**Afua Boatemaa Amankwaah**

**C++ Project Reflection**

**Ashesi University**

**Dr. Robert Sowah**

**CS313 Intermediate Computer Programming**

**29th November 2022.**

In my opinion, this project was a bit challenging, although I previously implemented it in Java. I had to think of appropriate data structures to help me easily store the bulky data and write the program efficiently. The task was to write a programme, which, given a start and a destination city, would output a series of flights that take a passenger from the start city to the destination city, and the input information which are the start and destination cities will be provided in a text file, and the programme will also provide the output information in a text file. This required me to apply file reading and writing concepts in C++, which was a bit challenging considering how little knowledge I had of reading and writing files. In writing the program, I needed to use a search algorithm that would find an optimal and valid route between two cities. I decided on the Bread-first Search algorithm because it is easier to implement, in my opinion, and was more appropriate for the program I wanted to write.

To begin with, I created different classes, namely Airports, Airlines, Routes, Nodes, and a Main class from which all the other methods of the classes would be run in. I created four instance variables in my node class and a constructor to be able to create the objects and getters and setters to be able to access my private variables. My airline and routes class also had instance variables and constructors with getters and setters. I created a Solution path method in my Node class with array lists of pathways, airport codes, stops, and airline codes to help my program return the stops of the different locations and their corresponding airports, airlines, and codes. I then implemented my search algorithm in my Main class, which takes two string parameters representing the start state(start city) and the goal state(destination state) and returns a list of routes to get to your destination.

In conclusion, this project has been a learning experience because it helped me challenge myself. I encountered new errors as I worked on this project, and I've been able to learn from my mistakes.