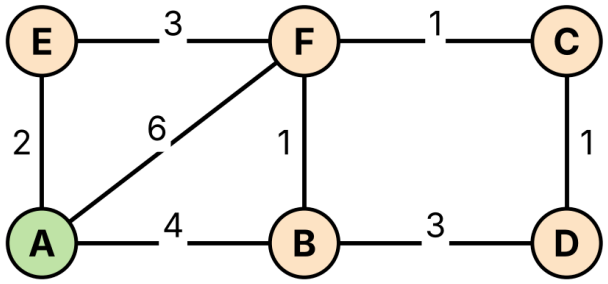
CS 43: Dijkstra Worksheet

Work with a partner. Run Dijkstra's algorithm from router A on this network. Numbers are link costs.



Part 1. Run the algorithm

Fill in one row per step. D(v) is the current least cost from A to v; p(v) is the node just before v on that path. Once a node joins N', its cost is final. Leave its column blank in all later rows. If a new path ties the current one, keep the current one.

Step	N'	D(B), p(B)	D(C), p(C)	D(D), p(D)	D(E), p(E)	D(F), p(F)
0	A	4, A	infinity	infinity	2, A	6, A
1	A, E		Infinity	infinity		5, E
2	A, E, B		infinity	7, B		**5, E**
3	A, E, B, F		6, F	7, B		
4	A, E, B, F, C			**7, B**		
5	A, E, B, F, D					

Highlighted in red are the columns that didn't change because the new path ties with the current one.

Part 2. Build A's forwarding table

A only needs the first hop toward each destination, not the whole path.

Destination	B	C	D	E	F
Send to	B	E	B	E	E