. Primary Actor(s): Airplane travelers and Airport workers
- b. Stakeholders and Interests:
 - Airplane travelers: So that they can log in and securely access their saved data
 - Airport workers: So that they can log in and securely access their saved data
- c. Preconditions: The user has already signed up with their authenticated email and password before attempting to sign in.
- d. Success Guarantee: The user has access to their specific saved data.
- e. Main Success Scenario:
 1. The user taps the login button
 2. The system prompt the user to enter their username and password
 3. The user will enter their username and password properly and correctly
 4. The system will authenticate the inputted username and password
 5. The system will indicate that the username and password are both correct and a valid pair within the system.
 6. The system will load all the user's saved information before allowing the user to continue from the prompt
 7. The user will be able to access the system with their saved information displayed

f. Extensions:

- The system could not load the user's saved information
 1. The system will signal a help agent to assist in restoring the user information
 2. The system will indicate to the user that their saved information cannot be loaded
 3. The system will load up the default settings and information
- The password is not in the system database or the password is incorrectly typed
 1. The system will check to see if the password is in the system
 2. The system will tell the user that the password is wrong
 3. The system will ask the user to retype their username and password
- The username is not in the system database or the username is incorrectly typed
 1. The system will check to see if the username is in the system
 2. The system will tell the user that the username is wrong
 3. The system will ask the user to do two things, sign up or retype their username and password

g. Special Requirements:

- The system will be able to load thousands of users' saved information to their respective owners in less than 10 seconds

h. Technology and Data Variation:

- Username and password keyboard

i. Frequency of Occurrence:

- Very often, when users try to sign in

7. PromptingLocationData

a. Primary Actor(s): Airplane Travelers and Airport Workers

b. Stakeholders and Interests:

- Airplane Travelers: To allow travelers to send their location information to the system
- Airport Workers: To track the traveler's path while in the the airport

c. Preconditions: The user has a device that can transmit location data

d. Success Guarantee: The system will be able to log the user's location into a database in real time

e. Main Success Scenario:

1. The app prompts the user to allow the app to access the location data
2. The user will press the yes option and allow the app to access the location data

3. The app/system will have access to their data
 - f. Extensions:
 - The user will press the no option and will not allow the app/system access to their location data
 - g. Special Requirements:
 - Be able to secure their data from potential hackers
 - h. Technology and Data Variation:
 - Use of a touchscreen device
 - i. Frequency of Occurrence:
 - One time prompt when the user installs the app
8. CertifyPassportBoardingPass
- a. Primary Actor(s): Airplane Travelers and Airplane Manager
 - b. Stakeholders and Interests:
 - Airplane Travelers: So that they can streamline the process of going through TSA
 - c. Preconditions: The airplane traveler should have an image of their passport and boarding pass
 - d. Success Guarantee: The airplane traveler should be able to bypass the check-in for TSA and boarding
 - e. Main Success Scenario:
 1. The app prompts the user to upload their passport
 2. The user uploads an image of their passport
 3. The system should certify their passport
 4. The app prompts the user to upload their boarding pass
 5. The user uploads an image of their boarding pass
 6. The system should certify their boarding pass
 7. After both certifications, the system will give them a bypass pass
 - f. Extensions:
 - Unreadable image
 1. Prompt the user to reupload the picture
 - Cannot certify passport or boarding pass
 1. The system will not give them a bypass pass
 2. Inform the user to talk to an airport worker for manual certification
 - g. Special Requirements:
 - Be able to secure their data from potential hackers
 - h. Technology and Data Variation:
 - Use of a touchscreen device
 - Use of a camera

- i. Frequency of Occurrence:
 - One time certification when the user installs the app
 - When the passport is updated
- 9. Registering baggage to a specific flight
 - a. Primary Actor(s):
 - Airport travelers
 - Airport workers
 - b. Stakeholders and Interests:
 - Airport travelers - travelers will utilize this functionality to hand over and receive baggage
 - Airport - travelers hand over baggage to the airport and airport is in charge to transporting baggage onto flights and giving them back to travels
 - c. Preconditions:
 - Traveler should already be registered/checked in with the flight database before checking in baggage
 - d. Success Guarantee:
 - Baggage is successfully linked to the correct airport traveler user account. Users are able to utilize information provided after to locate their baggage after the flight.
 - e. Main Success Scenario:
 - Traveler hands over baggage
 - Airport workers register the baggage to an ID with the baggage management system
 - Airport workers transport baggage onto plane
 - Plane lands at other airport, workers unload baggage and transport it to a location pertaining to the ID
 - Traveler uses ID to locate baggage location
 - f. Extensions:
 - Baggage ID invalid
 - 1. Baggage was lost
 - a. User contacts support
 - b. Submits a lost baggage claim
 - 2. Baggage was assigned the incorrect ID
 - a. User contacts support
 - b. Submits a lost baggage claim
 - g. Special Requirements:
 - Functionality should be easy to understand for both airport travelers and workers

- Traveler should receive their baggage ID within a few minutes of dropping it off
- h. Technology and Data Variation:
 - Airport worker creates tag for baggage and uploads data to application
- i. Frequency of Occurrence:
 - Once per flight

10. Registering plane to track

- a. Primary Actor(s):
 - Flight attendants/Pilots
- b. Stakeholders and Interests:
 - Plane workers - flight attendants/pilots should register the plane for tracking
 - Airport travelers/users - should be able to track flights after they are registered
- c. Preconditions:
 - Plane must already be in the air flying at its expected speed before registering, as to avoid any incorrect real-time data tracking
- d. Success Guarantee:
 - Plane takes off and is successfully registered on the application. Users are able to view plane progress afterwards
- e. Main Success Scenario:
 - Travelers load onto plane
 - Plane workers prepare the flight
 - Flight takes off
 - Pilots communicate with communications tower
 - Plane's data is successfully sent to app
- f. Extensions:
 - Flight isn't initially registered correctly
 1. Communication tower receives signal that flight wasn't registered
 2. Contacts pilots to re-register plane
 - The real time updates are incorrect
 1. Communications tower has to resync flight with application
- g. Special Requirements:
 - Plane tracking should be in real-time: updated every ~30 seconds to 1 minute
 - Location displayed on app should be accurate
- h. Technology and Data Variation:
 - Pilot makes contact with communications tower and the plane is registered through the tower

