

CSCI 256: Exercise # 6

Due: Mon, Sept 28, in class

Your Name: _____

Assigned reading for this lecture:

- Kleinberg Tardos Section 4.4 (Shortest Path in Directed Graphs: Dijkstra)

Dijkstra's Algorithm is an extension of breadth first search for graphs with edge weights. It maintains a tree of shortest paths from the root s to each node. We will discuss how it works in detail in class but before we do so, it is useful to run through the description of the algorithm on an example graph.

Read the description of Dijkstra's Algorithm on Page 138 of KT and apply it on the following undirected graph starting from s . **Give the order** in which Dijkstra's algorithm finds the distance to the vertices (in other words: the order in which they are marked as visited/their distance array entry is filled in), and **give the shortest path tree** from s to all nodes reached by the algorithm.

