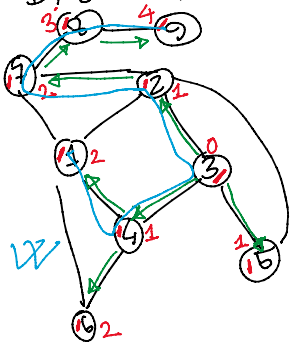
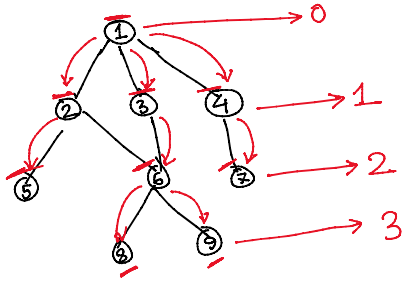
BFS

Saturday, September 12, 2020 10:18 PM

BFS → Breadth First Search





nodes level

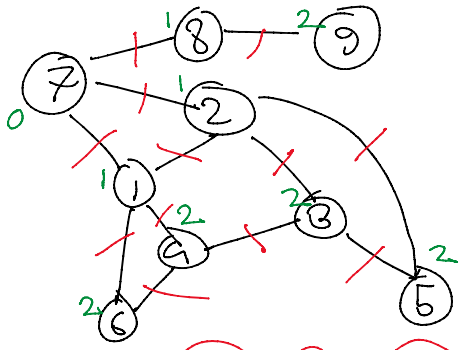
3 → 0

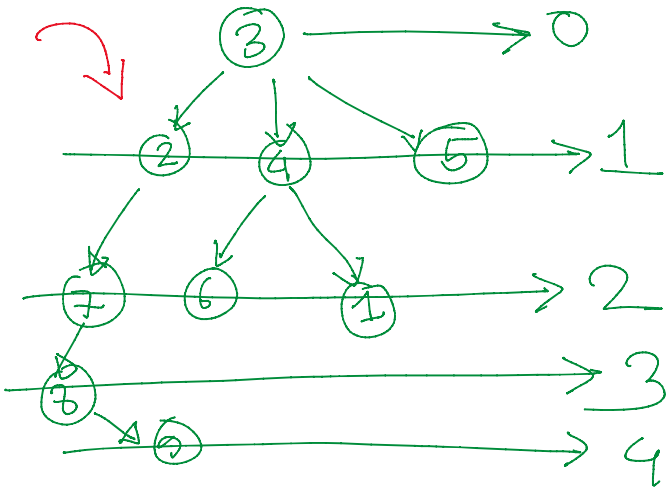
4, 2, 8 → 1

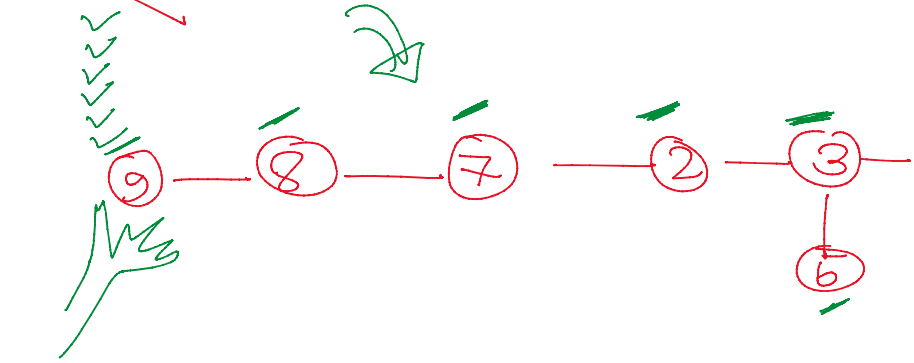
1, 6, 7 → 2

8 → 3

9 → 4







BFS Tre

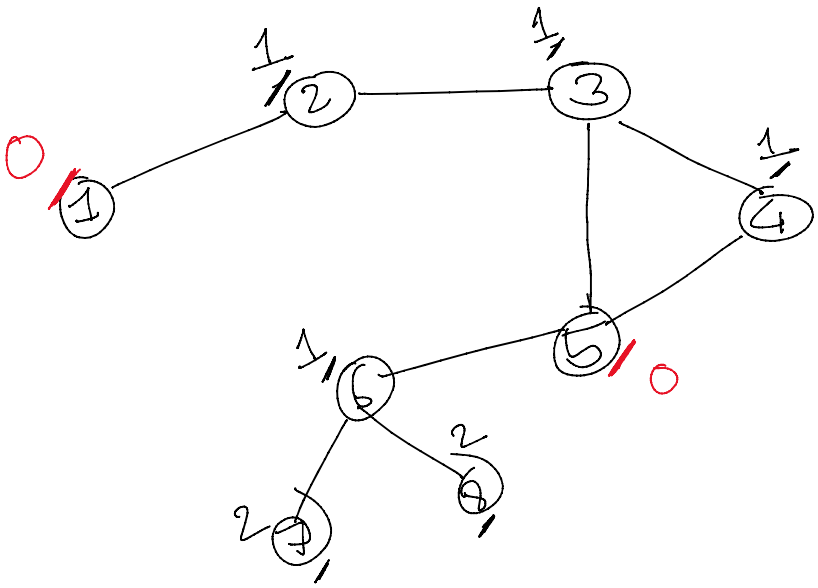
Multi Source Shortest Path

level nodes

0 → 1, 5

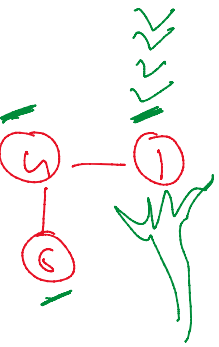
1 → 2, 6, 7

2 → 3, 8



dist ← ∞

e



3, 4

dist ← ∞

Queue → Q

