

In implementing this project, I decided to have different .cpp files for working with the data files (CSV files) and user / passenger-related events. I started by identifying the data that I would need from the provided data files. I needed the city, country, and IATA code from the airports.csv file, the name, airline code, and active status from the airlines.csv file, and the airline code, source airport, destination airport, and the number of stops from the routes.csv file. I created a header file, main.h, where I declared the variables that I needed to store this information. I used nested vectors because from each file, I wanted to keep the information grouped together and easy to find. I also declared the functions that I would need for the program. All my variables were private, and the functions were public. Because the program needed to read from several files, I created a split function with a method that I saw on www.geeksforgeeks.com in my header file so all functions could use it. In anticipation of any errors I might get, I created an exceptions header, exceptions.h, where I could create any exception classes that the program would need.

For the files, I created routes.cpp, airports.cpp, and airlines.cpp to read from the csv files and write to the variables that I created. As per the instructions, there is an input text file where passenger departure and arrival airports are provided. To read from this file, I created functions to read from the text file and get the corresponding IATA code for the airports the passenger will use in userData.cpp. In routes.cpp, I created the passenger () function where the passenger's route would be calculated and print out the flights needed to get from one airport to another.

While working on this project, I learned how to work with File IO using the fstream library. Reading from files is not the same as with Python, which I'm more familiar with, so accessing the information that I needed from the data files and storing it in the way format I wanted was challenging. I referred to the C++ tutorial on <https://www.w3schools.com/cpp/default.asp> several times in the development of this project. I learned how to work with vectors and header files. When I encountered errors that needed handling, I had to learn how to handle these exceptions. I used the techniques that are shown in the course textbook to develop my exceptions classes for FileIO and IndexOutOfRangeException.