Université Saint-Joseph de Beyrouth
جامعة القدّيس يوسف في بيروت

Homework#3: RAMI CHALOUHI (221631)

Topic: Train Tracking and Arrival Time Prediction(C)

1) Scope:

This document will cover the necessary requirements and specifications for the development of a Train Tracking and Arrival Time Prediction app. The app is designed to offer passengers access to live updates on train locations, as well as accurate predictions for train arrival times. Furthermore, the project will use Six Sigma methods to make train tracking and arrival time predictions more efficient and reliable.

2) General description:

a) Target audience:

. People who depend on train travel, such as commuters and passenger
. Operators and railway officials responsible for managing train services.

b) Objectives:

. Provide live tracking of train locations and their state.
. Implement Six Sigma principles to strengthen the process efficiency and quality.
. Predict and display the ETA for upcoming stations.
. Improve the train travel experience.

c) Constraints:

. Availability of actual real-time data from the train network.
. Compatibility with all types of train systems and networks.
. Scalability of the infrastructure as the user base grows.

3) Functional requirements:

User Authentication:

. Authentication of users when logging in to the system.

. A verification email will be sent to the user on first sign up.

User Account Management:

. Only admnistrators will have the ability to manage users accounts, including creating, updating, disabling, or deleting user accounts.

Cyber Attack Response:

. In the case of a cyber attack, the system should have a shutdown mechanism to protect the user data.

Train Tracking:

. Display current location of trains on a map.
. Show the whole route and the progress made by a selected train.
. Highlight the next stop of the train.

Arrival Time Prediction:

. Estimate and display the ETA at upcoming stations.
. Keep on updating predictions based on real-time data.

Six Sigma approach:

. Simplify processes and enhance accuracy by utilizing six sigma methods.
. Continuously improve the quality of train tracking and arrival time predictions.

Station Information:

. Provide all the details about each train station such as the services, the ticket price, map. covering connection stations.

Notifications:

. Notify users about any sort of delays, cancellations, updates, or setbacks.

Search and Filters:

. Allow users to search for specific trains or stations.
. Apply filters for different train routes.

User Feedback:

. Enable users to provide feedback on train services.

4) Non-Functional requirements:

Accessibility:

. The system should be accessible and user-friendly, especially for users with disabilities.

Availability:

. The system should be available and up and running all the time.

Efficiency:

. The system must be able to respond quickly to users' actions.

Safety:

. All the user data must be encrypted and kept private.

Performance:

. The app should load quickly and provide accurate data.

Usability:

. The app should have an simple user interface.

