**CS 210 Project Three Report**

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1. **Explain the benefits and drawbacks of using C++ in a coding project.**

C++ is very easy to use for formatting the user-interface, as was the case for this project. I find that using “cout” is in some ways more intuitive for printing lines using multiple data types without having to convert integers into strings. That said, C++ is very particular in its syntax and sometimes when it has errors, they can be easy to overlook due to how many more characters are often in the code than for python. For example, a for loop is written with specific syntax like for (i = 0; I < X; i++) rather than the simplistic for loops python offers. C++ is known for being very fast as well, making it an ideal choice for hardware-intensive applications. However, it also known for having lower security.

1. **Explain the benefits and drawbacks of using Python in a coding project.**

Python is wonderful for simplicity’s sake alone. It can accomplish almost anything C++ can with significantly less cluttered coding syntax. This also makes syntax errors easier to debug, from my experience. Python has extensive amounts of data libraries and methods making it an ideal choice for processing large amounts of data and/or statistics. That said, there are a few things more complicated about using Python such as having to convert integers to strings in the middle of print statements for example. In addition, its known to be slower than C++ but also has better security. It still does fall short of Java in security terms, but that’s beside the point. Python’s main strengths seem to lie in its coding simplicity and extensive libraries while it falls short in terms of speed.

1. **Discuss when two or more coding languages can effectively be combined in a project.**

Two or more languages can be combined in many different situations. In this project’s case, Python was used to process data while C++ was used to manage the user interface. I find this to make a lot of sense, due to my perceived strengths and weaknesses of each language. That said, the possibilities are nearly infinite. You could use Python to calculate statistics and large amounts of data for example, in a hardware-intensive application that uses C++ for most of its core programming. Another example might be using Java for security-intensive segments or mixing in HTML for online browser functionality.

References:

Python vs Java vs C/C++: Key differences and Pros-Cons (Maheshwari, Ishita) (5/6/2021) <https://candid.technology/python-vs-java-vs-c/>

C++ vs Java vs Python? (Christine, Sharon) (7/15/2019) <https://www.tutorialspoint.com/cplusplus-vs-java-vs-python>

C++ vs Java vs Python: Which One to Choose? (Chaddha, Manvi) (7/29/2021) <https://www.codingninjas.com/blog/2021/07/29/c-vs-java-vs-python-which-one-to-choose/>