**Open-Source Contribution: QisKit**

Languages and Frameworks:

I have some experience in four programming languages. On a scale of 1 (ability to write a basic “Hello World” program) to 10 (mastery of the language); I would rate my language skills in the following manner:

* JavaScript: 1.5
* Java: 2
* C/C++: 4
* Python: 6

I don’t believe that my Java or JavaScript abilities would allow me to positively contribute to any project in those languages, ruling those options out. C/C++ is an option, but very little in that language comes naturally to me, and I still have much to learn about writing code that is both secure and has high-performance. I therefore defaulted to looking for python projects, and thankfully, there were many to be found.

Project Search:

Based on the guides provided on the assignment page, I focused my search for large projects with issues tagged with the “good first issue” tag. One thing I learned in my search is that not all project teams utilize this tag in the way that I expected. Some teams did use it to identify issues that could be tackled effectively by new contributors, but several projects seemed to use the tag on issues that the core team didn’t want to deal with. One that stood out was a project with an issue for doubling the code coverage of the testing suite tagged as a “good first issue.” I very quickly moved on to look at other projects. In the end, I settled on a project called QisKit.

The Project:

QisKit, per their readme, “is an open-source SDK for working with quantum computers at the level of extended quantum circuits, operators, and primitives.” Quantum computing is in the running for the next big thing in computer science, but it is still relatively early for this technology and society has yet to really benefit from this technology. Their documentation suggests that this toolkit is primarily designed for learners (they additionally have a quantum computing course which they support) and for use by researchers. This project has also partnered with IBM’s quantum efforts, allowing users to connect to actual quantum computers with an appropriate API key. This library had its first public release at the end of 2018 and as of my fork it has had a total of 7805 different commits. This project has been forked over 2,000 times and currently has 3,800 stars. I would also classify this as a large project; per GitHub insights, over the last month almost 300 files have been edited and 55,000 lines of code have been added or changed.

Best Practices:

The Issue:

The issue that I have chosen to address is #10742 and deals with the removal of depreciated code in the visualization portion of the codebase. The main technology that I will be dealing with will be the testing suite. This project recommends using tox, which unfortunately is a testing framework that I am unfamiliar with. In an ideal situation, I estimate that this change will likely take between one and three hours based on the descriptions in the issue and in the changelog, with most of this time spent learning and utilizing the testing framework.

