EE/CprE/SE 491 WEEKLY REPORT 02
9/20/2024 – 9/26/2024

Group number: 20

Project title: POSYDON

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

- **Weekly Summary:** Throughout the week, our team focused on preparing an initial draft of several sections of our final design document, as requested by Dr. Trajcevski. These sections included the problem statement, target audience, use cases, functional and non-functional requirements, and a broad overview of the architecture. In addition, we examined the dataset to understand how the files are structured, which will help us plan the parsing process.

- **Past week's accomplishments:**
  - Initial draft of design document
  - Signed up for lightning talk - October 15th, 2024
  - Figured out how to access the data
    - Hierarchical Data Format (HDF) viewed through: HDFViewer & Python

Task Section:

- Group:
    - Look into the Context-Aware Clustering of Stellar Evolution Project (May 2021, Project 30) for insights into scalings.
    - Review Cornell Time Series Analysis and Modeling to Forecast for relevant concepts related to time series analysis.
    - Investigate the querying binary star data topic. No active projects seem to cover this, but there is some research predicting final star states based on the initial state (https://arxiv.org/abs/2104.00164).
    - Develop a design document for the database querying tool, keeping in mind functional requirements and backend architecture.
    - Report any upcoming assignments given to us in class.
- Individual:
    - Currently no purely individual tasks.

- **Pending issues:**
    - Developing the architectural layout of the database system
    - Create an execution scenario and lay out how a user would interact with the system
    - There are no current projects specifically for querying binary star data, which could pose a limitation.
    - The functional requirements for the design document need clarification, particularly how user interface information and economic requirements (such as storage capacity) will be addressed (what type of computer would be needed etc.).

- **Individual contributions:**

NAME	Individual Contributions	Hours this week	HOURS cumulative
BYRD, JAMES	Assisted in creating the draft of the final design documents and general research. Began examining the legacy Posydon dataset.	4	9
COLLINS, EAMON	Assisted in creating draft of final design documents and general research	5	10
NORRIS, ALEK	Assisted in creating a draft for final design documents and research. Began examining legacy Posydon dataset.	4	9
POLSTON, ALEXANDER	Assisted in creating a draft for final design documents and did reading on binary stars	4	9
SNYDER, ANDREW	Assisted in creating a draft for the final design document and assisted team members who were unable to attend our faculty advisor meeting in understanding what was expected of us.	5	10
VARNITSKYY, SVYATOSLAV	Researched technologies that might be utilized in final project. Researched former teams design documents to understand requirements better.	4	9

- **Plans for the upcoming week**

  - Refine the design document to ensure consistency with Dr. Trajcevski's advice.
  - Update our list of requirements to better detail our user interface.
  - Sketch a layout for our UI that we will work to implement throughout the semester.
  - Begin gathering information to share during our lightning talk on October 15th.

- **Summary of weekly advisor meeting** The meeting focused on developing ideas for a database querying tool, including its design document and functional requirements. Key tasks involve researching related projects and addressing challenges; notably, there are currently no available tools or programs designed to query existing binary star data, highlighting the uniqueness and necessity of our project. The immediate plan is to continue drafting and attempting to finalize the design document, clarify requirements, and begin progress on getting ideas for a front-end UI prototype, which will be expected this semester.