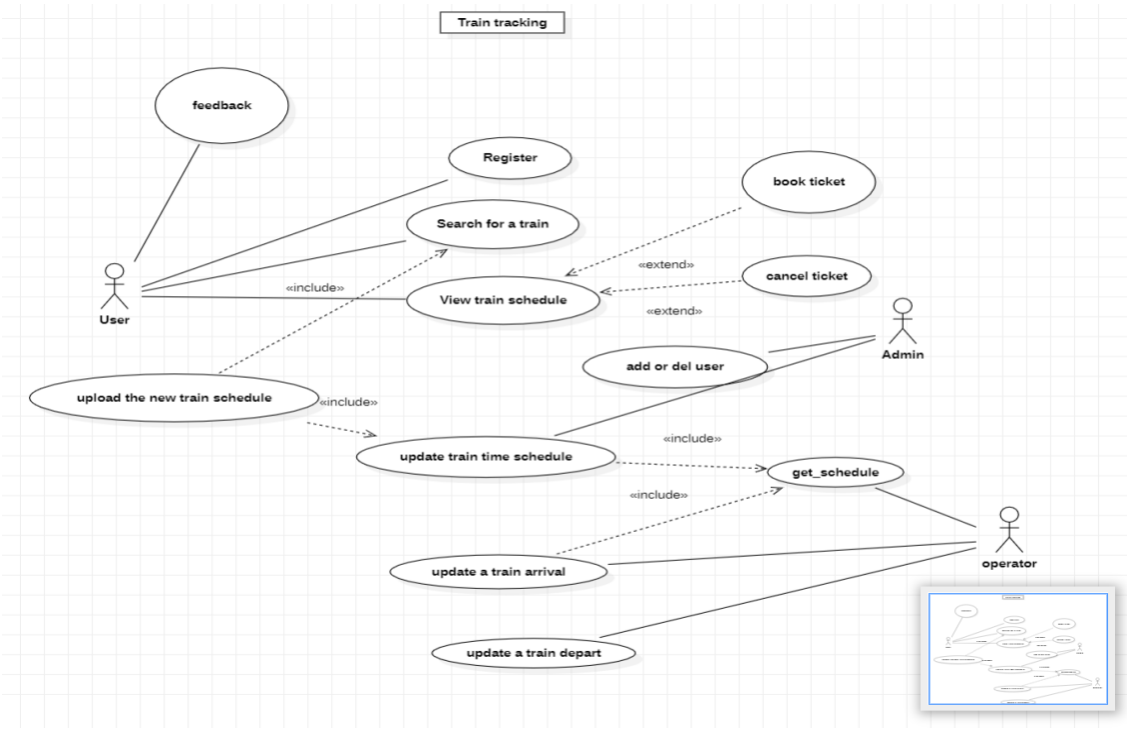
. Accessibility features should be considered.

Scalability:

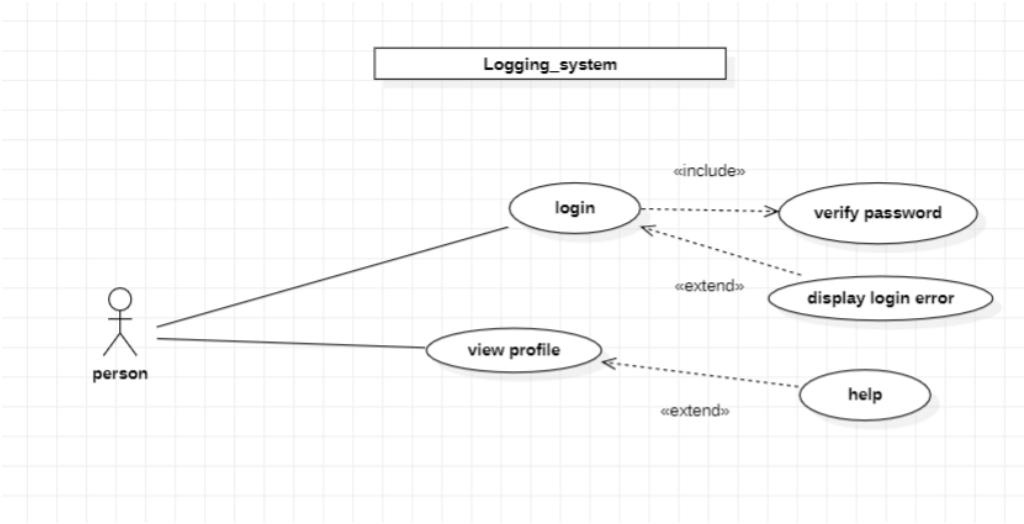
The app should handle a growing number of users.

5) Use case Models:

Use case 1: train tracking and arrival time prediction.



Use case 2: logging system:



6) Appendices:

a. Definitions, Acronyms, Abbreviations:

GPS: Global Positioning System
ETA: Estimated Time of Arrival
API: Application Programming Interface

b) **References:**

Srs document example : https://krazytech.com/projects/sample-software-requirements-specificationsrs-report-airline-database

Six Sigma definition : https://www.techtarget.com/searchcio/definition/Six-Sigma#:~:text=The%20Six%20Sigma%20method%20is,waste%20and%20improve%20existing%20processes.