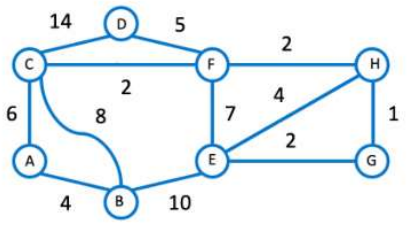
Shortest Path Activity:

Thursday, December 5, 2024 10:05 PM

1) Using Dijkstra's algorithm, find the shortest path from A to all other vertices in the graph below. What is the order in which vertices get removed from the priority queue? What is the resulting shortest-path tree? Be sure to fill a table that shows for each vertex, the shortest path from A and the corresponding distance from A.



Vertex	Shortest Distance from A	Shortest Path from A	Queue
A	0	A	B,C
B	4	A,B	C,E
C	6	A,C	E
D	20	A,C,D	F,G,H,D
E	8	A,B,E	G,H,D
F	8	A,B,E,F	G,D
G	10	A,B,E,F,G	D
H	10	A,B,G,H	0

2) Using Bellman-Ford algorithm, find the shortest path from A to all other vertices in the previous graph.

Index	A	B	C	D	E	F	G	H
0	0	Infinity	Infinity	Infinity	Infinity	Infinity	Infinity	Infinity
1	0	4	6	Infinity	Infinity	Infinity	Infinity	Infinity
2	0	4	6	20	14	Infinity	Infinity	Infinity
3	0	4	6	20	14	15	16	18
4	0	4	6	20	8	15	10	12
5	0	4	6	20	8	8	10	10