- The pilots directly register the flight with the application
- i. Frequency of Occurrence:
 - Once for each flight

11. Check plane timings

- a. Primary Actor(s):
 - Air traveler
 - Receiving airport workers
- b. Stakeholders and Interests:
 - Air traveler - travelers can view the status of their flights, as well as other flights (before or during)
 - Airport workers - workers can plan their workload/schedule around flights
 - Airport - airport can manage flight actions based on when they land
- c. Preconditions:
 - Planes should have taken off by the time this functionality is relevant.
- d. Success Guarantee:
 - User logs onto application and is able to view the route of a flight, its course, and its current location
- e. Main Success Scenario:
 - Users opens application
 - Chooses to view flights
 - Searches for the flight they are looking for
 - Finds it, and the plane is rendered, alongside its route and current location
- f. Extensions:
 - Flight is delayed
 1. Travelers and plane workers wait for flight time to register planes
 2. Then proceed as described in main success scenario
 - Flight is canceled
 1. Flight never ends up being tracked
- g. Special Requirements:
 - When viewing plane timings, there should be an accurate estimated arrival time
 - Should function similarly to car GPS
- h. Technology and Data Variation:
 - Inclement weather causes flight data to change
 - Flight being far from communication towers could result in less accurate data
- i. Frequency of Occurrence:
 - As many times a user wants to check plane statuses

12. NF: Capability to display a large amount of different flights happening simultaneously

- a. Primary Actor(s):
 - Air travelers
 - Airport
- b. Stakeholders and Interests:
 - Air travelers - will benefit from being able to view any flights that are currently happening
 - Airport - can utilize functionality to keep track of all flights
- c. Preconditions:
 - There must be active flights to track
- d. Success Guarantee:
 - The functionality for viewing flights will not crash when having to track a lot of flights in real time
- e. Main Success Scenario:
 - Users open application
 - Chooses a flight to view the status of
 - Back track
 - Seamlessly choose a new flight to view
- f. Extensions:
 - Flight viewer can track large amounts of flights successfully
 - Flight viewer crashes due to too much data
 - 1. Filter out irrelevant flights in order to reduce the amount of resources being used
- g. Special Requirements:
 - Application should not crash when there are a large amount of flights being tracked concurrently
- h. Technology and Data Variation:
 - Flight data received from various sources, some more accurate than others
- i. Frequency of Occurrence:
 - Every time a new flight occurs

13. Taxi availability

- a. Primary Actor(s):
 - Taxi Driver
 - Taxi Passenger
- b. Stakeholders and Interests:
 - Taxi Driver: to make themselves available to airport passengers
 - Taxi Passenger: to judge taxi availability near the airport and reserve taxis
- c. Preconditions: the user has a device that can transmit location data

- d. Success Guarantee: the system will be able to notify the user if taxis are available in a 5 mile radius near the airport
- e. Main Success Scenario:
 - The app notifies the user of available taxis
 - The user interacts with the notification and clicks on it
 - The user is taken to the screen with a list of available taxis
- f. Extensions:
 - The user dismisses the notification
- g. Special Requirements:
 - Notification should be brief, for ex: “[#] taxis available near you”
- h. Technology and Data Variation:
 - Use of a touchscreen device
- i. Frequency of Occurrence:
 - Once after user is on the outer side of the security check, based on location

14. Restaurant availability

- a. Primary Actor(s):
 - Restaurant Workers
 - Restaurant Diners
- b. Stakeholders and Interests:
 - Restaurant Workers: to make tables in the restaurant available to restaurant diners in the airport
 - Restaurant Diners: to judge the restaurant table availability near their location in the airport and either reserve a table if availability is near capacity or judging the capacity go to a restaurant that has comparatively less reservations
- c. Preconditions: the user has a device that can transmit location data
- d. Success Guarantee: the system will be able to notify the user if a table at a restaurant is available in a 500 feet radius inside the airport
- e. Main Success Scenario:
 - the app notifies the user of restaurant table availabilities within a 500 feet radius of the user
 - The user interacts with the notification and clicks on it
 - The user is taken to the screen with a list of available tables sorted by groups of restaurants
- f. Extensions:
 - The user dismisses the notification
- g. Special Requirements:
 - Notification should be brief, for ex: “[#] tables available in [Name of Restaurant] near you”

- h. Technology and Data Variation:
 - Use of a touchscreen device
- i. Frequency of Occurrence:
 - Once after user is idle at a particular location for more than 5 minutes

15. Parking Spot Availability

- a. Primary Actor(s):
 - Driver
- b. Stakeholders and Interests:
 - Driver: to judge the parking availability near the airport and park in open spots
- c. Preconditions:
 - the airport parking is equipped with parking scanners
 - The user has a device that can transmit location data
- d. Success Guarantee:
 - The system will be able to notify the user if parking spots are available and which floor of the garage they are on (if applicable)
- e. Main Success Scenario:
 - The app notifies the user of available parking spots in the parking area designated for the airport
 - The user interacts with the notification and clicks on it
 - The user is taken to the screen with a list of available parking spots
- f. Extensions:
 - The user dismisses the notification
- g. Special Requirements:
 - Notification should be brief, for ex. "Parking available in [area of the parking garage]"
- h. Technology and Data Variation:
 - Use of a touchscreen device
- i. Frequency of Occurrence:
 - Once the user is in proximity of the parking area designated for the airport, such as when the user is entering the parking area, based on location

16. Hotel Availability

- a. Primary Actor(s):
 - Hotel Employees
 - Hotel Residents
- b. Stakeholders and Interests:
 - Hotel Employees: to make rooms in the hotel available to potential hotel residents

- Hotel Residents: to judge the availability of the rooms in the hotel that is near the airport and either reserve a table if availability is near capacity or judging the capacity go to a hotel that has comparatively less reservations
- c. Preconditions: the user has a device that can transmit location data
- d. Success Guarantee: the system will be able to notify the user if a hotel room is available at hotels near the airport in a 5 mile radius
- e. Main Success Scenario:
 - The app notifies the user of hotel room availabilities within a 5 mile radius of the user
 - The user interacts with the notification and clicks on it
 - The user is taken to the screen with a list of available room, categorized by hotels
- f. Extensions:
 - The user dismisses the notification
- g. Special Requirements:
 - Notification should be brief, for ex: “[#] hotel rooms available in [Name of Hotel] near you”
- h. Technology and Data Variation:
 - User of a touchscreen device
- i. Frequency of Occurrence:
 - Once after user is in proximity of a in-airport hotel, based on location

17. Show Service Location

- a. Primary Actor(s):
 - Airport travelers
 - Location services
- b. Stakeholders and Interests:
 - Travelers: getting to know the location of any available airport service
- c. Preconditions:
 - Traveler has device with location tracking enabled
- d. Success Guarantee:
 - Travelers will be able to find the service they are looking for
- e. Main Success Scenario:
 - Airport traveler opens map on smartphone for the airport
 - Traveler searches for desired service, restaurant
 - Map shows all nearby restaurants in the airport
 - Location services allow map to show the traveler current location
 - Traveler walks to desired location
- f. Extensions:
 - The traveler cannot view current location due to tracking turned off

- g. Special Requirements:
 - Locations should be shown on map within 5 seconds
- h. Technology and Data Variation:
 - Smartphone with touch screen
- i. Frequency of Occurrence:
 - At least once for each service per airport traveler

18. Provide Feedback

- a. Primary Actor(s):
 - Airport travelers
- b. Stakeholders and Interests:
 - Travelers: to be able to provide feedback
 - Airport workers: to view feedback for improvements for the future
- c. Preconditions:
 - Traveler must have device with Internet connection
- d. Success Guarantee:
 - Comments are shown on airport website
- e. Main Success Scenario:
 - Airport traveler opens airport website
 - Traveler clicks on review button
 - Traveler types in comment on airport services
 - Other travelers can see this comment
- f. Extensions:
 - Traveler changes mind and decides to not leave a comment
- g. Special Requirements:
 - Feedback option should be seen easily on home page
- h. Technology and Data Variation:
 - Devices with Internet connection
- i. Frequency of Occurrence:
 - 1 in 1000 travelers

19. Monitor Traffic

- a. Primary Actor(s):
 - Airport travelers
 - Traveler tracking system
- b. Stakeholders and Interests:
 - Travelers: to learn how busy the airport is
- c. Preconditions:
 - Traveler must have device with Internet connection
 - Device must have location services enabled

- d. Success Guarantee:
 - Travelers can see busy traffic within airport to avoid wait times
- e. Main Success Scenario:
 - Traveler opens airport website on device
 - Traveler clicks on traffic option
 - Tracking system shows traveler the amount of traffic in airport
 - Traveler avoids areas of high traffic
- f. Extensions:
 - Location services are off and user cannot track traffic
- g. Special Requirements:
 - Diagram should show traffic within 10 seconds
 - Diagram should color code density of traffic
- h. Technology and Data Variation:
 - Device can connect to the Internet
- i. Frequency of Occurrence:
 - 1-2 times per traveler

20. Translate Text

- a. Primary Actor(s):
 - Airport traveler
 - Translation software
- b. Stakeholders and Interests:
 - Traveler: to set the language to their preferred locale
- c. Preconditions:
 - Translation software must have a wide enough coverage of languages for for almost all travelers who come by the airport
 - Traveler should have device that can display text from the airport
- d. Success Guarantee:
 - The traveler can read airport information in his or her preferred language
- e. Main Success Scenario:
 - Traveler opens airport website on phone
 - The information is shown in English
 - Traveler's preferred language is Spanish
 - Traveler opens language options on site and sets the language to Spanish
 - The translation software translates all text on the site to Spanish
- f. Extensions:
 - The preferred language is not in the database so translation fails
- g. Special Requirements:
 - The website info should be translated within 10 seconds
- h. Technology and Data Variation:

- Device can connect to the Internet and display text
 - NO Google Translate
- i. Frequency of Occurrence:
 - 1 in 2 travelers

21. Notify Inclement Weather

- a. Primary Actor(s):
 - Travelers
- b. Stakeholders and Interests:
 - Traveler: can prepare if a bad weather happens and potential flight delay and cancellation
 - Airline staff: can warn the customer about the bad weather
- c. Preconditions:
 - The app must be configured and registered with a Push Notification Service Provider.
 - The users allows access to their locations data
 - The users turn on their notifications setting
- d. Success Guarantee:
 - The system notifies users of any impending inclement weather near the airport that would delay their travels.
 - The traveler will receive notifications as soon as the system receives the updates data from the database services.
- e. Main Success Scenario:
 - The weather near the airport is getting inclement.
 - The system receives the updates data from the database services.
 - Notifications database services is used to configure and display notifications to the user.
 - The users/travelers receive a notification/message pop up on their phones.
- f. Extensions:
 - The weather near the airport is getting inclement.
 1. Different weather conditions and states (raining, cloudy, windy, potential storm, etc.)
 2. Temporary inclement weather in a short period of time.
 3. Extreme weather is expected to happen in a long period of time.
 - The system receives the updates data from the database services.
 1. Database services also handle the Create, Read, Update and Delete operations.
 2. Get Weather Alerts for a specific location.
 3. Get severe weather alerts from official Government Meteorological Agencies and leading global weather alert providers.

- Notifications database services is used to configure and display notifications to the user.
- The users/travelers receive a notification/message pop up on their phones.
 1. If the users turn on notifications, they will receive the notification.
 2. If the users turn off notifications, they will not receive the notifications.
- g. Special Requirements:
 - HTTP request should be approximated to less than 0.5 seconds.
- h. Technology and Data Variation:
 - AccuWeather API
 - Google Maps API
- i. Frequency of Occurrence:
 - Occurs only when the weather is getting extreme and can cause potential dangers.

22. Notify Delay

- a. Primary Actor(s):
 - Travelers
 - Airport Employees
- b. Stakeholders and Interests:
 - Traveler: can prepare if a delay happens and potential cancellation
 - Airline staff: can alert the customer about the delay
- c. Preconditions:
 - The app must be configured and registered with a Push Notification Service Provider.
 - The users allow sending messages from airport management.
 - The users turn on their notifications setting
- d. Success Guarantee:
 - The system notifies users of any delays and potential cancellation.
 - The traveler will receive notifications as soon as the system receives the updated data from the database services.
- e. Main Success Scenario:
 - The weather near the airport is getting inclement and the flight is delayed.
 - The system receives the updates data from the Airport database services.
 - Notifications database services are used to configure and display notifications to the user.
 - The users/travelers receive a notification/message pop up on their phones.
- f. Extensions:
 - The plane gets delayed.
 1. Different reasons (extreme weather, behind schedule, etc.)

- The system receives the updates data from the Local Airport database services.
 1. Database services also handle the Create, Read, Update and Delete operations.
 2. Get Delay Alarms for a specific location.
- Notifications database services is used to configure and display notifications to the user.
- The users/travelers receive a notification/message pop up on their phones.
 1. If the users turn on notifications, they will receive the notification.
 2. If the users turn off notifications, they will not receive the notifications.
- g. Special Requirements:
 - HTTP request should be approximated to less than 0.5 seconds.
- h. Technology and Data Variation:
 - Airport API
 - Google Maps API
- i. Frequency of Occurrence:
 - Occurs only when the flight gets delayed.

23. Notify Landing

- a. Primary Actor(s):
 - Travelers
 - Airport Employees
- b. Stakeholders and Interests:
 - Traveler: can plan for their trips and time traveling
 - Airline staff: can update the customer about the landing
- c. Preconditions:
 - The app must be configured and registered with a Push Notification Service Provider.
 - The users allow sending messages from airport management.
 - The users turn on their notifications setting
- d. Success Guarantee:
 - Whenever a plane lands, the air traffic controller will update the plane database to set that plane as landing.
 - The traveler will receive notifications as soon as the system receives the updated data from the database.
- e. Main Success Scenario:
 - The traveler is traveling by plane.
 - The plane is landing.
 - The system receives the updates data from the air traffic controller.

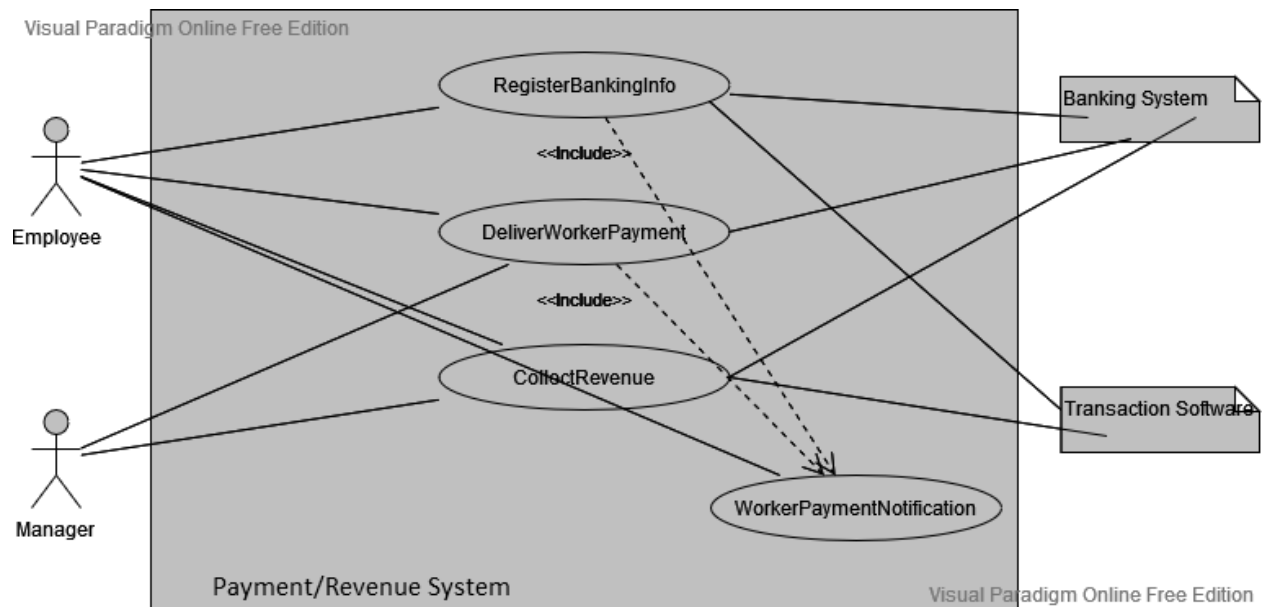
- Notifications database services is used to configure and display notifications to the user.
- The users/travelers receive a notification/message pop up on their phones.
- f. Extensions:
 - The system receives the updates data from the air traffic controller.
 1. Databases also handle the Create, Read, Update and Delete operations.
 2. Get signal from the air traffic controller.
 - The users/travelers receive a notification/message pop up on their phones.
 1. If the users turn on notifications, they will receive the notification.
 2. If the users turn off notifications, they will not receive the notifications.
- g. Special Requirements:
 - HTTP request should be approximated to less than 0.5 seconds.
- h. Technology and Data Variation:
 - The air traffic controller
 - Database
- i. Frequency of Occurrence:
 - Occurs only when the plane is landing.

24. Notify Gate Number

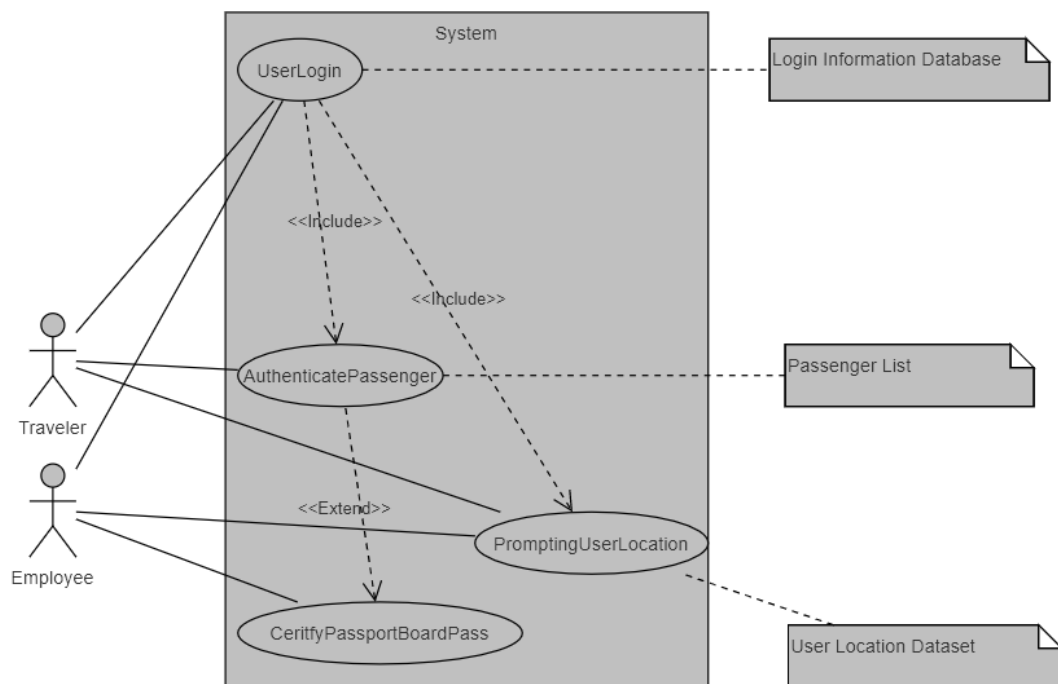
- a. Primary Actor(s):
 - Travelers
 - Airport Employees
- b. Stakeholders and Interests:
 - Traveler: can navigate to their flight gate
 - Airline staff: can make sure their customer can navigate to the right location in the airport
- c. Preconditions:
 - The user provides information about their flights.
 - The app must be configured and registered with a Push Notification Service Provider.
 - The users allow sending messages from airport management.
 - The users turn on their notifications setting
- d. Success Guarantee:
 - The traveler will receive notifications of their gate location an hour before the plane takes off.
- e. Main Success Scenario:
 - The traveler is navigating to their gates.

