**Individual Project Reflection**

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This project was a very challenging one given the time we had. Although I was up to the task at hand, I unfortunately ran across a few obstacles that made it difficult for me to do my work on time. I have learned a lot of lessons, however.

I started by learning how to utilize Git. In order to be able to update my code as and when necessary, I also learned how to divide my code up into smaller, independently functioning sections. I also learned how to use Java to implement breadth-first search, which we previously knew how to do in Python. I was able to conceptualize the concepts covered in class thanks to this assignment. File I/O, exception handling, and encapsulation, to name a few, were some of the ideas that were put into reality in class.

I started by building distinct classes for each file I was reading as part of my high level approach to resolving this issue. In order to make my code operate smoothly, I utilized the try-catch rule to capture any exceptions. I make hash tables to store the information I read from the files for my file reader class. Since hash tables offer better synchronization than other data structures, I utilize them. Additionally, the implementation of this data structure ensures constant times for insertion, deletion, and searching, which makes my code more effective when utilizing the breadth-first search strategy (GeeksforGeeks, 2022).

I applied the breadth-first search technique to locate a viable route. According to study, this method aids in locating the shortest route. It assists us in this situation in determining the route with the fewest flights as it employs a priority queue to search level by level for the shortest path. Encapsulation was a different high-level strategy I took into account when writing my code. I used this when I was creating a list of routes. In creating classes, I made the instant variables private so that I separate the usage of the class from its actual implementation. Finally, this project helped me develop skills in data analysis such as cleaning and reading the data accurately.

**References**

GeeksforGeeks. (2022, June 7). *Applications, Advantages and Disadvantages of Hash Data Structure*. Retrieved October 1, 2022, from https://www.geeksforgeeks.org/applications-advantages-and-disadvantages-of-hash-data-structure/