# **Project Goals**

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We plan to use the OpenFlights datasets on airport and route information for our project, obtained from <a href="https://openflights.org/data.html">https://openflights.org/data.html</a>. Below we have listed the specific algorithms we plan to implement and potential ideas for additional features if time permits.

### Dataset

- Airport and Routes dataset from OpenFlights
- OpenFlights: <a href="https://openflights.org/data.html">https://openflights.org/data.html</a>
- For weights of the edges, use either physical distance or number of routes.

#### **Traversals**

- DFS
- BFS

# **Covered Algorithms**

- Dijkstra's Algorithm
  - The algorithm can be used to find the shortest route between any two airports.
- Dijkstra's reference: <a href="https://en.wikipedia.org/wiki/Dijkstra%27s">https://en.wikipedia.org/wiki/Dijkstra%27s</a> algorithm

## Complex/Uncovered

- Landmark Path
  - The algorithm can be used to find the shortest route between a and b through point c
    - Find shortest path between ac and bc, and connect those two
- If we have time:
  - Graphical Output
    - A visualization of the flight connections across the globe. The density of edges indicates the level of traffic, and important airport nodes.
  - Strongly connected components:

- This algorithm can be used to find a subset of airports such that there is a way to get from one airport to any other airport<a href="https://en.wikipedia.org/wiki/Kosaraju%27s\_algorithm">https://en.wikipedia.org/wiki/Kosaraju%27s\_algorithm</a>

