Practice Problems - Dijkstra's Algorithm

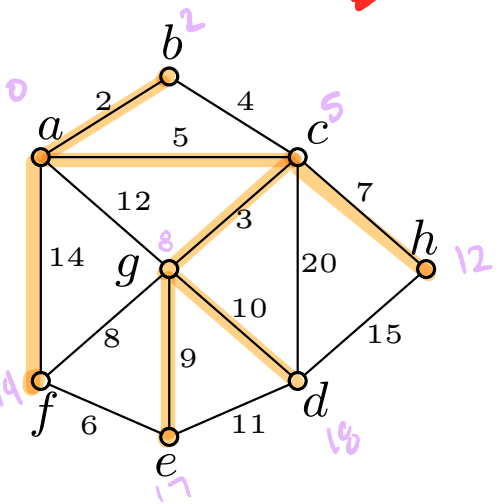
Dijkstra's Algorithm 1

Run Dijkstra's algorithm on the graph with start vertex a. Assume that vertices are ordered alphabetically.

For each step of the algorithm specify the current vertex weights (you can use a table to represent this data).

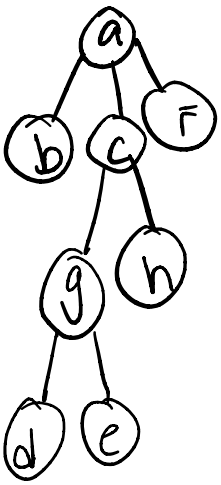
RM	a	b	c	d	e	f	g	h
–	0	∞	∞	∞	∞	∞	∞	∞
a	–	2	5	∞	∞	14	12	∞
b	–	–	5	∞	∞	14	12	∞
c	–	–	–	25	∞	14	8	12
g	–	–	–	18	17	14	–	12
h	–	–	–	18	17	14	–	–
f	–	–	–	18	17	–	–	–
e	–	–	–	16	–	–	–	–
d	–	–	–	–	–	–	–	–

Correct solution



Draw the spanning tree the algorithm finds:

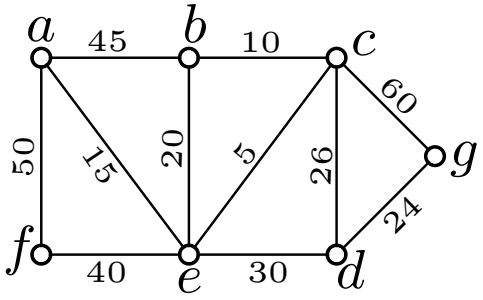
=>



Dijkstra's Algorithm 2

Run Dijkstra's algorithm on the graph with start vertex a. Assume that vertices are ordered alphabetically.

For each step of the algorithm specify the current vertex weights (you can use a table to represent this data).



Removed	a	b	c	d	e	f	g
–	0	∞	∞	∞	∞	∞	∞
a	–	45	∞	∞	15	50	∞
e	–				–		
	–				–		
	–				–		
	–				–		
	–				–		
	–				–		

Draw the spanning tree the algorithm finds: