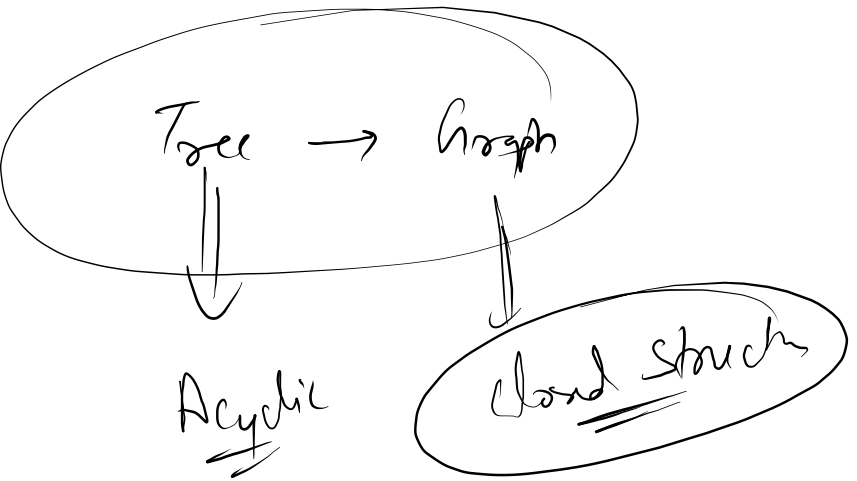
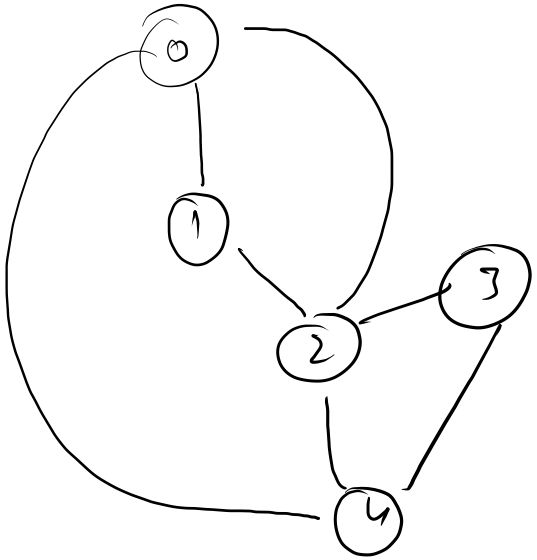
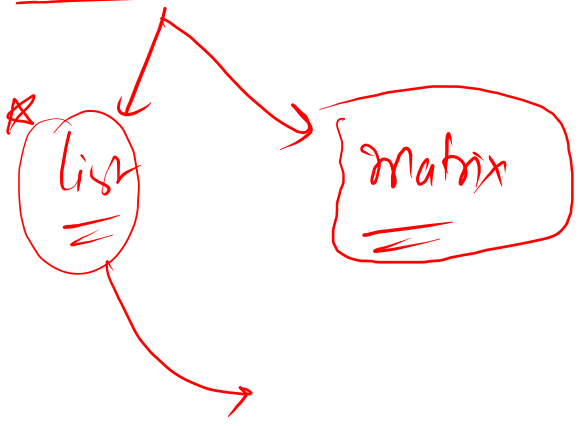
$\{ V, E \}$

