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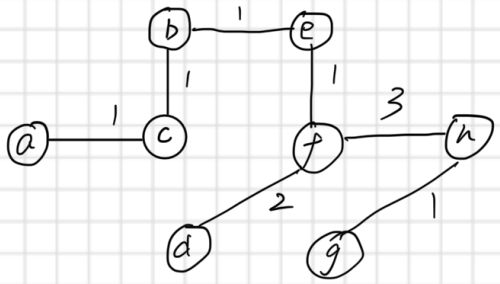
1. Prim's algorithm:

start from a then the edges are (a,c), (c,b), (b,e), (e,f), (f,d), (f,h), (h,g)



weigh = 10

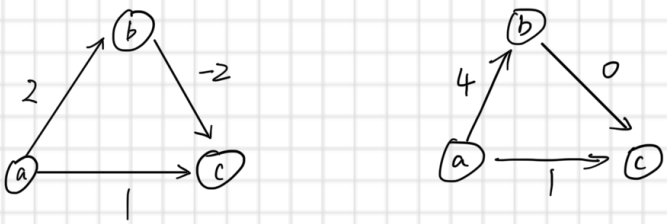
Kruskal's first add all edges of weight 1 (a,c), (c,b), (b,e), (e,f) (h,g), then add weight 2 (d,f), it is feasible. There are 3 edges of weight 3 and (a,b), (b,f) aren't feasible, final add (f,h) only. Then got the tree same as above.

2.

	S	a	b	c	d	e	f	g
a	a	0	9	∞	7	∞	3	8
f	{a,f}	0	9	∞	5	4	3	8
e	{a,f,e}	0	9	∞	5	4	3	8
d	{a,f,e,d}	0	6	7	5	4	3	8
b	{a,f,e,d}	0	6	7	5	4	3	8
c	{a,f,e,d,c}	0	6	7	5	4	3	8
g	{a,f,e,d,c}	0	6	7	5	4	3	8

shortest path: a,f,d,c length = 7.

3.



The shortest path from a to c should be a→b→c, but if we transfer to add every path an 2 to make it positive, the path is a→c now.

Because the more edges, the more weight will be added, and the shorter path with more edge may change to a longer path than the longer path but with less edges.