Q ← src

dist[src] = 0

vis[src] = 0

while (Q is not empty)

{

u = Q.front()

Q.pop()

for(v in adj[u]) //u—

{ if (vis[v] == 0)

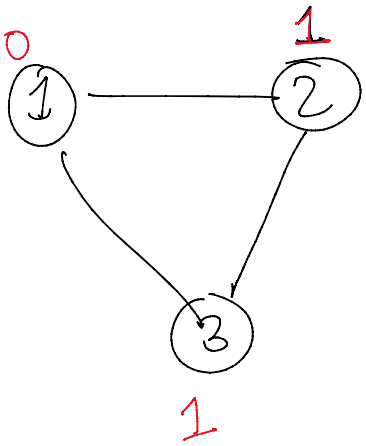
{ dist[v] = dist[u] + 1;

Q ← v

vis[v] = 1;

} }

}



0 + 1 = 1

dist[2] + 1

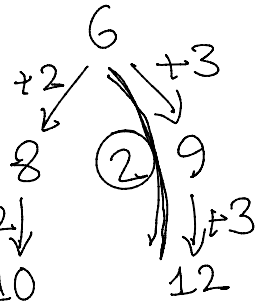
1 + 1 =

Q.push(6);

Q ← {6}

dist[6] = 0

while(· · · ·)



$\to V$

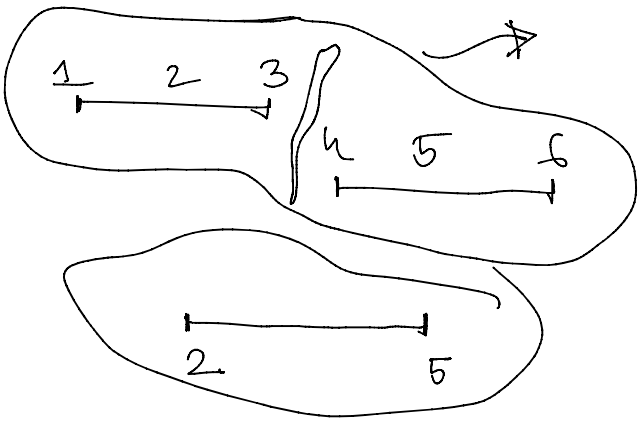
-2

while(----) 10 12

{ u = q.front , =6

if(u>1000) break;

y



$|6-1| + |5-2| = 5+3$

$= 8$

x+1, y+0

x-1, y

x, y+1

x, y-1

+1 -1

+0 0