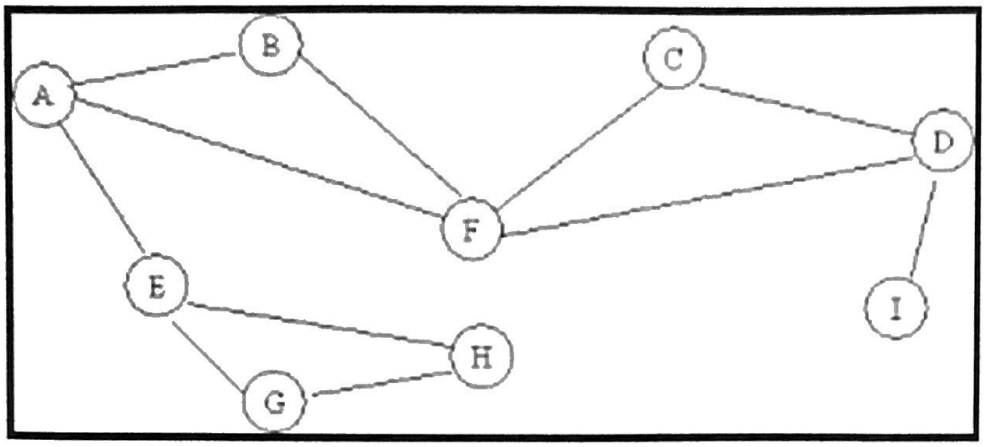
Lab #9: Maps (30 Pts)

#1. Given the graph below, list the order in which the vertices will be visited if conducting a breadth first search and a depth first search from vertex A. Always take the lower cost or vertex which comes first alphabetically when presented with multiple options. (10 Pts)



Queue:

~~A~~ ~~B~~
~~E~~
~~F~~
~~C~~
~~G~~
~~H~~
~~E~~
~~D~~
~~I~~
~~G~~
~~I~~

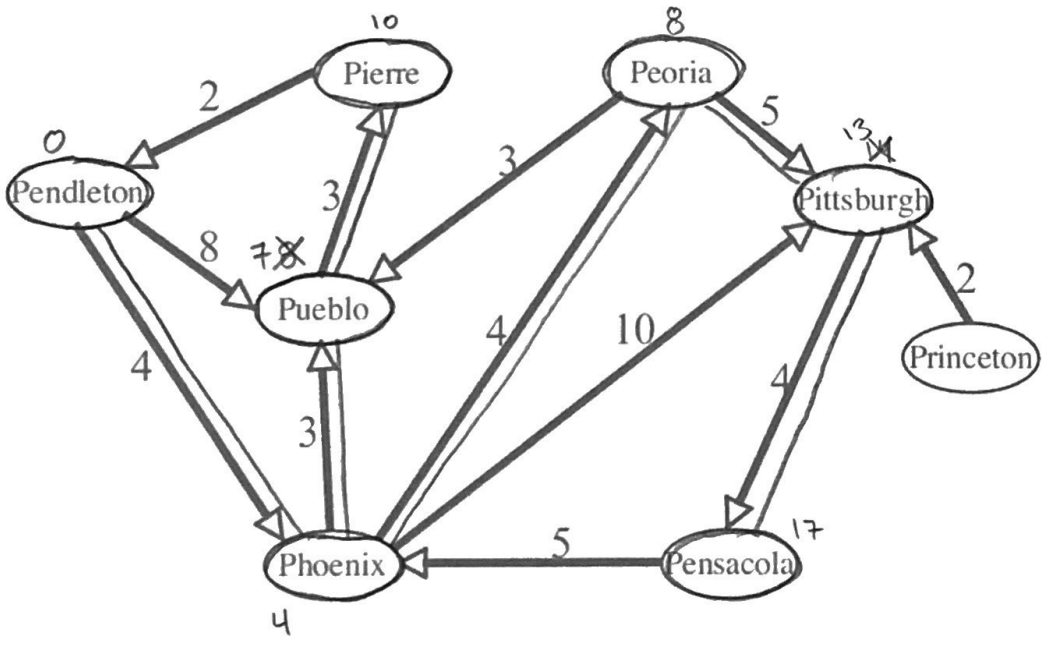
Stack:

~~A~~	~~B~~	~~F~~	~~G~~	~~D~~	~~I~~	~~G~~ ~~H~~
	E	E	D	D	~~G~~ H	~~H~~
	F	F	E	E	~~E~~ F	~~F~~
			F	F	F	

BFS A, B, E, F, G, H, C, D, I

DFS A, B, F, C, D, I, E, G, H

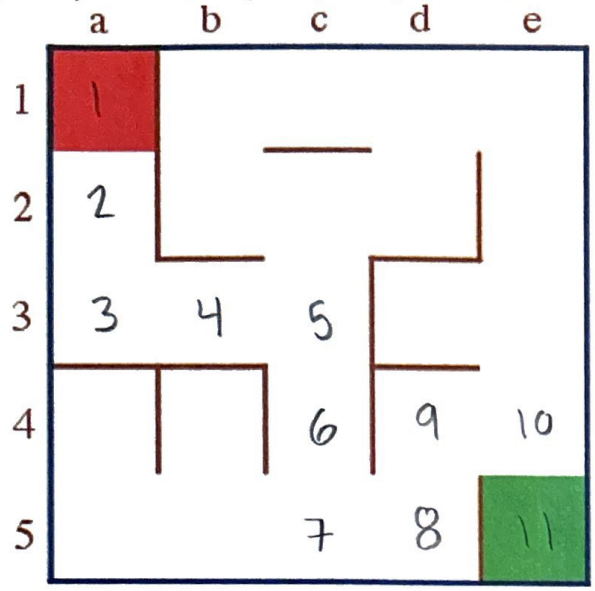
#2 Given the graphs below, use Dijkstra's algorithm to find the minimum path tree from Pendleton to the rest of the graph. (10 Pts)

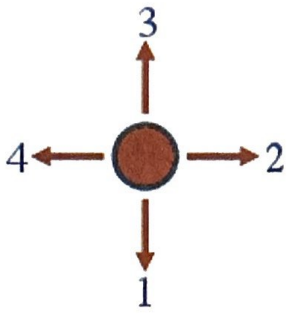


Pendleton: 0
Pierre : ∞ 10
Pueblo : ∞ 8 7
Phoenix : ∞ 4
Peoria : ∞ 8
Pittsburgh: ∞ 14 13
Pensacola: ∞ 17
Princeton : ∞

Pendleton, Phoenix, Pueblo, Peoria, Pierre, Pittsburgh, Pensacola

#3. Use a depth first search to navigate the maze from the red square to the green square. Numbers indicate priority – 1 is the highest priority and 4 is the lowest.





What to turn in:

Submit a document with your solutions via Canvas. This doesn't lend itself perfectly to any particular format. It can be typed or hand-written.