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Mr. Speice

Independent Study Mentorship II

1 February 2021

<div align="center">Development Review</div>

<div align="center">Assessment 14 - Mentor Visit Assessment</div>

Profession: Software Developer

Location: Virtual Platform via Discord

Date: 31 January 2021

Time: 11:01 A.M. - 11:36 A.M.

Assessment:

Software engineering as a field is incredibly broad and it is incumbent that all of the best practices be used when going through the development process. This in turn allows for every step of the way to become a bit easier because it is no longer dependent on errors that may have occurred in earlier stages. This, in the long term, will ensure that there will not be one part that completely fails because of a certain module or framework that is used and therefore causes a revamp in the code. This past week, I had the opportunity to go through a detailed development review with my mentor, Mr. Trey Blankenship, to ensure that every potential best practice is utilized to maintain absolute efficiency and reduce the time spent on a large project such as this.

First and foremost, we discussed the importance of deployment as well as different deployment platforms. With any major software development project, plans are ever-changing. Due to challenges that the original plans presented, there was a change in the deployment platform and the project's deployment plan became multiplatform. Generally speaking, this is not the smartest idea. Despite the risk that is being taken here, it was noted that as long as one is cognizant of the risks it entails, it can be done. Additionally, an important aspect of software

development was learned in the sense that dependent services should not be implemented on a different platform but rather services independent of one another. This will be especially important to be aware of in future projects when the services necessary are so broad that one provider cannot cover all necessary aspects. Using and learning multiple deployment platforms will also be beneficial from a developer's point of view because many different companies use different infrastructures and so by learning different platforms, a sense of preparation and versatility is built for the future.

The next topic of discussion was regarding the idea of unit testing. In software development, it is important to test every aspect of a product end to end. Therefore it will be necessary to learn unit testing tools in Python such as PyMock and PyTest and Puppeteer in Javascript. This will prove helpful for the final product in the sense that it should ensure there are no major vulnerabilities that may allow for either the API or interface to be exploited by users. This should also ensure that, from a financial point of view, one user does not use all the available system resources, costing the product hundreds of millions of dollars to maintain. Unit testing is so necessary that this has long-term career effects as well especially if pursuing a career in software engineering and more specifically quality assurance testing.

The final point of discussion regarded microservices. As of right now, the codebase being used does not implement any type of microservice architecture. This has severe consequences in the long term because of higher costs of maintenance and scalability. The microservice architecture can be beneficial to the final product as it helps overcome these barriers by reducing costs and making the complete development process quicker. In the longer term, microservices are widely used in industry--as shown by a mentor visit to Raytheon last year--and knowing this architecture will certainly become a potent tool for future endeavors.

Through going through this development review, the next steps and best practices for this project are clear. It is important to utilize the knowledge learned from this review as the development process should become progressively easier. That said, further steps regarding the development of the final product should include additional research into unit testing and microservices while also being cognizant of every minute detail. By doing that, this project will increase its likelihood of success.

Mentor Visit Notes