- The system receives the updates data from user location and airline database system.
 - Notifications database services are used to configure and display notifications to the user.
 - The users/travelers receive a notification/message pop up on their phones.
- f. Extensions:
- The system receives the updated data.
 1. Databases also handle the Create, Read, Update and Delete operations.
 - The users/travelers receive a notification/message pop up on their phones.
 1. If the users turn on notifications, they will receive the notification.
 2. If the users turn off notifications, they will not receive the notifications.
- g. Special Requirements:
- HTTP request should be approximated to less than 0.5 seconds.
- h. Technology and Data Variation:
- The location API
 - Airport database
- i. Frequency of Occurrence:
- Occurs only when the traveler navigate to their gates

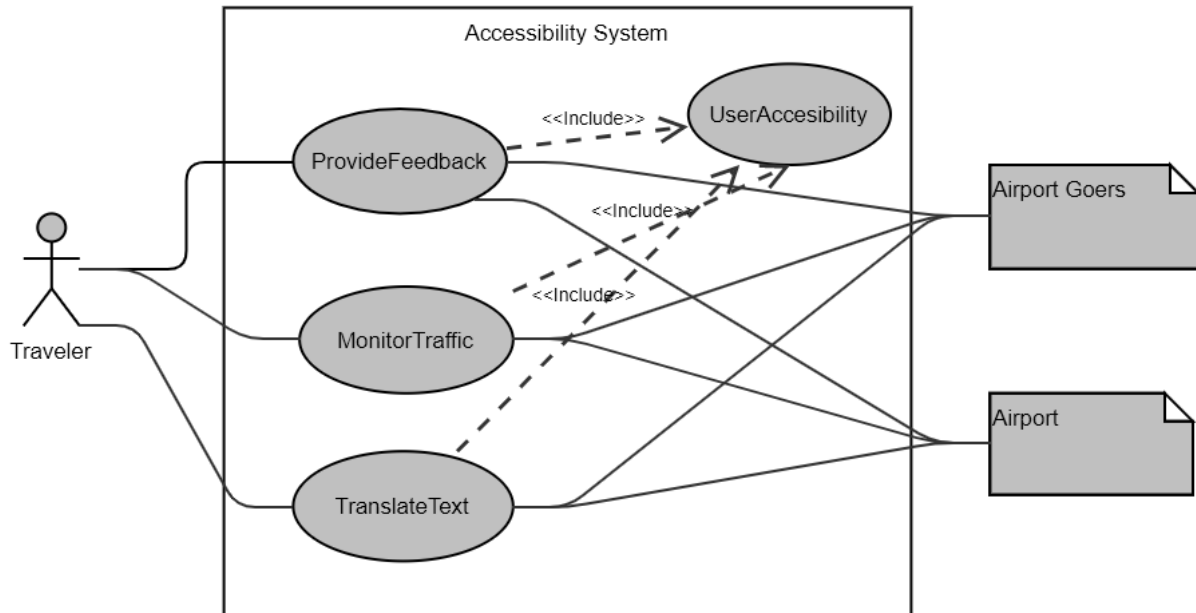
Use Case Diagrams (A representation of interactions between actors and the system)



