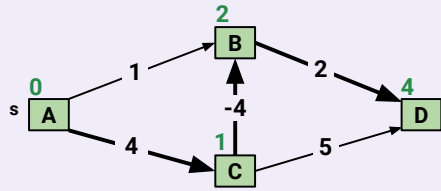


### Q DAG Shortest Paths

Given a weighted DAG (**possibly negative edge weights**), find the single-source shortest paths tree from  $s$  to every other vertex in the graph.

Your algorithm should be faster than Dijkstra's algorithm.

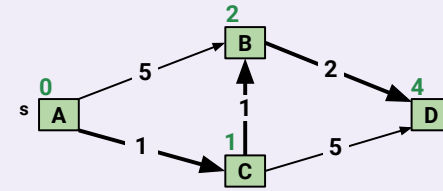


2

### Q Positive Integer-Weighted Shortest Paths

Given a weighted, directed graph (**possibly cyclic**) with **positive integer edge weights**, find the single-source shortest paths tree from  $s$  to every other vertex in the graph.

Your algorithm should be faster than Dijkstra's algorithm on cyclic graphs.

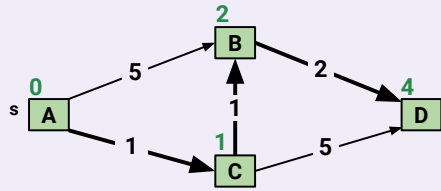


4

### Q DAG Longest Paths

Given a weighted DAG (possibly negative edge weights), find the single-source **longest** paths tree from  $s$  to every other vertex in the graph.

Give the runtime of your algorithm.



### Q Vertex Weights in Shortest Paths

How would you model vertex weights for shortest paths problems?

