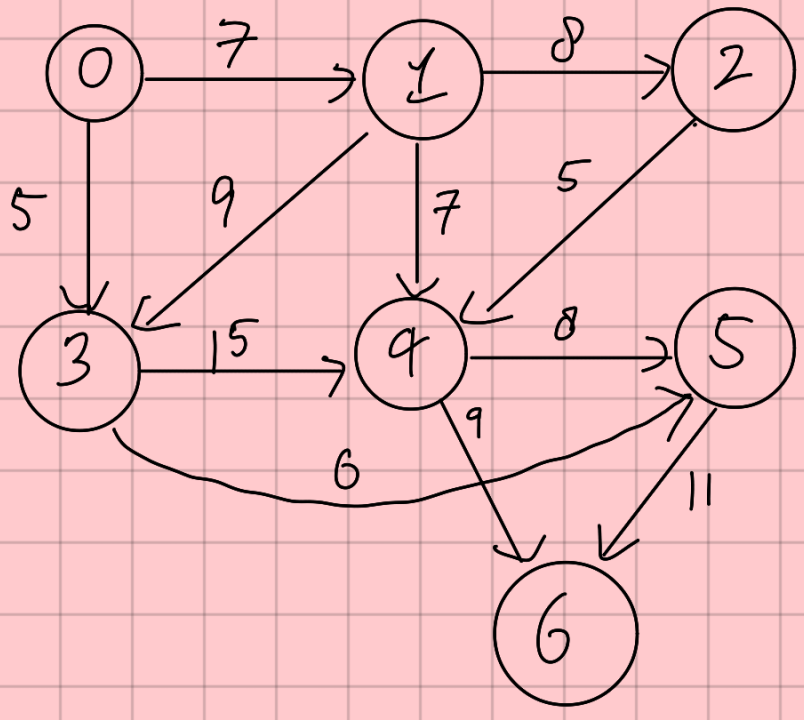
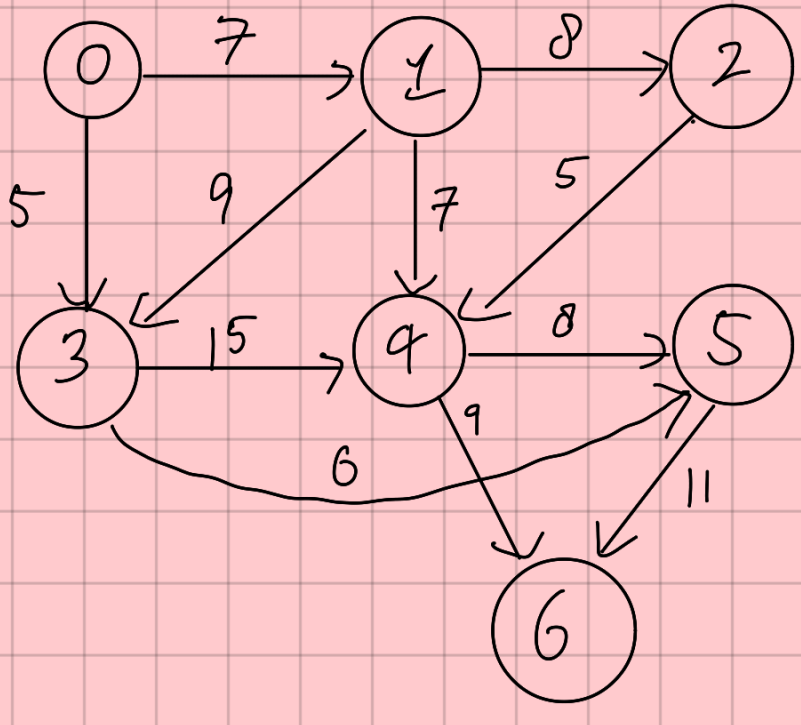
Graph1.txt

