Technical Report: Final Project
EECE 2560: Fundamentals of Engineering Algorithms

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Contents

1 Project Scope

The main goal of this project is create an algorithm that will be able to intake data from an online games tournament and rank players based on stats. The program will be able to filter by specific roles and time periods. The project's main objectives are:

- To allow a easy to view look at overall player rankings
- To let users see which players excel different categories.
- Allow users to sort players by different roles, event, maps ect

The expected outcomes include a functioning command line interface with data intake through a txt file as well documentation and final project report.

2 Project Plan

2.1 Timeline

The overall timeline for the project is divided into phases:

- **Week 1 (October 7 - October 13)**: Define project scope, establish main project goals, begin outlining pseocode for the project as a whole
- **Week 2 (October 14 - October 20)**: Begin development, create data intake system and begin outline of the ranking algorithm.
- **Week 3 (October 21 - October 27)**: Ensure data intake functionality with different data sets, implement data sorting by dates. Begin implementation of algorithm
- **Week 4 (October 28 - November 3)**: Begin presentation, ensure ranking system functions properly
- **Week 5 (November 4 - November 10)**: Finalize the system, add user filters and continue work on presentation and final report.
- **Week 6 (November 11 - November 17)**: Fianlize all aspects of project, finish revising and cleaning up code, complete presentation and report.
- **Week 7 (November 18 - November 28)**: Final presentation, report submission, and project closure.

2.2 Milestones

Key milestones include:

- Project Scope and Plan (October 9).
- GitHub Repository Setup and Initial Development (October 10).
- Backend Completion (October 28).
- Final System Testing and Report Draft (November 10).
- Final Presentation and Report Submission (November 28).

3 Team Roles

- **Team Member 1**: Algorithm development and optimization.
- **Team Member 2**: Complexity analysis and code review.
- **Team Member 3**: Documentation, report writing, and Overleaf management.
- **Team Member 4**: Testing, debugging, and final presentation preparation.

4 Methodology

4.1 Pseudocode and Complexity Analysis

Provide pseudocode for the primary algorithm(s) implemented in the project. Explain each step in detail and analyze the time and space complexity for each algorithm, highlighting its efficiency and suitability for the project requirements.

4.2 Data Collection and Preprocessing

Explain how the data was collected and describe the preprocessing steps necessary for the algorithm.

5 Results

Present the results, including key performance metrics and visualizations (e.g., tables, charts) that illustrate the effectiveness of the algorithms.

6 Discussion

Interpret the results and discuss their implications. Compare the findings with the initial objectives, and highlight any discrepancies or unexpected outcomes.

7 Conclusion

Summarize the key findings, discuss limitations, and suggest areas for future improvement.

8 References

Include all sources cited in the report.

A Appendix A: Code

Include relevant code sections here.

B Appendix B: Additional Figures

Provide any additional figures or tables that support the analysis.