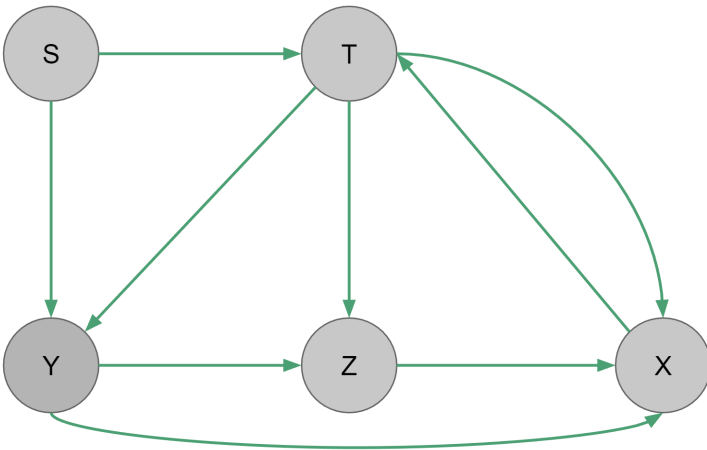


Section 6: Graphs

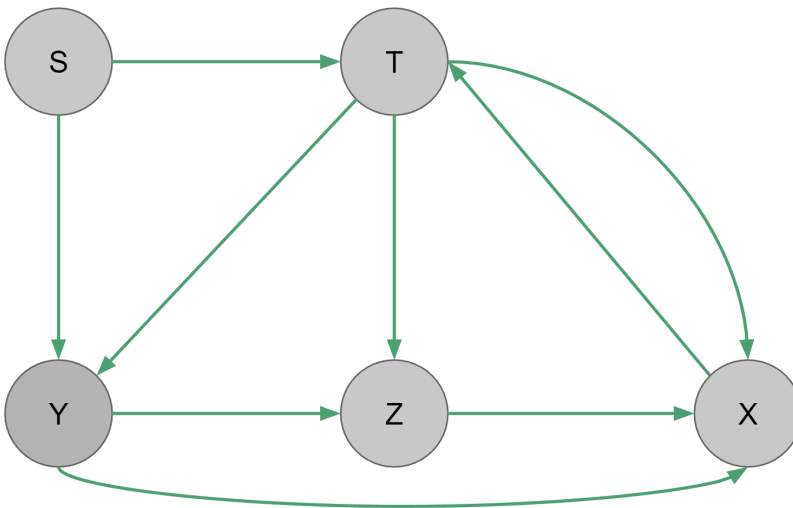
0. Simulating DFS

Do a DFS traversal of this graph starting at node S



1. Simulating BFS

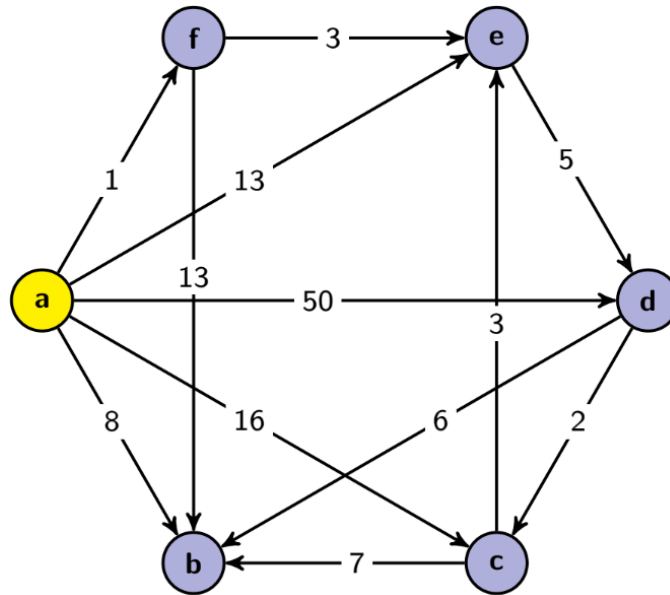
Do a BFS traversal of this graph starting at node S. What is the resulting tree?



NOTE: Following questions are related to Dijkstra's Algorithm (which won't be covered until next lecture)

2. Velociraptors

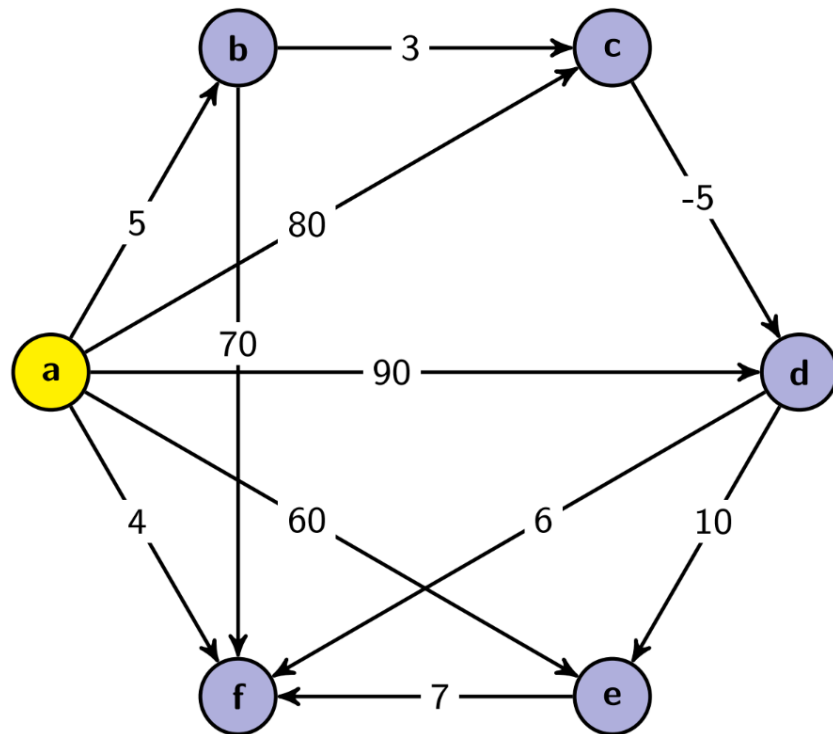
Consider the following graph:



Suppose that you are at **a** and you are planning your escape from a bunch of hungry velociraptors (edge weights represent the expected number of velociraptors you will meet on this path). Run Dijkstra's Algorithm to **find the lengths of the shortest paths** (fewest number of velociraptors met) from **a** to each of the other vertices. Remember to store the path variable and **list the order vertices are added to the known set**.

3. Better Find the Shortest Path Before It Catches You!

Consider the following graph:



- a) Use Dijkstra's Algorithm to find the lengths of the shortest paths from a to each of the other vertices. Show your work at every step.

- b) Are any of the lengths you computed using Dijkstra's Algorithm in part (a) incorrect? Why or why not?

- c) Explain how you would use Dijkstra's Algorithm to recover the actual paths (rather than just the lengths).