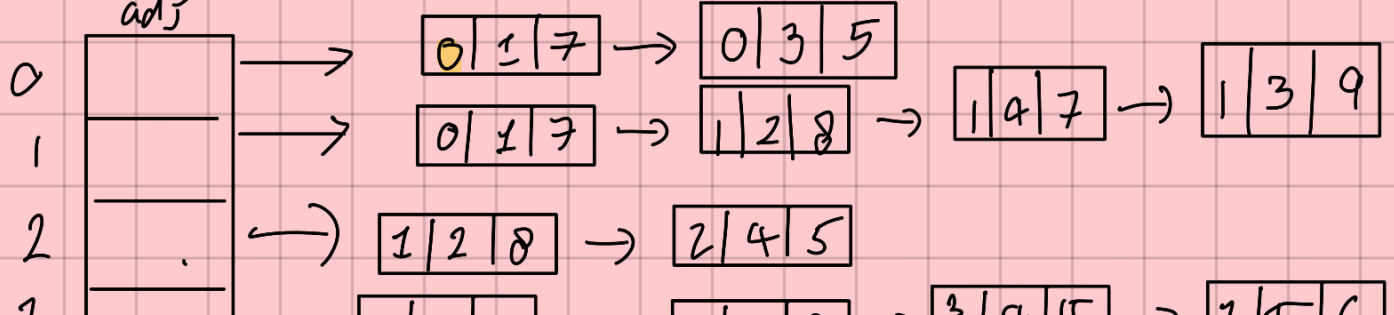
7 |V|
11 |E|
0 → 1 7
0 → 3 5
1 → 2 8
1 → 3 9
1 → 4 7
2 → 4 5
3 → 4 15
3 → 5 6
4 → 5 8
4 → 6 9
5 → 6 11





