

Results

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Our results consist of a completed itinerary with given layovers and the shortest calculated path between two user inputted airports. A screenshot of what the user sees is provided down below:

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Starting airport is: CMI
Layover airport is: DXB
Ending airport is: FRA
This is how you get from CMI to FRA via DXB:
Travel to ORD
Travel to ARN
Travel to DXB
Travel to VIE
Travel to NUE
Travel to FRA
Arrived at Destination. Total travelled kilometers are: 16698 Km
```

The output also includes a summary of the inputs given. In addition to this output printed out in the terminal, there is an Out.png image that is saved in the files which represents a graph with all of the airports in the dataset and their corresponding routes connecting other airports with each other. There is a line connecting airports as well as a small number below that line representing the shortest distance between the two airports that are being connected. One of our discoveries we made was the fact that the outputted graph (representing all 60,000+ entries in the dataset) merely looks like a cloud of interconnected paths because of the number of airports and routes going through each airport. A screenshot of this is shown below:



Once you zoom in more, you see how there are actual vertices (with each airport represented by the airport code) and the calculated shortest path between two airports that are being connected. A screenshot of a more zoomed in graph is below:



Additional Discoveries:

As discussed in our results section above, we found that our output graph was extremely interconnected. It's easy to forget that even the average non-mainstream airport has thousands of flights passing in and out of it daily, and the graph above is a good illustration of that. The international air travel dataset is constantly changing and evolving, so we know that even our graph is not accurate in 2020. Since we declared our nodes in the graph by the airports in the first dataset and populated the edges based on the routes in the second dataset, there are some airports that exist in dataset A and not B, showing up as "islands"/unconnected nodes in the visual output. We concluded that this can be fixed by expanding the routes dataset.