ADS 1 — problem sheet 5

Exercise 1: We have a map of a city represented as a graph where crossings are vertices and streets are edges. Every street and every crossing has associated time how long it takes to drive throught it. Modify Dijsktra's algorithm to find fastest routes in this graph.

Exercise 2: Find a valued graph with precisely one negative edge and no negative cycle where Dijsktra's algorithm will fail to find shortest path.

Exercise 3: Let G be a vallued graph representing a map of city where every edge (street) is associated with maximal height of a vehicle that can pass through it. Given vertices u and v compute a path maximising the height of truck that can travel from u to v.