The team has decided to work on the open flights data sets since the data is particularly interesting and it is very applicable to understanding human connectivity across complex geographies. We wish to understand how humans are connected in the age of aviation and rapid transcontinental travel.

Traversal - We want to simulate an extreme version of “around the world in 80 days” where we visit every airport without repetition. This is interesting as one can imagine how the discerning traveller will be keen on not revisiting airports on his travels across the globe. This traversal would visit the airport nodes in a DFS manner which would ensure we go deeply down a path of connection before “reversing up” and makes more geographical sense.

Shortest Path - Minimum number of flights needed to get between any two points in the world with estimated time data as weight. We will use Dijkstra’s algorithm to find the minimum path between two airports. This will be done by using a priority queue and by following the idea of adding and removing nodes from the priority queue depending on the minimum time to traverse between the two nodes being compared. Since time traversed between two nodes cannot be negative Dijkstra’s algorithm should work well and not have any issues.

Landmark path - The goal here is to create a few routes that include common tourist destinations. Such routes could be a tour of the West Coast, or a vacation that spans Asia. Here we would pick airports and construct a route accordingly. This would most likely be a directed graph depending on the start/end point has been set. We would then use the shortest path between each of the airports specified using an approach similar to section 2.

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