CS 1050, Summer, 2021 Project Cover Letter

Your name or team members: Brady Lamson, Thomas Milah (Team submitting separately)

Project #: 02

Date submitted: July 2nd Late? No

Time spent on the project outside class?

- I'm not sure on the exact time, but multiple day long sessions were involved in the creation of this project.

Is the project complete and correct?

- It is complete and correct to the best of my knowledge.

If not, what is missing or incorrect? Be specific.

- N/A

Collaboration. Other than office hours help, whom did you work with or get help from? Include team members, if any.

- My team member Thomas Milah and my roommate Tyler Thune who acts as a mentor and tutor.

References. Other than the textbook, what references did you use? Be specific.

- Stackoverflow.com
    - That's unfortunately as specific as I can get, I did a lot of bouncing around on that site for information on error messages specifically and citing every single page I visited would be an entire document on its own.

Explain any challenges included with your project.

- Finding time to dedicate to the project was difficult. I greatly underestimated how much free time I would have during the summer semester.

- I would find myself getting stuck on incredibly simple problems often. I also found myself over-engineering my code when more simple and elegant solutions wound up being far superior.
- Articulating my problems and confusions was frustrating. With programming you have to be very specific with your explanations or you can be easily misunderstood and that's a big issue when you're still learning a lot of key vocabulary.
- Articulating my solutions and ideas was difficult for the same reasons as above. I found I understood a lot of stuff far less than I thought by trying to explain them.

Reflection

1. What went well on this project?
    - I think I did a good job of making the logic of my code readable and easy to follow. Once I got used to the demands of the style guide I think I was able to implement them quite well.
    - Overall I'm quite proud of what I have to submit, I think I did a good job!
2. What problems did you have on this project?
    - Getting my code to fit the 80 column limit instead of my preferred 120 column limit was difficult. I think I was able to work around it fine in the end though. I did learn more about the 80 column limit and it's interesting. I never realized an unchanged terminal window had that exact same column restriction. My roommate's coworker used to prefer coding within a terminal so he preferred the 80 column limit for his work. He could fit three terminal windows side by side on a single monitor and that was a key part of his workflow.

- In general reworking my code to fit the style guide was difficult. I think that will only be a one time issue though. Now that I've done the work once keeping that format should be very easy on future assignments.
    - I should also mention that I do appreciate the care with code style. I think it's an incredibly important skill that a lot of people find no need to develop.
- Dealing with repetition in my code was a challenge. Even my final solution I feel is a little more repetitive than I'd like. I feel like my program could work with only a single switch statement instead of the two I ended up going with, but I was unable to come up with a reasonable way to execute on that idea without making some huge sacrifices.
- Of course, the hardest part was simply getting started. Once the code started flowing it became easier for me to create new methods and allocate roles, but just figuring out the basic architecture of my program as the hardest part.

3. Any remaining questions or comments?
    - Not necessarily, I wrestled with this project so much that I feel I have a very clear understanding of everything about it now. Of course, I could be very wrong as I don't have the grade for the assignment yet.
4. Overflow. Find out what happens when you try to raise a number to a large exponent whose result exceeds the maximum double value (Double.MAX_VALUE). What result did you get? Explain why overflow happens on a computer.
    - I'll first start with what I think will happen. I think that the value would loop back around to being a negative value and work through those values until it ends up where it thinks it "should".

- What happened when I tested just that was getting a value of “infinity” instead. I guess java had implemented a mechanism for doubles to avoid looping back around.
- Overflow happens because numbers don’t exist in a vacuum. For 64 bit numbers there are only so many possibilities that can be stored. At a certain point the computer just can’t go any further and does its’ best to accommodate the value. This is also why sometimes you’ll get rounding errors when you’re working with incredibly small numbers.

5. What syntax (Java grammar rules) did you have the most trouble getting right?
    - Do you mean in general or for the project specifically? In general the boilerplate stuff for java caught me incredibly off guard. The first time I saw “public static void main(String[] args) { }“ I was pretty freaked out. Now it doesn’t really bother me. For project specific stuff I can’t think of much syntactically that gave me trouble. The number formatting stuff was tricky at first, it’s very easy to over complicate that guy specifically.
    - For more general stuff specifying variables was surprisingly hard for me to get used to. Coming from “R” which is very abstracted having to decide if I wanted an ‘int’ or a ‘double’ for example was frustrating. Adding on things like ‘private’ and ‘public’ only confused me more. The entire idea of ‘objects’ took a lot of getting used to really. Now I quite like the degree of control it gives me.
6. What semantics (meaning of the code) did you have the most trouble understanding?
    - Basically anything about object oriented programming confused me a lot. Functional programming was easy for me to talk about when I was new, but there’s so much more to keep track of here. It’s taken a lot of wrestling with vocabulary to finally start making some degree of sense. I am constantly saying

things that simply do not mean what I think they do, or they mean something else in a different programming language and there's stuff that gets lost in translation.

Your submission of this project is your affirmation that all the work you have submitted is your own, except as allowed in the assignment.