Midterm Activity – Social Coding Midterm Project

## Social Coding Selection

Select a social coding project application for your team from the below options:

* Option 1: Feature enhancements of the Lab 4.9.2 code by adding user-friendly features to the MapQuest REST API [Level of difficulty: +++]
* Option 2: Adapting the Lab 4.9.2 python framework to integrate GPT-3/GPT-4 REST API [Level of difficulty: ++++]

What were the reasons your team selected this option?

Our team chose option 2 : Adapting the Lab 4.9.2 Python framework to integrate Gemini and REST API.

Our project, "Professional Transportation Planner," combines multi-modal route analysis, geolocation services, and an AI-powered assistant to tackle real-world route planning difficulties.

We chose this project because it gave us a chance to explore new and exciting technologies like Retrieval-Augmented Generation (RAG), use the GraphHopper API for live map data, and apply Gemini to help make smarter travel decisions. This made our project special. Instead of just comparing routes, our tool also looks at important things like cost, travel time, and environmental impact—which are all becoming more important for planning better and greener transportation in cities.

Describe your team's project application and its deliverables. What are the specific objectives of this application?

Our team's project is called Professional Transportation Planner. It is an AI-powered web application designed to help users plan and compare different travel routes. The main goal is to make transportation smarter, faster, and more eco-friendly by combining real-time map data with intelligent AI suggestions.

#### Project Deliverables:

A working web application with a simple interface built using Gradio

Integration of GraphHopper API for live geolocation and route planning

AI assistant powered by Gemini to provide travel tips and insights

Features for cost estimation, travel time, and environmental impact for each route

Support for multiple transportation modes: car, bus, bicycle, walking, and airplane

#### Specific Objectives:

Help users compare routes across different transport modes based on time, cost, and impact

Provide intelligent suggestions using AI to improve travel decision-making

Support sustainability by showing the environmental effects of each route

Make the system easy to use, with a simple UI and fast performance

This project not only solves a real-world problem but also lets us apply what we've learned in AI, APIs, and software development.

Record your team member roles and skillsets

| Team member | Role/Knowledge/Skillset |
| --- | --- |
| Bahodir Nematjonov-12225254 | Python/RestAPI, Docker, GitHub, Problem Solving skills |
| Ozodbek Umurzakov-12235639 | PHP,Python,Some machine Learning, C++ |
| Akimov Sarvar-12214739 | Python, C++, OpenCV, Computer Vision, Linux |
| Khamidova Leyla - 12204514 | Zero-knowledge proofs, zk-Rollups, DeFi, Tokenomics |
| Suiindik Akniyet -12225266 | DevOps,Linux,computer security- interest |

## Strategy/Project Plan

Provide a brief description of your team’s strategy for completing this project.

We started with defining the project goals and assigning roles according to our strengths. We chose to create the Professional Transportation Planner on Python and incorporate Gemini for intelligent route insights. One of us focused on the integration of the GraphHopper API, another on the RAG system for AI integration, and the final one did the Gradio interface. We were meeting on a regular basis to report back to each other, check the features, and resolve bugs. Additionally ,2 of the team members had to create the report and presentation section.

## Using GitHub for Collaboration

What is the link to your GitHub repository?

<https://github.com/bahodir4/software-engineering-devasc.git>

Describe how GitHub was used to:

1. Create branches (in the context of this project)

Instead of making separate branches, members shared their work in terms of files or messages, and the main contributor added them to the main branch with proper commit messages. That kept us up to date without having made a lot of different branches.

1. Add team members (and their branches/commits)

| Bahodir Nematjonov-12225254 |
| --- |
| Ozodbek Umurzakov-12235639 |
| Akimov Sarvar-12214739 |
| Khamidova Leyla 12204514 |
| Suiindik Akniyet -12225266 |

1. Mention pull requests, code review, merge, etc. (in the context of this project)

Although we mostly developed on the main branch, we saw the benefit of using pull requests and code reviews in teamwork. When the code was being updated, our team members inspected the updates by going through the GitHub commits and discussed any changes needed in our meetings. This avoided mistakes and ensured that the end product of the code was clean and functional before we pushed it into the main branch

## Final Deliverables

### Presentation

Create a presentation about the project you selected. Your presentation should include:

* Information about your application, covering what features your team included
* The reasons that your team decided on these specific features in your application
* Application code including comments and documentation. Your comments and documentation should be sufficient for any other team to be able to continue the project if required. Another team should be able to understand the application, your features and how to continue with the project
* Demonstration of the application
* List of future enhancements (backlog)
* Reflection points – what issues have you faced while working on this activity, how did you find solutions, what have you learned, etc.