**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 work with 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 three csv files. We created classes for each of the files except airlines.csv 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 was mostly done by Wepea.

The search algorithm 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, we computed the total distance from one airport to another using their latitude and longitude, with the haversine formula. This was done by me but with assistance from Wepea, especially for the distane calculation part.

**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

**References**

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