Represents use cases: 1, 2, 3, 4

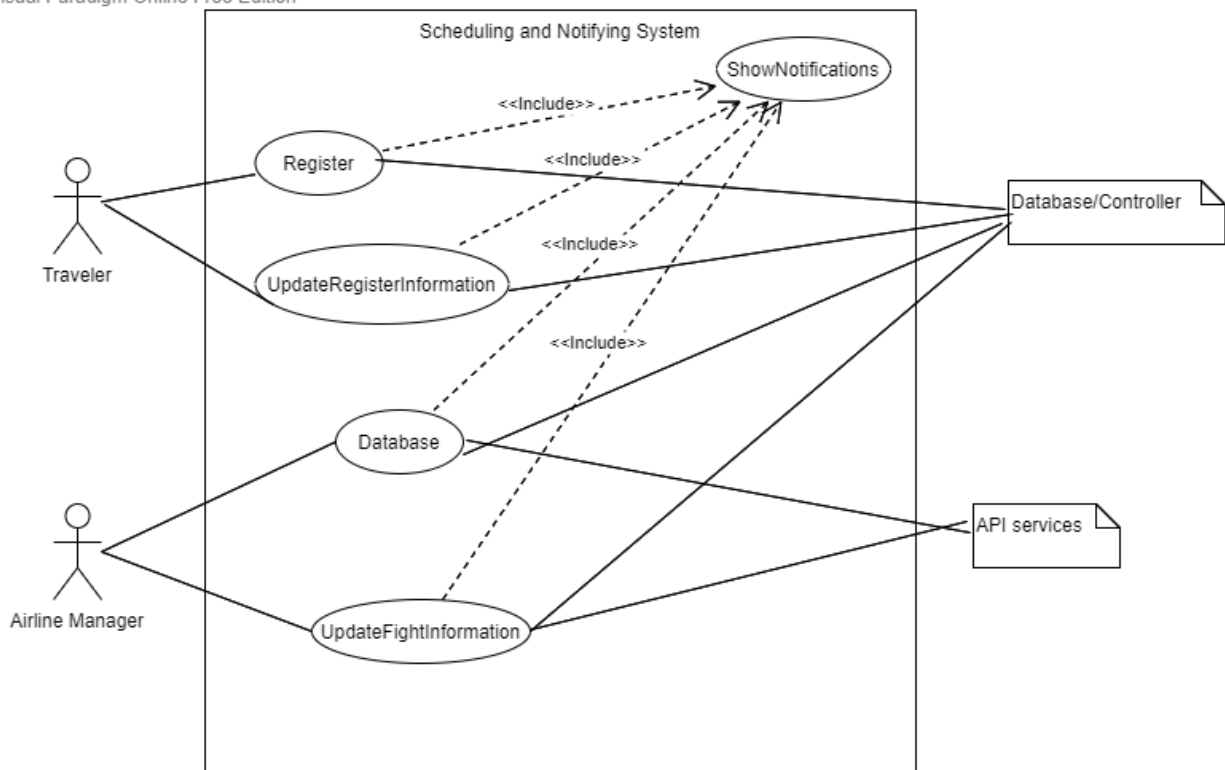


Represents use cases: 5, 6, 7, 8

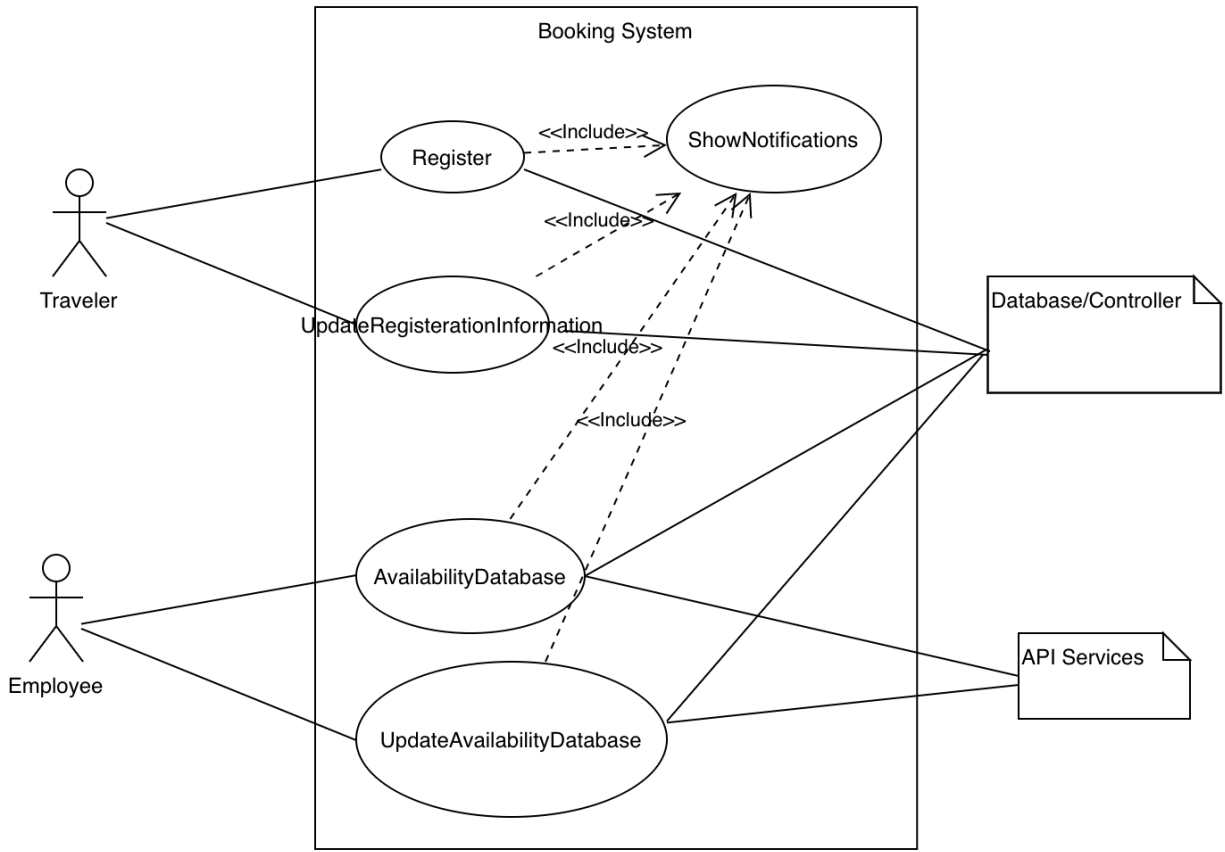


Represents functional and nonfunctional use cases of the accessibility module

Visual Paradigm Online Free Edition



Represent use cases: 21, 22, 23, 24



Represents use cases: 13, 14, 15, 16

Conceptual Class Diagrams:

Possible Initial Domain Model (Classes):

