SE 4920 STATUS REPORT 3
2/14/2025 - 2/27/2025

Group number: sdmay25-30

Project title: *Explainable AI for source code applications*

Client &/Advisor: *Arushi Sharma*

Team Members:
Manjul Balayar
Sam Frost
Akhilesh Nevatia
Ethan Rogers
Rayne Wilde

Period Summary

Over the course of this working period,we made progress by establishing key modules for the web app, including the configuration of data endpoints to facilitate layer selection and cluster navigation, and sunburst visualization, and UI/UI updates. We addressed CI/CD pipeline bottlenecks in the GitLab repository, restructured the integrated collaborative documentation to reflect foundational changes in clustering methodologies, and initiated exploratory work into integrating hyperbolic embeddings and clustering into the library. Efforts were also directed toward developing scalable and robust container solutions for the web app, refining the library documentation to boost usability, and streamlining both GitLab documentation and CI/CD processes.

Last period accomplishments

Manjul Balayar:
- Set up web app modules and data endpoints for layer selection and cluster navigation
- Implemented sunburst visualization on the web app

Sam Frost:
- UI/UX updates for more accessible use
- Improved dash integration with flask

Akhilesh Nevatia:
- Fixed CI/CD Pipeline bottleneck issues with our gitlab repo
- Restructured integrated collab documentation for clustering based on a few underlying changes

- Started looking at ways in which we can add Hyperbolic Embeddings and Clustering into our library

Ethan Rogers:

- Further read through some repositories shared by Arushi
- Read a paper shared by Akhilesh for adding on to activation extraction
- Started writing a little bit of documentation in markdown for using CLI/python functions for activations

Rayne Wilde:

- Work on developing scalable, robust containers for the web app.
- Improved library documentation for better usability.
- Fixed GitLab documentation and streamlined CI/CD.
- Created explainability docs for non-technical users.

- **Pending issues**

Manjul Balayar: N/A
Sam Frost: N/A
Akhilesh Nevatia: N/A
Ethan Rogers: N/A
Rayne Wilde: N/A

Individual Time Contributions

Name	Hours This Period	Total Hours
Manjul Balayar	7	14
Sam Frost	4	13
Akhilesh Nevatia	6	19
Ethan Rogers	5	11
Rayne Wilde	3	11

Plans for the upcoming period

Manjul Balayar:

- Making sure that linkage matrix is being properly processed
- Implementing dendrogram on the web app

Sam Frost:

- Add relevant pages on web app for background information/details
- Add accessibility features, where possible

Akhilesh Nevatia:

- Running Hyperbolic Clustering Example Locally as a reference
- Identifying and modifying essential builds, scripts, and dependencies from github repo implementing hyPHC paper to port into our library
- Building a MVP for Hyperbolic Clustering on our repo / library

Ethan Rogers:

- Place documentation into Colab
- See if extracting necessary information for clustering works locally, if so move it to the Git and Colab

Rayne Wilde:

- Enhance **explainability** to improve clarity for non-technical users.
- Develop a **web page** that breaks down the project and library in a non-technical format.

Summary of weekly advisor meetings

Our weekley advisor meetings were concise this week, as we are following the path laid out at the beginning of the semester. Both parties confirmed that progress is taking place at the appropriate speed, and that the features are meeting expectations.