**Unit 6 Reflection**

Date: May 29, 2017

To: Mr. Fulk

From: Jeffrey Tao

Subject: Warowac Alternative Vote Calculator Project Reflection

**Accomplishments.** My main accomplishment was writing the eliminateCandiate() method of the AlternativeElection class, which does the actual processing of the ballots and calculates the winner of the election. I also wrote the Candidate class, which provides basic methods for keeping track of votes, and helped out with writing the prefTablePerc() method of the BallotStats class, which computes what percentage of voters preferred one Candidate over another, for all pairs of Candidates. Finally, I coded all of testing methods in the JUnit and wrote the code for generating the tables in the GUI.

**Learning Experience**. Deciding which data structure to use to store the Ballots was a difficult process, and I repeatedly changed the data structure I used over several weeks. At one point it was a LinkedList of Strings and at another point it was a HashSet of LinkedLists, but I finally decided on a Linkedlist of Queues. This process rigorously tested my knowledge of when to implement which data structures and was a solid learning experience.

**Objectives**. {Evaluate your performance. Describe how your performance aligns with each of the performance objectives. Give supporting details and examples to justify your grade.}

* Challenge: This project definitely had an appropriate level of challenge. Programming the algorithm required a decent amount of thinking, especially with regards to which data structures to use. The table part of the GUI was also difficult, and I had to combine code from several different online sources to have it suit our specific project.
* Effort: I did put in effort on my parts of the project, but I feel that I could have also gone above and beyond by helping out my groupmates more. They undoubtedly had the more difficult part of the project to work on, since it involved getting a database and server to connect with the GUI and back-end code.
* Quality: I feel that the quality of my work was solid. I fixed all of the bugs that arose and covered all of the edge cases (most of which were ties between candidates) that my group could think of.
* Problem Solving: My problem solving skills were not always perfect. Oftentimes there were bugs in my code, and as mentioned earlier, the data structure I used to store the ballots was modified multiple times. However, in the end I was able to resolve all of the problems I had and deliver a finished product.
* Results: I feel that my results did contribute a significant amount to our project. In addition to successfully writing the code for the JUnit tests and the main algorithm, which was the core of the program, I helped my teammates out with the GUI part of the project.
* Teamwork: Teamwork was the primary challenge throughout this project for me. Because I worked solely on the back-end part of the project, it was difficult for me to help my group members with fixing bugs and finding errors in their code and vice versa. We also had trouble communicating the necessary specifications of the other parts of the project with each other since my work was so different from my group members’. However, we were able to pull through and still make things work in the end.

**Overall Assessment**

Overall, I feel that I deserve an A- on this project. I feel that I did a good job fulfilling my part of the project, which was coding the main algorithm, but I could have cooperated better with my teammates and helped them out more.

Date: May 29, 2017

To: Mr. Fulk

From: Andrew Lin

Subject: Warowac Alternative Vote Calculator Project Reflection

**Accomplishments.** My main accomplishments were writing the BallotStats and GUI classes. After writing the basic classes such as Candidate and ResultScreen, I worked with Vinay to collect data from the database, which I then converted into Jeffrey’s AlternativeElection format. I then created GUI classes to display the candidate votes and systematically eliminate candidates. Aside from this, I facilitated communication between the team and tried to organize a schedule at all times.

**Learning Experience**. I did not know how to use Java Swing or any backend tools, so what I did for the project was completely new for me. I really learned for the first time that “coding” is not just writing code - there is a lot of background knowledge that is needed at times. In addition, I learned how to use a Java server page and started to understand how to communicate with a database. Overall, there were many interesting design choices that made me learn new things.