- Flight – this contains all the flight details in an Airport

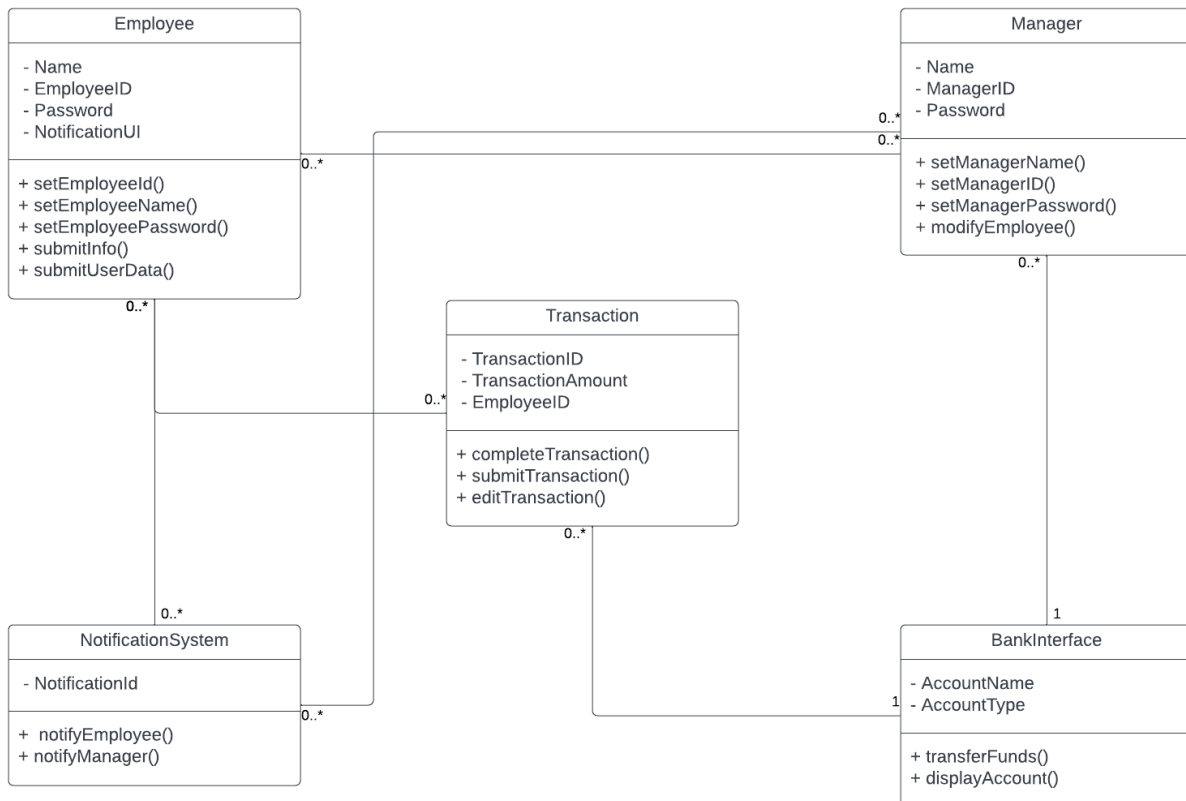
Decide Attributes:

- Flight – FlightId, FlightName, Capacity, StartingTime, ReachingTime, Source, Destination, Price

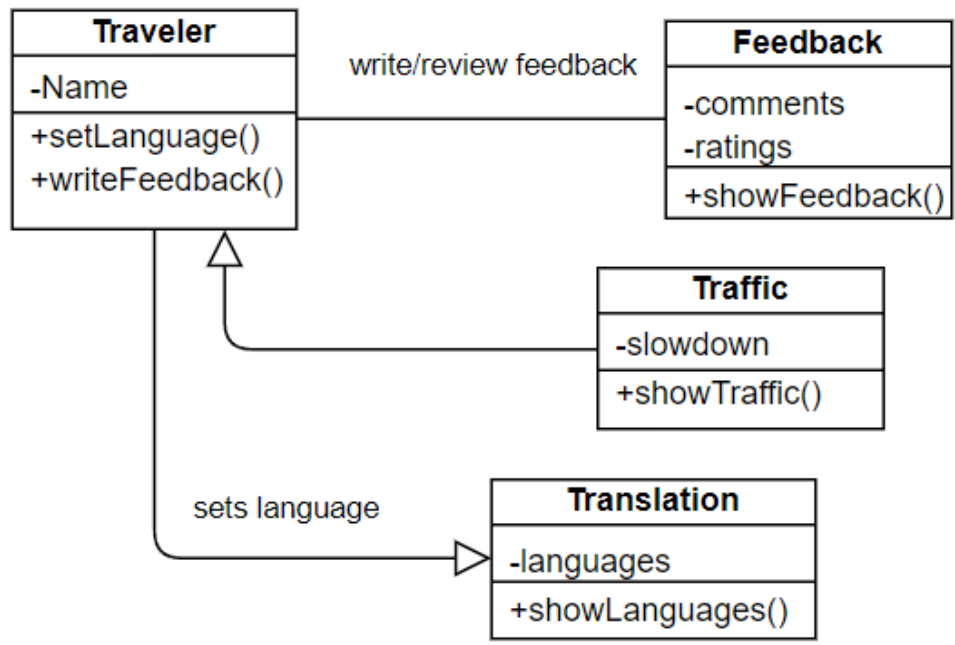
Description Class:

Identify Associations - Relationship between instances of conceptual classes

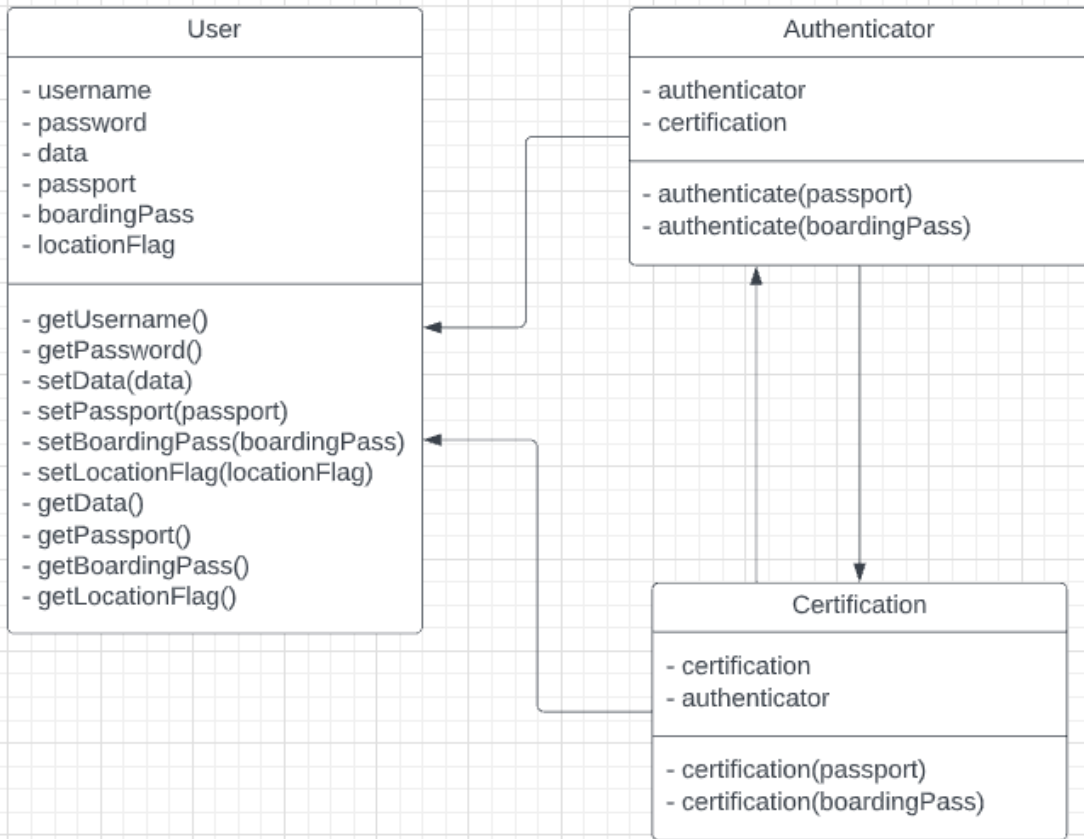
(Multiplicity)



