Project Goals

Team Members:

- Panav Munshi - pmunshi2

- Abhay Narayanan - abhayn2

- Rohan Batra - rohanb4

- Anuraag Agarwal - anuraag3

Two links to the Dataset:

- http://stat-computing.org/dataexpo/2009/the-data.html
- https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/HG7NV7

Description:

We will be using the above dataset and extracting domestic flight data within the USA from them in the form of CSV files. These files contain data on the airline, the flight code, its routes, its departure and arrival timings, the elapsed time, the origin, and the destination. We will be applying this data to create a program that works to allow a user to plan a trip between two airports within the US. This will be implemented using two conditions: finding the path with the least number of flights needed to reach the destination and finding the path to the destination which traverses the least distance.

For this problem, we implement three well known algorithms to provide solutions for a traveler (the user) in planning a journey. We use **BFS** to find the path from a source point to the destination point which goes through the least number of edges. As an edge corresponds to a flight between two points, it is clear that the BFS algorithm will be used to solve the problem posed by the first condition at the end of the previous paragraph. The other two algorithms we use will be the **A star** and **Dijkstra** algorithms, and will be used as two separate methods to find the path with the least distance between a source point and the destination point. This approach will use the data set and our built weighted graph (where each edge has an associated distance) in tandem to solve the problem posed by the second condition at the end of the previous paragraph.