**Objectives**. {Evaluate your performance. Describe how your performance aligns with each of the performance objectives. Give supporting details and examples to justify your grade.}

* Challenge: This project was extremely challenging for me - I was too used to doing “regular” Java projects. The challenge did make me more motivated to work, which made the project much more interesting.
* Effort: I put in effort pretty consistently, spending a few hours outside of school per week and using class time exclusively for the project.
* Quality: All of the GUI and other methods I wrote have been checked and look relatively user-friendly and not too ugly. The Result screen was edited multiple times until it gave the most accessible user interface.
* Problem Solving: I often ran into errors, which I solved by checking the stack trace, consulting with team members and Google, and in worst-case scenarios, rewriting all the code.
* Results: I feel that my results were satisfactory because everything works and is implemented correctly. However, I would like to add additional functionality if I had time.
* Teamwork: Teamwork was difficult for us because our jobs were all extremely different. I think I did a good job trying to connect the backend and algorithm with the frontend.

**Overall Assessment**

Overall, I feel that I deserve an A- on this project. I could have implemented some more interesting mathematics if I had understood the workings of the project earlier, and I often ran into problems which I had to ask my team members about. However, I did manage to write all of my code and get it working, and I managed to coordinate a working project with my team.

Date: May 29, 2017

To: Mr. Fulk

From: Vinay Senthil

Subject: Warowac Alternative Vote Calculator Project Reflection

**Accomplishments.**

I setup a Postgres database and hosted it and the rest of the project in a Heroku web app container. This means that the project can be accessed by a live URL. I created the create button pipeline. I created CandidateEntry.jsp which is built by iterating a for loop to generate the page. I created the servlet that handles requests for this page. I also created the class that communicates with the database. Any communication such as querying, pushing, and checking values goes through my class. I helped merge all the code at the end and solved problems in other fields too.

**Learning Experience:**

Coming into this project, I have never worked with any industrial database such as mySQL and Postgres except Firebase. I learned how to setup JDBC connection and how to implement try and catch statements. Moreover, I learned how to import external .jar files that are necessary to perform these actions. I also learned how to deploy to external containers like Azure and heroku. In addition, I learned how to setup Tomcat servers, test JSPs, and handle get and post requests with servlets. I also figured out how to pass variables between Java pages and communicate between JS and JAVA.

**Objectives**. {Evaluate your performance. Describe how your performance aligns with each of the performance objectives. Give supporting details and examples to justify your grade.}

* Challenge: When I first started this project, I had never touched mySQL databases, servlets, or even JSPs. I feel that this project was extremely challenging, in a good way, because it required me to learn new skills while improving my understanding of the foundational knowledge of Java such as the way classes and packages are connected.
* Effort: I spent many hours after school at home, apart from the time given at school.
* Quality: All of the connections to the database are tested and have failsafes. In addition, I made the JSPs as minimalistic and used CSS to beautify the pages. Overall, the project can handle many cases and has specific failsafes for any user errors.
* Problem Solving: Whenever there was an error, I began reading the error output and tracing back to the key line. From there, I followed the path the variable took to get there. Moreover, I would use print statements and comment out code to figure out the exact location of the error. I also looked at many javadocs and code pages and read many stackoverflow posts.
* Results: I feel that my results did contribute a significant amount to our project. In addition to writing the code for the JUnit tests and the main algorithm, which was the core of the program, I helped my teammates out with the GUI part of the project. The project is also hosted on a sustainable container which means that it can stay up and be used by many people.
* Teamwork: Anytime, there was a problem, I helped others solve them. Although I worked in the backend, I helped create the Frontend. Moreover, during testing I provided suggestions to other components of the project. I also directly sat with others to fix issues. I had to teach both of my other team members github as well. Many times I helped solve merge and sync conflicts through the git shell.

**Overall Assessment**

I believe I deserve an A. I was in charge of the backend and setting up connections to the database. Moreover, I proposed the idea of using JSPs instead of a using a stock desktop GUI because of the versatile. Throughout this project, I have take many risks trying things that we have never touched in class. Many of these changes were worth it because it resulted in a better final product but I had to devote hours of work apart from the regular school hours. I spent many hours debugging database connections and then transferring data from Microsoft to Heroku when the Microsoft trial was ending. Overall, this was a fun project and I contributed a lot.