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

This period was primarily focussed on beginning finalization efforts to prepare for product delivery. We updated the design document to align with the current semester's expectations and included documentation for newly implemented functionality. Specifically, we improved the hyperbolic clustering repository code to better handle activations processed by CodeBERT, enhanced the visualization components, and provided clearer documentation along with an easy-to-follow execution script. Additionally, we rebased and containerized the web application, refining our CI/CD pipeline to facilitate automated redeployment and containerization processes, and revised the design document to clearly communicate the overall system architecture and implementation.

Last period accomplishments

Manjul Balayar:
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Sam Frost:
- Updated design document for this semester's expectations
- Added newly implemented functionality to design doc

Akhilesh Nevatia:

- Updated Hyperbolic Repo Code to work better with codebert processed activations

- Update visualization, documentation and a how-to-run script for the this repo as the code overall is pretty dense

Ethan Rogers:
- Putting together a colab notebook that includes all relevant examples for phrase versus token activations
- Fixing bugs I find along the way when attempting to accomplish above

Rayne Wilde:
- Rebased and containerized the webapp application
- Enhanced CI/CD pipeline to include redeployment of webapp and containerization
- Work on design document to communicate overall design

o **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		14
Sam Frost	4	21
Akhilesh Nevatia	4	29
Ethan Rogers	4	20
Rayne Wilde	6	21

Plans for the upcoming period

Manjul Balayar:
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Sam Frost:

- Finish design document for instructor review

Akhilesh Nevatia:
- Ideally link the repo with Nova to be able to submit jobs for larger activations, not being handled locally as not enough power on CPU, run tests
- Help out with design documentation

Ethan Rogers:
- Hoping to shortly finish the first iteration of token versus phrase-level and provide the example colab to our client
- Ensure visualization of these accumulated tokens is correct and meaningful
- Compare AST approach versus collection of tokens and subsequent statistics

Rayne Wilde:
- Unify static and webapp deployment
- Rebase repository for better continuous development
- Add in extended capabilities of webapp; sunburst, and dendrograms.
- Open webapp to broad internet not stuck to ISU servers

Summary of weekly advisor meetings

Weekly advisor meetings primarily focused on reviewing progress, discussing challenges, and aligning team efforts toward finalizing project deliverables. We updated our advisor on enhancements such as clustering improvements, web application containerization, and documentation updates, and incorporated feedback to ensure alignment with project goals and semester expectations.