

ECpE 492 – Bi-weekly Report #2

Sept 17 – Sept 27

Project Title	Interactive evaluation of shortest path methods
Client & Advisor	Goce Trajcevski
Team	sddec23-14
Team Members	Alex Blomquist, Samuel Caldwell, Selma Saric, Yadiel Johnson

1 Report

1.1 Abstract

The team has laid down a roadmap for tasks to be performed in the coming weeks. These will serve as progress trackers for individual tasks, organized in the GitLab Issues section of the repository. Additionally, work has been done to get early versions of the backend web server and the Algorithm Execution Driver functioning and set up for collaboration.

1.2 Work Breakdown

This period, the team began programming development for the project. This included two major aspects of the backend: the web server and the Algorithm Execution Driver.

- The web server will be built on Spring Boot, as it provides ample functionality for our purposes. After reviewing documentation and testing new features, an early implementation of the server was developed and shared on GitLab. This iteration features HTTP request handling, static page hosting, and a basic structure for code implementation.
- The Algorithm Execution Driver will be a Java-based code base that is mainly used by the web server. The decision was made to narrow the scope of external source code usage to Java as well (to remove variance in OS operations, among other things) which led to a reevaluation of what shortest path algorithm implementations could actually be used. Various proof-of-concept AED implementations have been made but it has not yet been ironed out.

Besides that, the team also shifted away from Trello towards the GitLab Issues Board for task management now that GitLab will have more significant activity. For this upcoming period, tasks have been divvied among the four members to cover as much ground as possible. Further information can be found in the Work Planned for Next Week section.

Finally, the virtual machine that was procured was provisioned by ISU ETG, allowing the team to test different methods for deployment and execution.

1.2.1 Major accomplishments

- Initial setup of the Algorithm Execution Driver, the web server, and the initial batch of algorithms.
- Research into the respective formatting of the algorithm implementations and their data sets/graphs.
- Integration of GitLab's Issue Board to ensure assignment and visibility of weekly tasks.

1.2.2 Pending issues

- N/A

1.2.3 Individual contributions

Name	Individual Contributions	Worked Hours	
		This Period	Cumulative
Alex Blomquist	<ul style="list-style-type: none">• First stages of setup on our VM from the Electronics and Technology group• Research and review on setup of a Spring Boot server on our Linux VM• Assisted in group delegation of tasks and initial algorithm implementation choices• Research and review on setup of CI/CD pipelining for the team's GitLab	4	51
Samuel Caldwell	<ul style="list-style-type: none">• Research on MapBox API implementations• Formatting dataset outputs for integration into MapBox.• Began implementation of the visualization renderer using MapBox.	6	52
Selma Saric	<ul style="list-style-type: none">• Began work on UI/home page of the web application• Lead discussion and helped team members get tasks assigned to them for the next couple of weeks• Filled out meeting minutes document and Gitlab for project management	4	58
Yadiel Johnson	<ul style="list-style-type: none">• Continued development for the Spring Boot web server.• Initial implementation for the AED and adapting certain algorithms.• Section 1: Report and overall development for this weekly report.	6	72

2 Comments and extended discussion

2.1 Work Planned for Next Week

2.1.1 Collective

The next major step for our project is to continue work on algorithm implementation in the backend and get the basic UI and home page set up within the frontend. We will also begin work on instantiating the SpringBoot server on the VM and continue researching the MapBox and Graphology APIs and how to implement them into our project.

2.1.2 Individual

- Alex Blomquist
 - Complete the setup of the Spring Boot server on the VM
 - Evaluate which tests will need to be integrated into the CI/CD pipelining process
 - Begin first steps of REST endpoint setup and integration
- Samuel Caldwell
 - Finish researching MapBox API implementations.
 - Finish creating a standardized format for the datasets to be implemented into the MapBox visualization tool.
 - Begin research on Graphology API implementations
 - Implement another standardized dataset format for implementation into the Graphology visualizer.
 - Continue to develop the visualization renderer.
- Selma Saric
 - Continue updating the meeting minutes document when we meet with our client
 - Update the Gitlab issue board as new tasks come up
 - Continue working on the basic UI home page layout
- Yadiel Johnson
 - Continue development of the RESTful API server.
 - Research more variations of algorithms that are applicable to this project, alongside their dataset formats.
 - Finish revising the comprehensive Design Document

2.2 Summary of weekly advisor meeting

Within the past couple of weeks, we have met with our client once. During this meeting, we discussed some algorithm implementations we found within GitHub and asked whether our client felt they were good enough for our project. After some discussion, we decided to use a couple of implementations while continuing to research other ones we can add.