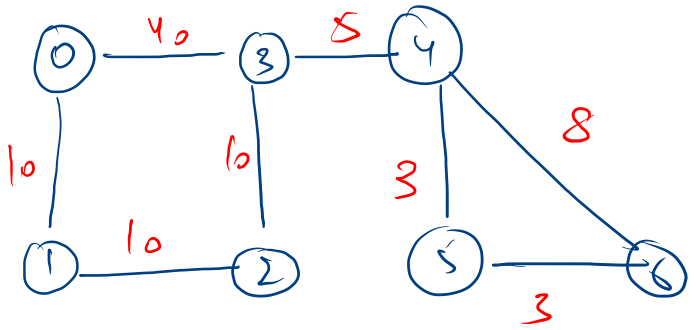




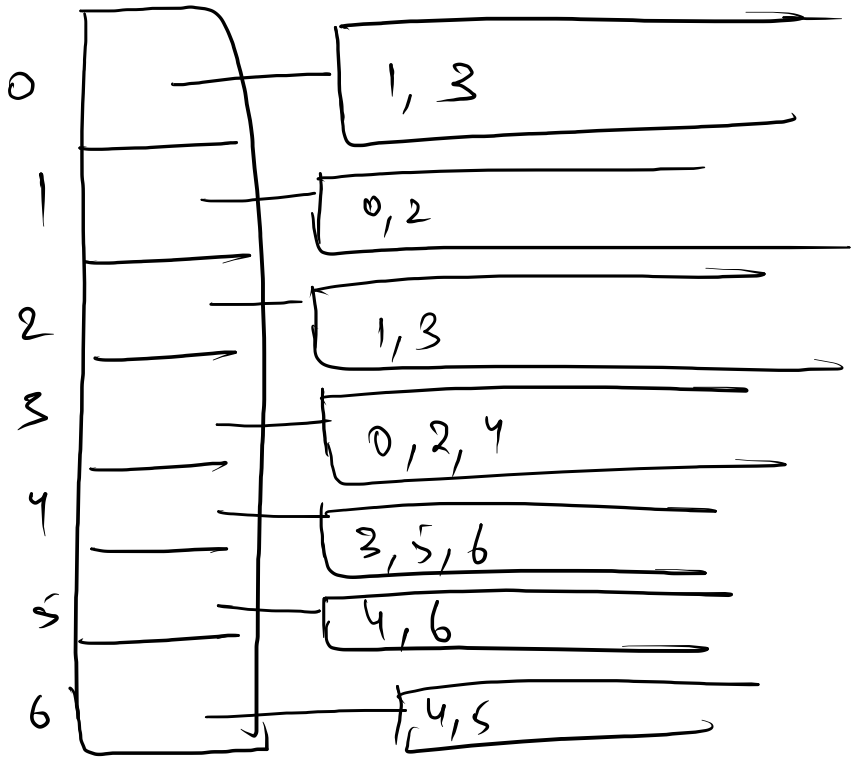
Graph → Implementation

