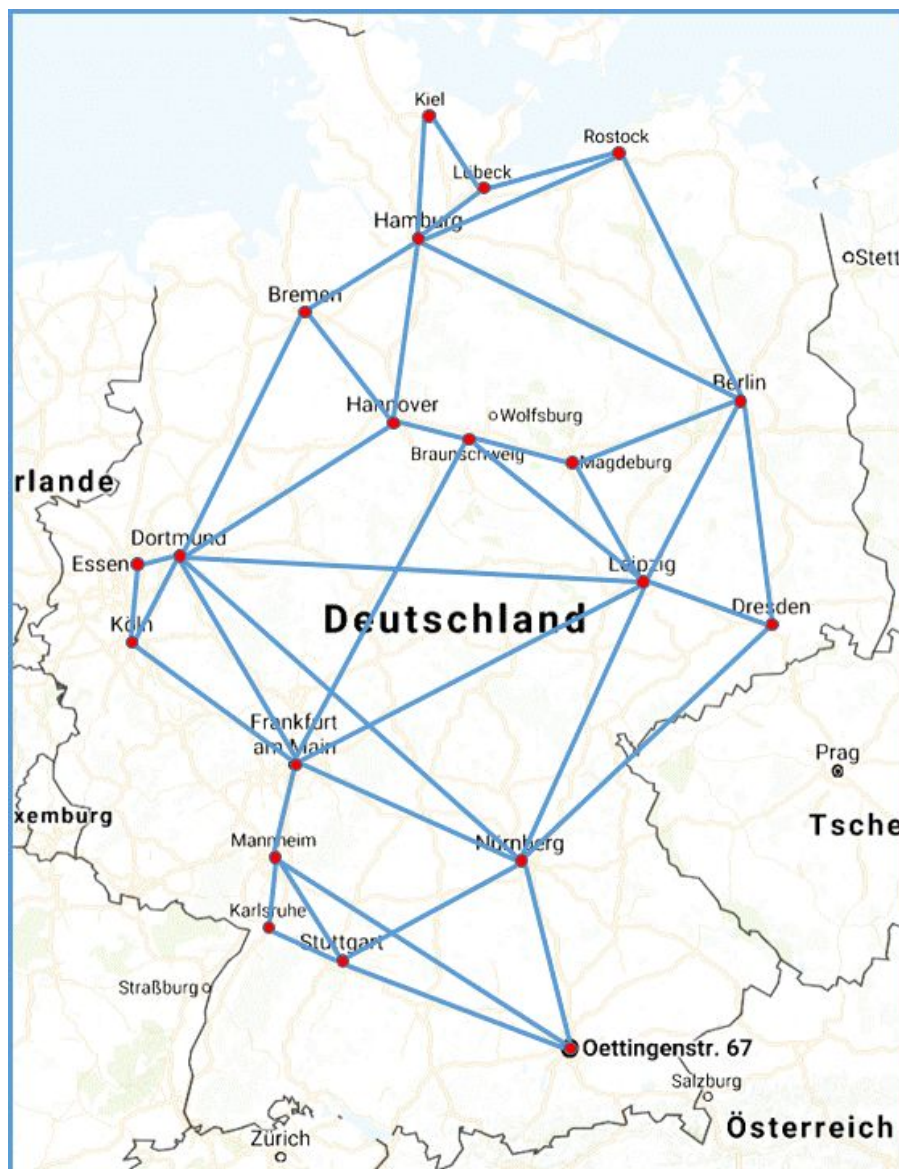


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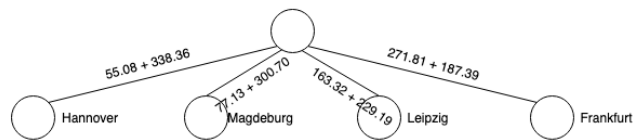
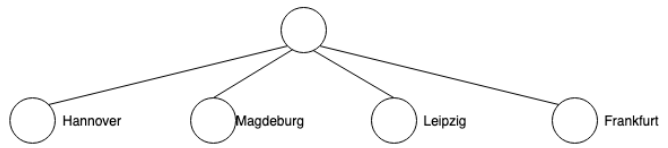
Exercise Sheet 11: A* Search

The assignments are due July 17, 2019

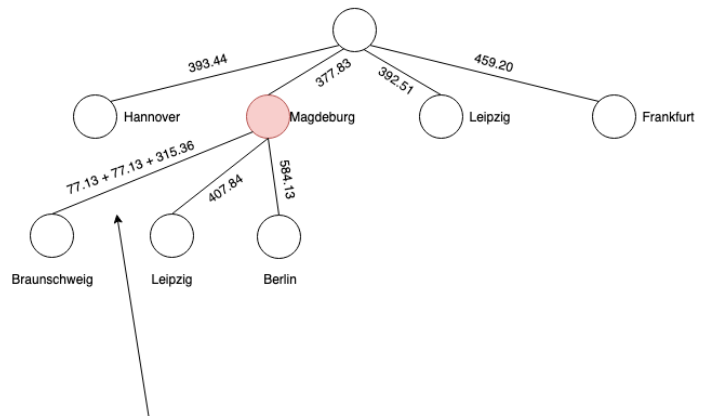
Assignment 11-1 *A* Search*



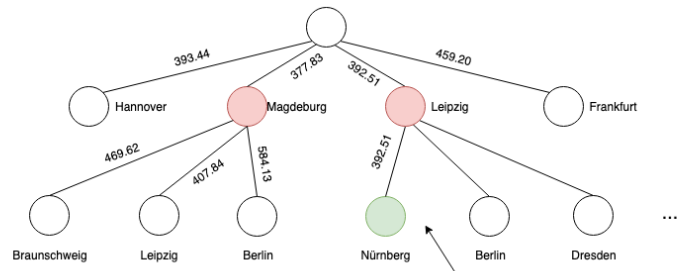
Given the graph above, find the shortest path from Braunschweig to Nuremberg using A* Search. The edge weights correspond to the Euclidean distances between the cities. Estimate the distances to the target also by using the Euclidean distance.



Note: The terms on the edges denote the actual distance from Braunschweig to the current node + the estimated distances from the current node to Nuremberg



Note: Now, the distances are composed of the distances Braunschweig to Magdeburg + Magdeburg to current node (i.e., Braunschweig in this case) + estimated distance of current node to Nuremberg



This is our currently found shortest path, we only need to evaluate those paths that can potentially be shorter. However there is no such path. The next shortest path so far would be the one going through Hannover, but even the actual distance from Braunschweig to Hannover + the estimated distance from Hannover to Nürnberg is greater than the current shortest path between Braunschweig and Nürnberg. Here we can see the efficiency of the A* search. While Dijkstra would have evaluated nodes like Bremen and Hamburg, the heuristic that we use for A* guides the search towards the right direction.