EE/CprE/SE 492 STATUS REPORT
02/27/2025 – 03/13/2025
Group number: 20

Project title: HADES: Holistic Astronomical Database Exploration System

Client/Advisor: TRAJCEVSKI, GOCE

Team Members/Role:

NAME		***ROLE***
BYRD, JAMES	–	Database Backend, Cyber Specialist
COLLINS, EAMON	–	Client Contact, Database Backend
NORRIS, ALEK	–	Database Backend, Cyber Specialist
POLSTON, ALEXANDER	–	Database Backend, Cyber Specialist
SNYDER, ANDREW	–	Database Backend, Cyber Specialist
VARNITSKYY, SVYATOSLAV	–	GUI Specialist, Database Backend

- **Summary:**

Over the past two weeks, our team has made significant progress in developing and integrating key components into the application. This includes enhancements to our Natural Language Processor, which now provides improved assistance for query creation and formatting, and a comprehensive refactoring of the database and its associated scripts. Additionally, we have developed various GUI components to create a more polished and user-friendly interface for both the application and the connected database. Alongside these updates, we have also implemented Tox scripts for testing, established a CI/CD pipeline, and refined the GUI to further enhance usability and design consistency.

- **Accomplishments:**
  - Integrated CI/CD into our project Git lab.
  - Redesigned Query Page
  - Added export to CSV functionality
  - Completed linting setup
  - Implemented GPT Functionality
    - Began testing NLP translation

- **Individual contributions:**

NAME	Individual Contributions	Hours this week	HOURS cumulative
BYRD, JAMES	Worked on the Utilities page, namely a dataset download tool that allows the user to select a currently available dataset from the Posydon download page. This tool will be integrated with the data parser/DB creation tool to allow a hands-off process for the user to select data and create a database.	6	76
COLLINS, EAMON	Integrated CI/CD into Project Gitlab, and ironed out some testing bugs. Made major GUI changes to the query page. Coordinated communication with client/advisor. Worked on documentation and managing issues, reviewed merge requests, and provided feedback to the team.	9	85
NORRIS, ALEK	Designed and implemented three main components: GPT Setup, Database Setup, and GPT Interaction. GPT Setup enables users to configure NLP parameters and API keys for chatbot interaction. Database Setup (WIP) supports remote or local database configuration via an SSH tunnel on a user-specified port. GPT Interaction verifies the connection to the GPT model and facilitates communication.	10	81
POLSTON, ALEXANDER	I initially worked on some encryption for portions of our code, but we decided to put that on the backburner after unexpected issues arose. After that, with help from Svet on frontend implementation, I completed the export to CSV function and worked on documentation.	10	82
SNYDER, ANDREW	This week I assisted with setting up linting and performed linting on the code. In addition, I improved our database setup script by consolidating similar tables. I then rewrote our system prompt for natural language processing to incorporate our database schema into responses. Finally, I set up pagination and horizontal scrolling for database results.	11	89

VARNITSKYY, SVYATOSLAV	Provided feedback and did code review of frontend components created by other team members. Assisted team member in creating API calls for data download functionality. Improved styling throughout the application. Began work on the history page. Resolved issue with backend not running on Mac machines.	9	85

Upcoming Plans

In the coming weeks, we will continue to finalize any remaining features and focus most of our development time on refining what already exists, including more complex queries and a more user-friendly interface. In addition, we will review our previous semester's design document and begin to collect the changes, additions, and improvements that we have yet to add to it.

Summary of advisor meeting

In the past two weeks, we had two meetings with our advisor. In our first meeting, we covered our current progress on the project and further developments from our previous meeting. We discussed good practices for our final design document and how to express how our decisions were made throughout the second semester of developing our project.
During our second advisor meeting, we demonstrated the pre-spring break progress of our application. We received feedback, some of which was to move features to more prevalent locations and develop a more advanced querying system that supports “join type” queries.