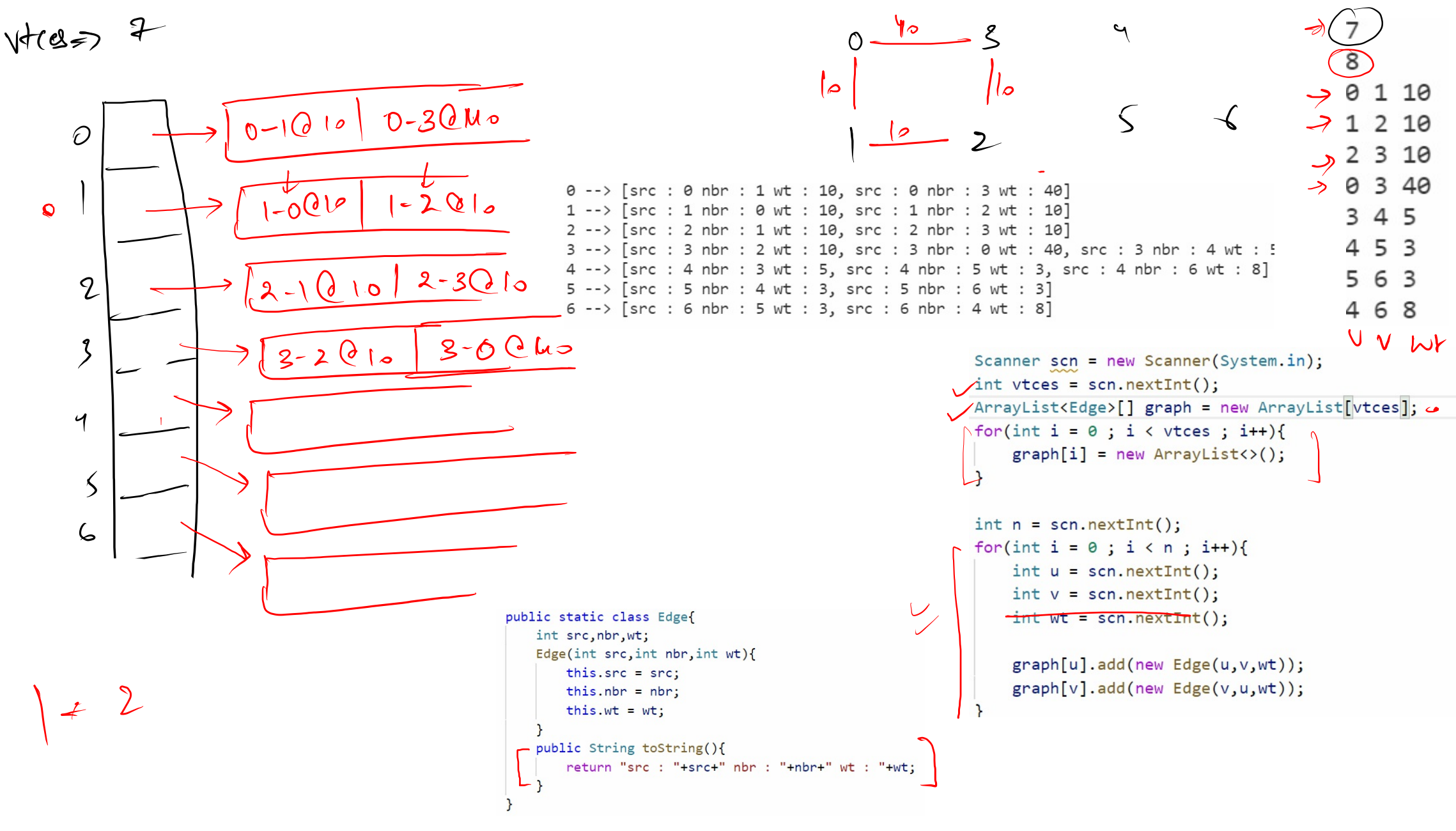


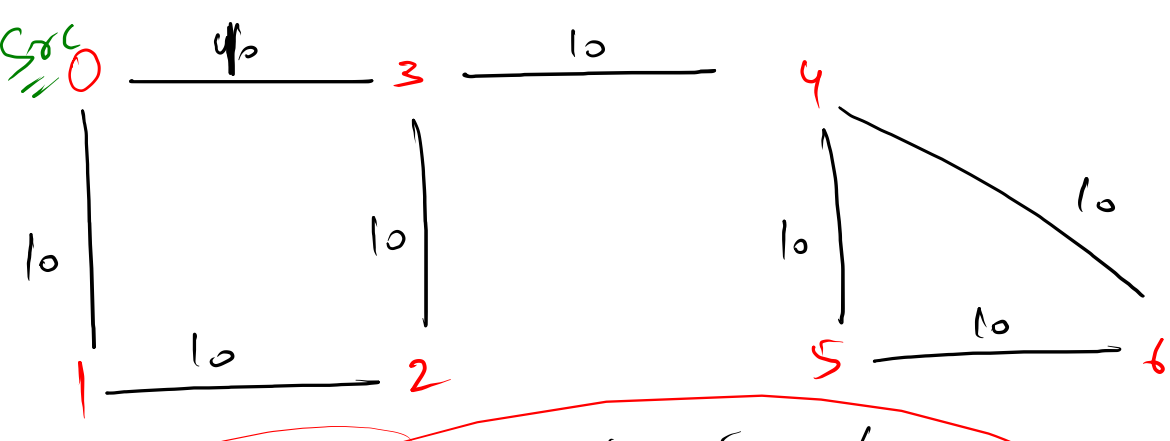
ArrayList <> [ ]

