CS 225 Project Goals

Our project will utilize the Routes and Airports datasets from the OpenFlights database. The objective is to provide a graphical output of the airports and flight paths connecting them onto a map. Based on a user query, the shortest route between two airports will be found and drawn onto the map. For the moment, only the airports and routes within the United States will be used. A stretch goal would be to use all of the data to create a global map of the flight routes, but this will be implemented based on our progress. From the traversals covered in lecture we will use Breadth First Search (BFS) to draw the flight paths onto the map. This will ensure that all the airports are covered (as long as they are all connected). From the Covered Algorithms we will use Dijkstra's Algorithm to find the shortest path from our flight paths. The graph structure representing our system of airports and flight routes will be weighted by distance, which is what the shortest path will be based off of. Our Complex option will be to project on to a map based on our flight paths dataset.

Dataset Information:

Airports: The airports database contains information about the longitude, latitude, country, and airport ID for each airport. There is a lot of other information for each airport as well, but these are the things that we will primarily utilize. The latitude and longitude will be converted to cartesian coordinates in order to accurately map airport locations. The information about the country will allow us to filter the dataset to only include airports within the United States. The airport IDs will serve as the identifiers for each node in our graph structure.

Routes: The routes database contains airport ID's for its source airport and its destination airport, which will allow us to link it to the airports database. This will then be used to create the edges of graph linking various airports together based on the flight routes.