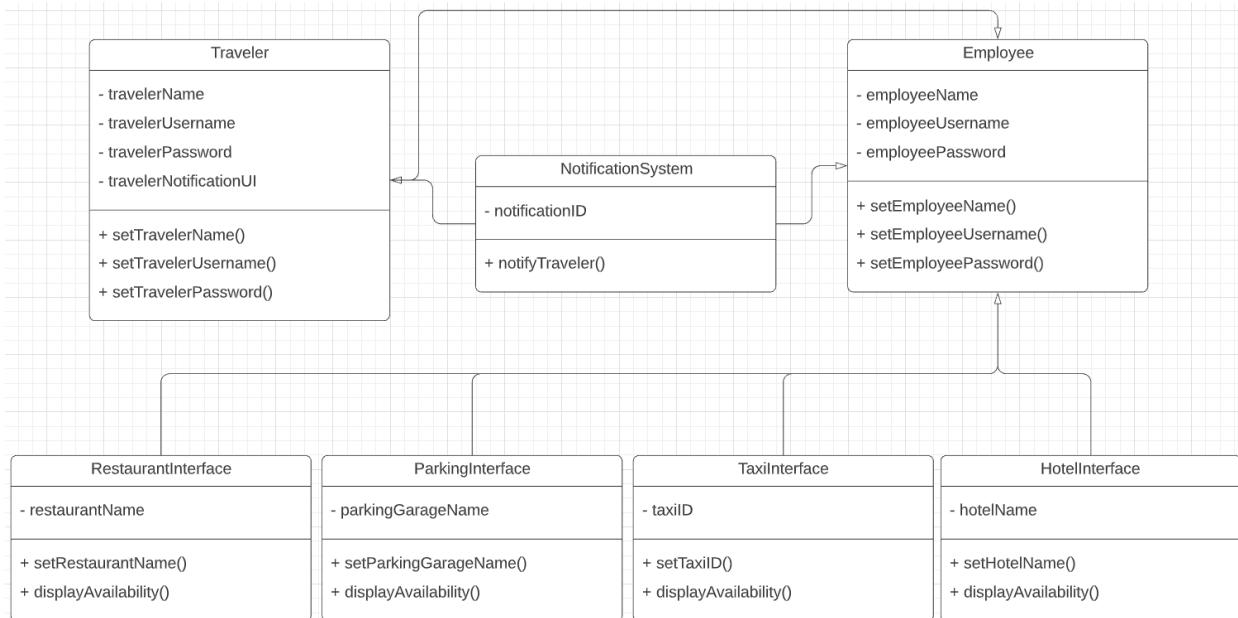
Represents use cases: 1, 2, 3, 4



Represents accessibility module



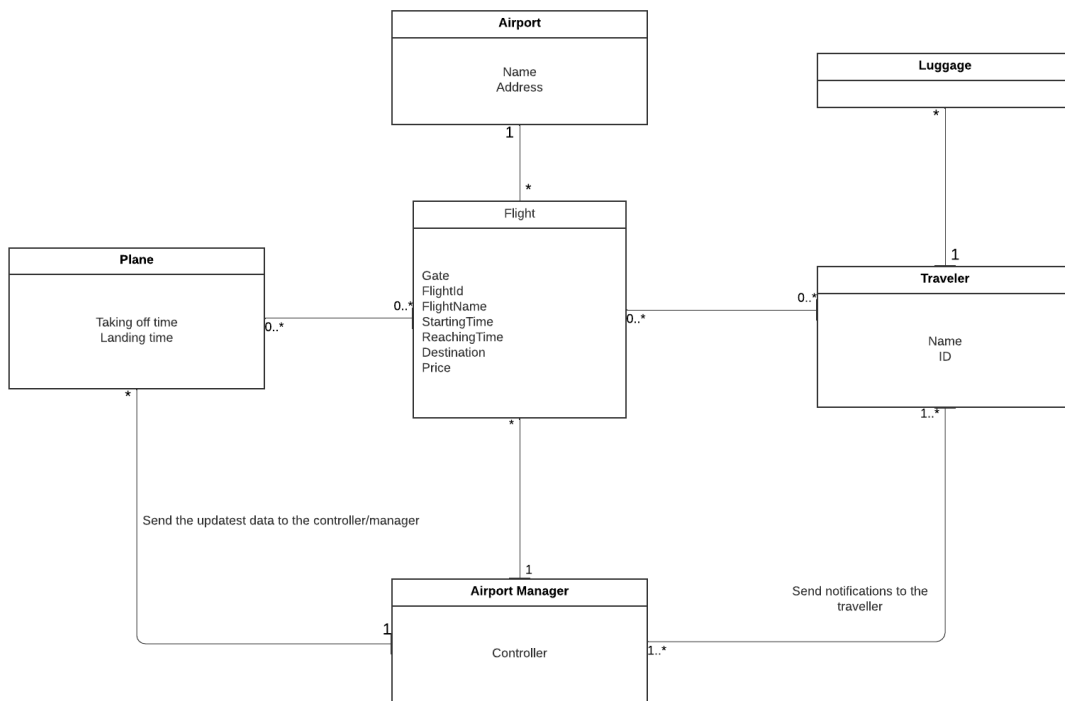
Represents use cases: 5, 6, 7, 8



Represents use cases: 13, 14, 15, 16

Conceptual Class Diagram

Linh Pham | March 16, 2022



Scheduling and Notifying System

Represent use cases: 20, 21, 22, 23, 24

Supplementary Specifications

Non-functional requirements:

Reliability:

- The main pillar of reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes.

Scalability:

- The system can take the stress of large amounts of users and data and continue to function both properly and efficiently.

Usability:

- The application should be easy to navigate, widgets and text should be clear and legible to cover a wide base of potential users.