**ICP C++ Individual Project Reflection – Sena A. Vuvor**

**Approach**

My initial approach to working on this project was doing a code translation of my java code which uses a breadth-first search method to generate solutions to the problem. However, there were major challenges with that, so I decided to pair up with a friend, Wepea, to find a more reliable approach.

To solve the challenge, we first created unordered maps in which we read and stored the content of the two csv files we needed: airports.csv and routes.csv. We created classes for each of the files and created objects for each class, which was stored in the map. The attributes/instance variables of the objects were the values corresponding to the columns read from the csv files. This part was the early part and work was equally split between us, with Wepea handling routes and myself handling airports.

The search algorithm in our approach uses a C++ implementation of breadth-first search to find a solution path with routes connecting one airport in a city, country pair to another airport. For every solution path generated. Most of this aspect of the project was done in the main class which both Wepea and I contributed methods for.

**Lessons learned**

One lesson this project taught me is that programming is a lot more about problem solving and brainstorming than writing code. Additionally, brainstorming ideas with friends is really helpful in coming up with a good approach to solving problems.

For language-specific lessons, I learned that C++ does not have most implementations of data structures and classes from Java that make work easy. For instance, C++ does not have an Objects class, hashmap, arrayQueue, among others. We had to find alternatives to these data structures and that took a lot of time, effort, and testing. However, ultimately, it was reqarding.

**References**

Breadth-first search algorithm from Dr. Ayokor Korsah’s Intro to AI class