Edge Weighted Graph

Adjazenzliste



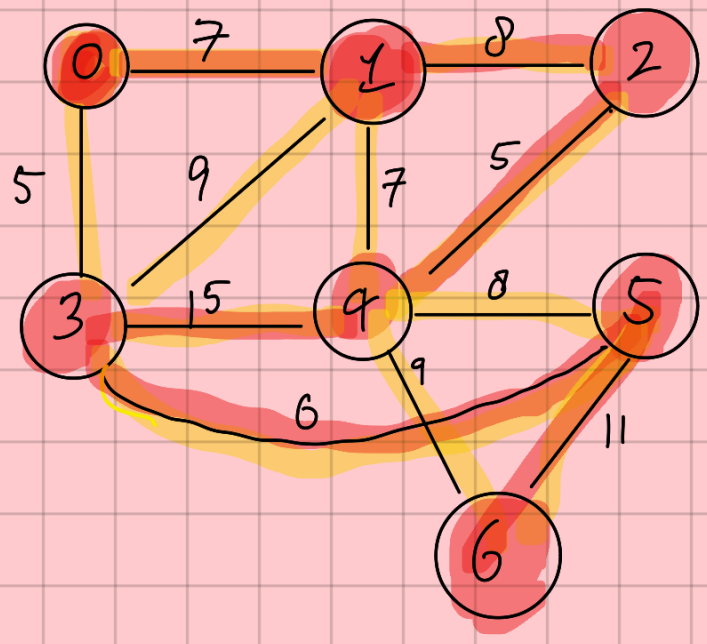
5 → 0|3|5 → 1|3|9 → 2|4|15 → 3|5|6

4 → 1|4|7 → 2|4|5 → 3|4|15 → 4|5|8 → 4|6|9

5 → 3|5|6 → 4|5|8 → 5|6|11

6 → 4|6|9 → 5|6|11

DFS

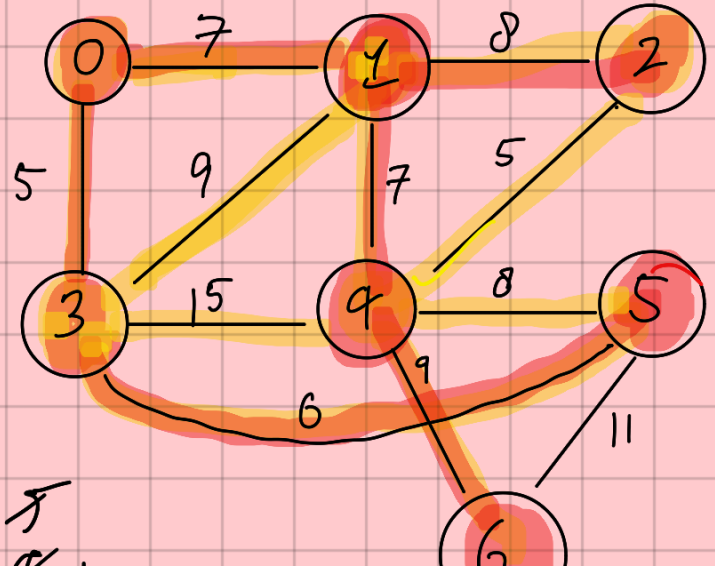


marked[]	
0	t
1	t
2	t
3	t
4	t
5	t
6	t

edgeTo[]	
0	-1
1	0
2	1
3	4
4	2
5	3
6	5

Besuchsreihenfolge: 0 → 1 → 2 → 4 → 3 → 5 → 6

BFS Queue

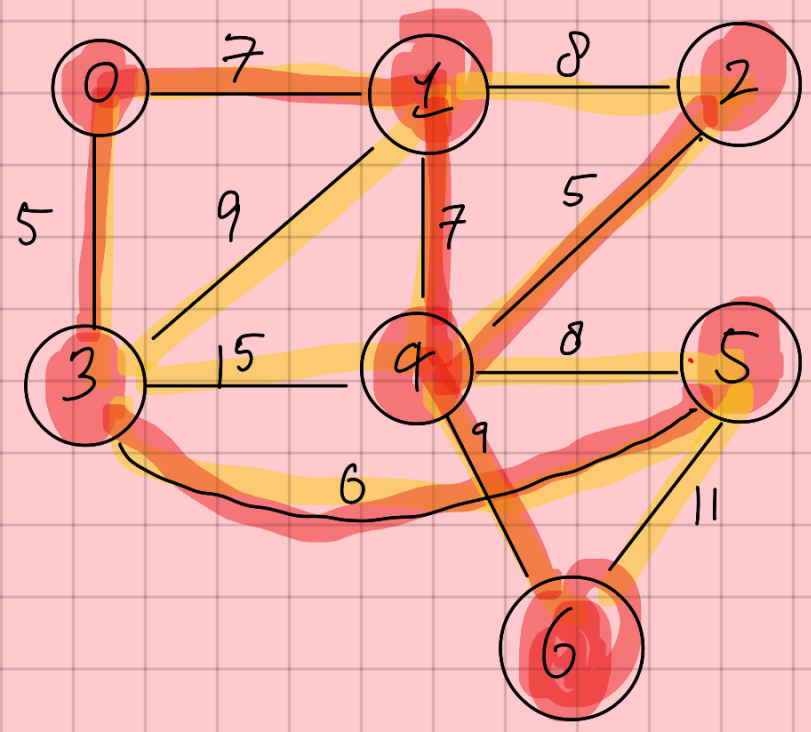


marked	
0	t
1	t
2	t
3	t
4	t
5	t
6	t

edgeTo	
0	-1
1	0
2	1
3	0
4	1
5	3
6	4

0 → 1 → 3 → 2 → 4 → 5 → 6

Prim MST



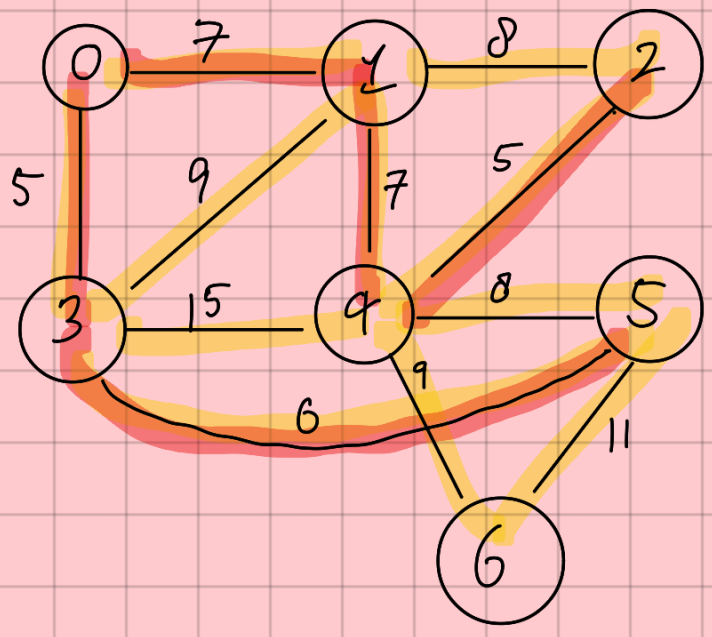
marked	mst
0 t	0→3 ✓
1 t	3→5 ✓
2 t	0→1 ✓
3 t	1→4 ✓
4 t	4→2 ✓
5 t	4→6 ✓
6 ✓	

pq (Pand Kanton)