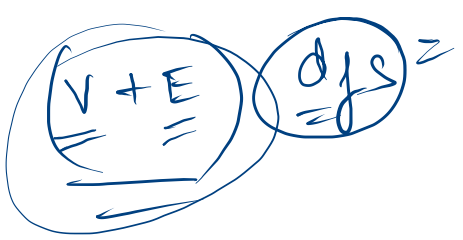


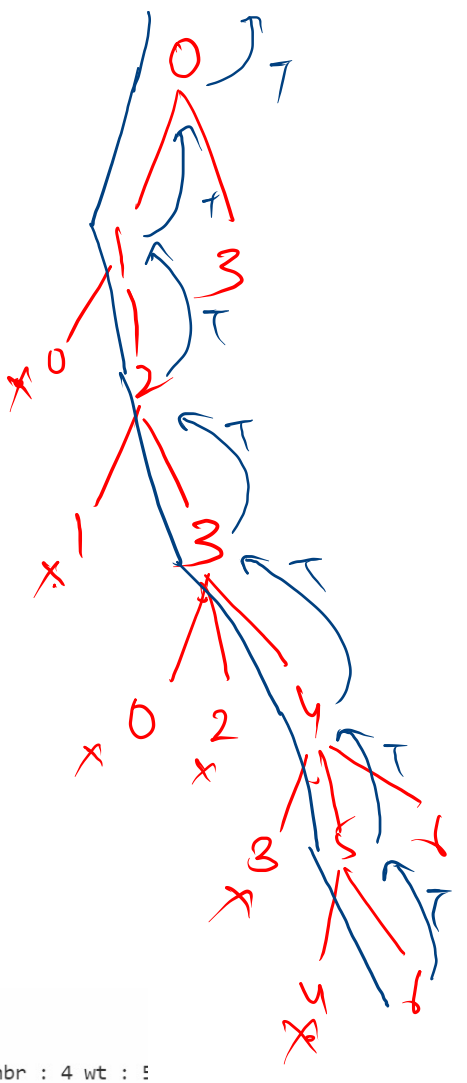

```
7
8
0 1 10
1 2 10
2 3 10
0 3 40
3 4 5
4 5 3
5 6 3
4 6 8
```

