SE 4920 STATUS REPORT 1

End of 4910 - 1/30/2025

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

The focus of this period was having our first advisor meeting of the semester. This involved sharing updates on the project since team members were on break, discussing the items mentioned in "Instructor Review Meeting 1: 4910 Project Review", and giving us a more clear path forward for the rest of the semester. This meeting took place Wednesday, 1/29, meaning that there is not much technical work that was done before this document's due date.

Last period accomplishments

Manjul Balayar:

- Worked on refactoring alignment code from CodeConcept repository.
- Implemented a command line interface for alignment execution
- Handled clustering output and alignment workflow for integration in the colab notebook

Sam Frost:

- Researched technical changes in project since the end of last semester
- Adjust project documentation to align with new expectations in 4920

Akhilesh Nevatia:

- Incorporated all the clustering algorithms from the "codeconceptnet" repo into our cocoa, our python library repo
- Made the same importable and executable through bash commands
- Expanded on the current cluster evaluation metrics, made organized documentation for the same

- Started a Google Collab notebook showing execution of all of the clustering algorithms and evaluations with documentation and steps on how to use them after installing the library

Ethan Rogers:

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Rayne Wilde:

- Created Dendogram Code, as well as tested saving off and accessing dendogram objects.
- Implemented CI/CD for documentation as well as ensured PEP8 and ISO standards for documentation and help
- Improved CI/CD for package deployment to incorporate pip installability as well as documentation
- Created a stable container for deployment of packages
- Began to streamline and clean up the package and code structure as well as extraneous lines of code
- Updated the code to Cocoa for research purposes

- **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 Week	Total Hours
Manjul Balayar	3	3
Sam Frost	3	3
Akhilesh Nevatia	8	8
Ethan Rogers	2	2
Rayne Wilde	5	5

Plans for the upcoming period

Manjul Balayar:

- Making sure alignment works seamlessly in the notebook
- Checking the overall workflow and making an end-to-end example
- Looking into various different tools and frameworks we will be using for this semester

Sam Frost:

- Update documentation to reflect updates in project since break
- Look into technologies used for the web app and how we will adapt/change the implementation

Akhilesh Nevatia:

- Work further on getting the Collab Polished and the Updated Cocoa Library working together in an Integrated manner
- Expand on the Clustering evaluation metrics, and get the same reviewed and approved by Arushi
- incorporate Hyperbolic Clustering (only hierarchical clustering method that needs changes, after discussing with Arushi)
- Learn and Play Around with Dash to Assist with the web-app development & deployment to visualize clusters and explore our python library usage

Ethan Rogers:

- Finish out the Colab working with others
- Make functional examples demonstrating capabilities
- Look into how web-apps are made and the process to bridge the gaps in my knowledge

Rayne Wilde:

- Polish Repo and CI/CD
- Clean up extraneous code and objects in the git repository
- Make Sure the dendrogram colab is working well.
- Containerize the original web-app and move it into our repo
- Deploy containerize web-app from our git repository

Summary of weekly advisor meetings

We met with our advisor once in this period, this being on 1/29, with the focus of the meeting described in the Period Summary.