0→1	7	✗
0→3	5	✗
3→1	9	
3→4	15	
3→5	6	✗
5→4	8	
5→6	11	
1→2	8	
1→4	7	
4→2	5	✗

4 → 6 9

Kruskal MST



tree id	
0	0
1	~~1~~ 0
2	~~2~~ 0
3	~~3~~ 0
4	~~4~~ ~~0~~ 0
5	~~5~~ 0
6	~~6~~ 0

MST

0 → 3 ✓
2 → 4 ✓
3 → 5 ✓
0 → 1 ✓
1 → 4 ✓
4 → 6 ✓

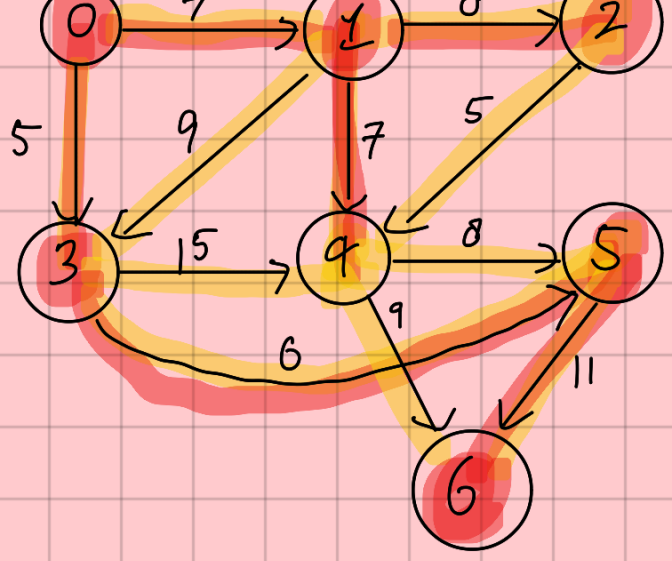
pq

id = 3

v=0	w=3	→	0 → 3	5
v=2	w=4	→	2 → 4	5
v=3	w=5	→	3 → 5	6
v=0	w=1	→	0 → 1	7
v=1	w=4	→	1 → 4	7
		~~→~~	1 → 2	8
		~~→~~	4 → 5	8
		~~→~~	1 → 3	9
v=4	w=6	→	4 → 6	9
			5 → 6	11

Dijkstra Shortest Path

Map
edge To[]



0	-	
1	0	1
2	1	2
3	0	3
4	1	4
5	3	5
6	5	6

PQ (RandRanTa)

~~0 : 0,0~~
~~1 : 7~~
~~3 : 5~~
4 : 20
~~5 : 11~~
~~2 : 15~~
~~4 : 14~~
6 : 22

min_node : 0
min_node : 3
min_node : 1

min_node : 5
min_node : 4

distTo

0	0.0
1	7
2	15
3	5
4	~~20~~ 14
5	11
6	22

s_b = 6
s_b = 5
s_b = 3
s_b = 0

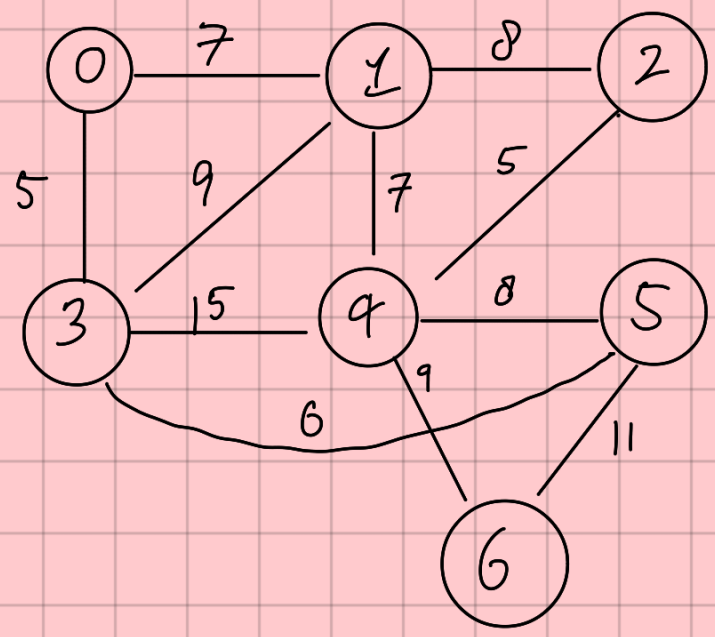
backtracking

5 → 6
3 → 5
0 → 3

max_index : 2

for i=2 ; i > 1 ; i--

0 → 3
3 → 5
5 → 6


0
1
2
3
4
5
6
7
8
5
9
7
5
15
8
9
6
11