

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 the GPT-3/GPT-4 REST API** due to our interest in working with advanced AI models and deepening our understanding of **API integration**.

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

Our team developed a **navigation application** designed to provide flexible and intelligent route guidance. The core functionality allows users to select their preferred mode of transportation—**car, bike, foot, or public transportation**—to find optimal routes tailored to their needs.

To enhance the user experience, the application includes several advanced features:

- **Public Transportation Integration:** Offers detailed routing using real-time transit data for buses, subways, and other public transport options.
- **AI-Powered Route Summary:** Provides a brief overview of the selected route with contextual highlights.
- **Weather Advisory:** Notifies users of weather conditions that may affect travel and recommend necessary products to prepare for the trip.
- **Voice-like Instructions:** Delivers step-by-step navigation guidance in a natural, speech-like format.

- **Accommodation Finder:** Suggests nearby accommodations (e.g., hotels or guesthouses) near the destination to support route-based travel planning.

Deliverables included:

- A fully functional multi-modal route planner.
- Integration of third-party APIs for transportation data, weather updates, and accommodation listings.
- A clean, user-friendly interface with responsive design.
- Documentation covering setup, usage, and future improvement suggestions.

Objectives:

- Enable users to plan routes efficiently based on their preferred travel method.
- Incorporate real-world data (like weather, public transit schedules, and nearby accommodations) to enhance decision-making.
- Improve accessibility and usability through intuitive design and voice-like interaction.

Record your team member roles and skillsets

Team member	Role/Knowledge/Skillset
Lukas	Developer which primarily focused on implementing the public transportation feature and the accommodation functionality . With a strong programming background, he ensured robust and efficient code. Additionally, his excellent communication and collaboration skills greatly supported team coordination and a positive working dynamic.
Komronbek	Primarily focused on implementing the voice navigation feature, adding real-time audio guidance to the application using text-to-speech libraries. Leveraged Python skills and API familiarity to ensure smooth and responsive audio functionality.

Chaw Thiri San	Full-stack developer contributing to the integration of external services and enhancement of user interaction features. Integrated weather forecasting functionality by implementing REST API concepts. Implied python programming logic for backend , git for version control & IoT knowledge to improve the user experience by implementing UI/UX features. Contributed to the team project by actively participating in all team meetings and generating innovative solutions during brainstorming sessions.
Sunnatbek	In our group project, I am responsible for implementing and refining key features of the multi-modal navigation application. My main task is to make a better suggestion for the user. My part includes suggestions according to the distance. Distance is important in this case, because my part works according to how long or short the distance is during case.

Strategy/Project Plan

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

Our team followed a structured and collaborative strategy to complete the project effectively. We used **Git** for version control and collaborative development, enabling us to work on individual features through branching and later merge them into a unified project. To maintain alignment and track progress, we held **weekly team meetings** where we discussed tasks, resolved issues, and planned next steps. This combination of regular communication and organized version control helped us stay on schedule and ensure smooth integration of all components.

Using GitHub for Collaboration

What is the link to your GitHub repository?

<https://github.com/BaratovSokhibjon/inha.sw-programming>

Describe how GitHub was used to:

- a. Create branches (in the context of this project)

To manage our workflow and ensure smooth collaboration, we used GitHub to create separate branches for individual features. Each team member worked on a specific feature in their own branch, allowing us to develop and test code independently without interfering with the main codebase.

Additionally, we created a dedicated **midterm project branch** to serve as an integration point where all the feature branches were merged. This branch allowed us to combine, test, and review the complete project before final submission.

- b. Add team members (and their staff branches/commits)

Lukas: Branch feat/rests (TODO include github insight link)

Chaw : Branch names (weather forecast, 12225272, UI/UX on 'main' branch, project demonstration on 'staging' branch)

Komronbek : Branch names (voice-update, 12235649_branch)

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

Once a feature was complete, a **pull request (PR)** was created to merge it into the main integration branch—the **midterm project branch**. Before merging, team members reviewed each other's code to ensure quality, maintain consistency, and catch potential bugs early. This **code review process** encouraged communication and helped maintain a clean, functional codebase.

After approval, features were merged into the midterm project branch, where we conducted **integration testing** to verify that all parts of the application worked smoothly together. This Git-based workflow allowed us to collaborate effectively while minimizing conflicts and improving overall code quality.

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.