

ECpE 491 – Weekly Report #3

Feb 13 – Feb 19

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

1 Report

1.1 Abstract

The results of this week's work comes in the form of a team-wide review and taxonomy summary of [Madkour et al.'s "A Survey of Shortest-Path Algorithms"](#). Then, the client meeting kickstarted the creation of project documentation and further brainstorming on the implementation side. Finally, the team spent time creating the Team Initiation and Team Contract documents so that we can ensure a stable, productive, and successful working environment going forward.

1.2 Work Breakdown

This week, our team committed to a proper literature review of the shortest-path survey. The purpose of this document is to take the information provided and make it easier to parse as a reference long term. Additionally, it gives the team a further understanding of the domain of the project and ways to capitalize on it during our design. The taxonomy covers a wide array of shortest-path algorithm classifications, but the ones that we recorded were...

- Static Shortest-Path
- Dynamic Shortest-Path
- Time-Dependent Shortest-Path
- Stochastic Shortest-Path
- Parametric Shortest-Path
- Replacement Shortest-Path

... and their subclassifications.

Later in the week, the team met with the client to get a further understanding of what our project should look like. [The summary for that meeting can be found here](#), but the takeaway was that the team should be switching gears towards figuring out implementation details for the project.

Then, the team met to discuss a Team Contract that defines acceptable behavior and expectations during the course of the project. Combined with the Team Initiation document, this should allow the project to start progressing more substantially as the weeks go on.

1.2.1 Major accomplishments

- Finished the quick reference document for different algorithms in [Madkour et al.'s "A Survey of Shortest-Path Algorithms"](#).
- Creation of a use case diagram to deepen understanding of the project and how its requirements will shape our future design of it.
- Solidified the Team Contract and Team Initiation documents to ensure that the team understands each other optimally.
- Increased the scheduled meeting amount to allow more time for the project's development and sharing ideas.

1.2.2 Pending issues

- N/A

1.2.3 Individual contributions

Name	Individual Contributions	Worked Hours	
		This Week	Cumulative
Alex Blomquist	<ul style="list-style-type: none"> • Started work on a use case diagram. • Assisted in the development of the team contract and scheduling additional meetings. 	4	12
Samuel Caldwell	<ul style="list-style-type: none"> • Started work on the use diagram. • Developed team contract. • Completed summary for sections 8, 9, and 10 of the research survey document. 	4	10
Selma Saric	<ul style="list-style-type: none"> • Helped finish up reference document for shortest path algorithms. • Started work on use case diagram. • Developed team contract and scheduled additional team meetings. • Started meeting minutes document 	5	11
Yadiel Johnson	<ul style="list-style-type: none"> • Completed the summary for sections 5.1, 5.2, and 6 of the research survey document. • Participated in the development of the team contract and initiation documents. • Designed the use case diagram. • Reformatted and proof-read the above documents. 	6	13

2 Comments and extended discussion

2.1 Work Planned for Next Week

2.1.1 Collective

The team will meet next week to discuss, at a high level, what the product should be. The goal of this is to start the brainstorming process early and present these ideas to the client. High-level concepts that will be discussed are:

- Target platform (desktop web application, native application, etc.)
- Languages, libraries, or features that are relevant to this project
 - “What languages are ideal for the shortest path calculations?”
 - Low overhead may be a priority if this is a web application, as the server will handle multiple requests. Not so much if it is a native application.
 - “Are there any libraries that would improve the project?”
- Deployment goals (website, packaged application, etc.)
 - Websites nearly require a JavaScript-derivative language, but native applications can use nearly anything. Operating systems also play a big role when considering portability (Windows binaries on Unix, for example).
- Feasibility of the above topics
 - Grade the difficulty of each of these relative to the skill sets shared in the team initiation document. Find a middle ground between optimal and realistic.

2.1.2 Individual

- Alex Blomquist
 - Commit additional time to flush out detail in the use case diagram to better understand potential system requirements.
 - Edit use case diagram based on feedback given to us by the client.
- Samuel Caldwell
 - Flush out details in the use case diagram to better understand potential system requirements.
 - Continue review of Shortest Path documents.
- Selma Saric
 - Commit additional time to flush out detail in the use case diagram to better understand potential system requirements.
 - Edit use case diagram based on feedback given to us by the client.
 - Continue working on the meeting minutes document.
- Yadiel Johnson
 - Improve upon the use case diagram where possible.
 - Research optimal project implementation languages, libraries, platforms, etc.
 - Suggest other design documents for the team to detail.

2.2 Summary of weekly advisor meeting

This week's meeting included discussing the team contract assignment with our client. During the meeting, the client suggested that we should create a use-case diagram to get a better understanding of what the requirements for the project are.