

CS2040S Recitation 8
AY 24/25 Sem 2 — github/omgeta

- Q1. Use 4 cardinal direction vertices to represent an intersection. Connect each vertex with outgoing edges to the valid states in the next step: going straight (weight 0) or turning right (weight 1). Finally, run SSSP.
- Q2.
- i. Dijkstra
 - ii. Split each node to odd, even. For every edge (u, v) create edge $(u_{\text{even}}, v_{\text{odd}})$ and $(v_{\text{even}}, u_{\text{odd}})$. Find SSSP from Paris even to Moscow odd, and even and return the lower of the two paths.
 - iii. For every city, create an edge between the odd and even nodes to address overnight stays. Also create a single source node connected to even and odd starting nodes from which to start searching.