Assignment 4 (mandatory)
Airline network

Jacob Trier Frederiksen & Anders Kalhauge

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- Within your groups, implement a directed Graph for flight routes using source data from the Airline Network Data directory.

  Your graph representation should be such that it is both efficient in terms of memory use and time taken when you complete the following operations on the graph:

  1. Find if an airport can be reached from another using only a single airline company. You should compare
     (a) Depth-first search
     (b) Breadth-first search
  2. Finding shortest path (in distance) from one location to another (Dijkstra's algirithm)
  3. Finding shortest path (in time) from one location to another, assuming that each leg transfer takes one hour.
  4. Finding airline that has widest coverage (Minimum Spanning Tree)

- Defend your choice of data structure, regarding time and memory complexity – you know.... $\mathcal{O}(?)$.
- Also argue why you did *not* choose the other data structures possible. Were they too slow, too large – or both?
- Estimate the size (in bytes) of the array that would be required to complete task #1 above, if you were to use an adjacency matrix.

Upload to your solution to the Peergrade website, no later than Tuesday April 9^{th}, 08:30.