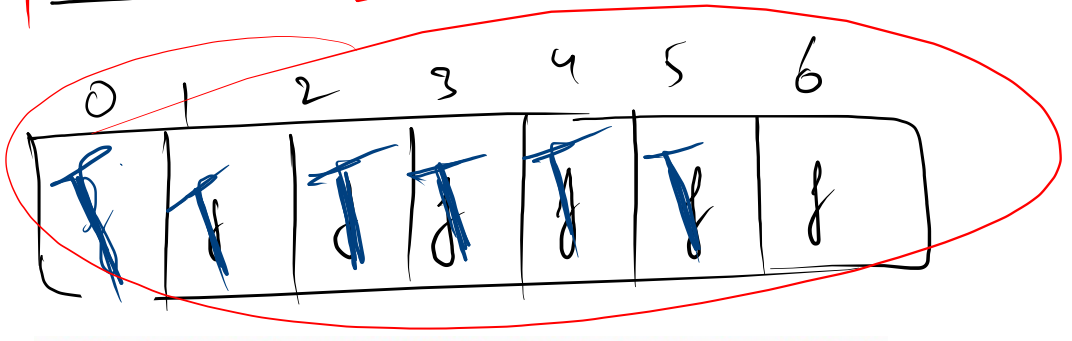



vtces => 7
0-1@10 | 0-3@40
1-0@10 | 1-2@10
2-1@10 | 2-3@10
3-2@10 | 3-0@40
0 --> [src : 0 nbr : 1 wt : 10, src : 0 nbr : 3 wt : 40]
1 --> [src : 1 nbr : 0 wt : 10, src : 1 nbr : 2 wt : 10]
2 --> [src : 2 nbr : 1 wt : 10, src : 2 nbr : 3 wt : 10]
3 --> [src : 3 nbr : 2 wt : 10, src : 3 nbr : 0 wt : 40, src : 3 nbr : 4 wt : 5
4 --> [src : 4 nbr : 3 wt : 5, src : 4 nbr : 5 wt : 3, src : 4 nbr : 6 wt : 8]
5 --> [src : 5 nbr : 4 wt : 3, src : 5 nbr : 6 wt : 3]
6 --> [src : 6 nbr : 5 wt : 3, src : 6 nbr : 4 wt : 8]
7
8
0 1 10
1 2 10
2 3 10
0 3 40
3 4 5
4 5 3
5 6 3
4 6 8
u v wt
Scanner scn = new Scanner(System.in);
int vtces = scn.nextInt();
ArrayList<Edge>[] graph = new ArrayList[vtces];
for(int i = 0 ; i < vtces ; i++){
graph[i] = new ArrayList<>();
}
int n = scn.nextInt();
for(int i = 0 ; i < n ; i++){
int u = scn.nextInt();
int v = scn.nextInt();
int wt = scn.nextInt();
graph[u].add(new Edge(u,v,wt));
graph[v].add(new Edge(v,u,wt));
}
public static class Edge{
int src,nbr,wt;
Edge(int src,int nbr,int wt){
this.src = src;
this.nbr = nbr;
this.wt = wt;
}
public String toString(){
return "src : "+src+" nbr : "+nbr+" wt : "+wt;
}
}







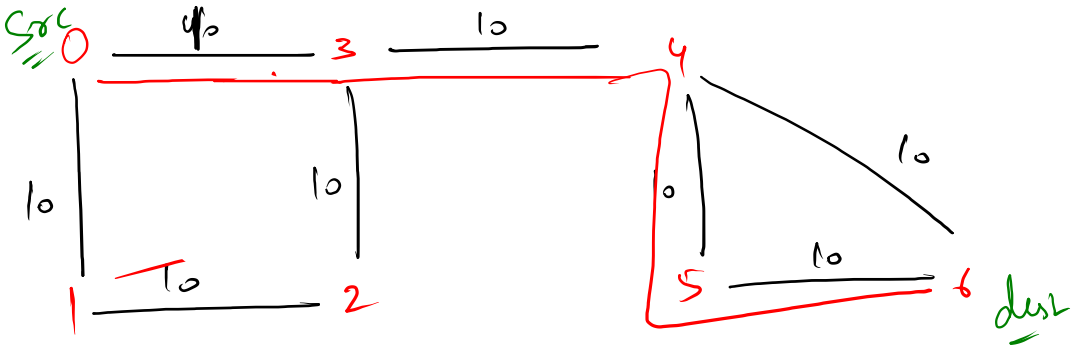


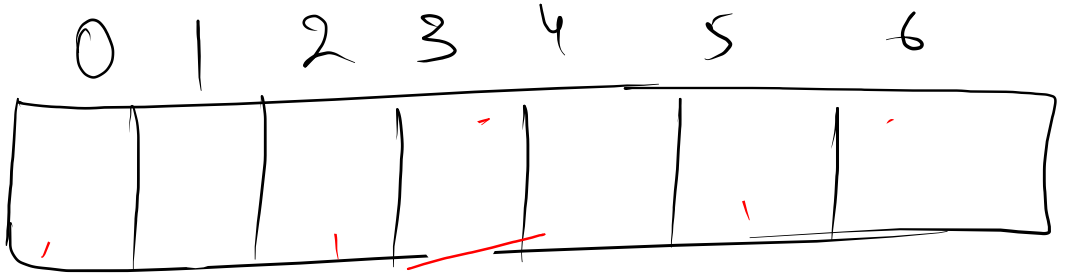

```java
public static boolean hasPath(int vtx,int dest,boolean []vis){
    if(vtx == dest){
        return true;
    }

    vis[vtx] = true;

    for(Edge e : graph[vtx]){
        if(vis[e.nbr] == false){
            if(hasPath(e.nbr,dest,vis) == true){
                return true;
            }
        }
    }
    return false;
}
```

```
0 --> [src : 0 nbr : 1 wt : 10, src : 0 nbr : 3 wt : 40]
1 --> [src : 1 nbr : 0 wt : 10, src : 1 nbr : 2 wt : 10]
2 --> [src : 2 nbr : 1 wt : 10, src : 2 nbr : 3 wt : 10]
3 --> [src : 3 nbr : 2 wt : 10, src : 3 nbr : 0 wt : 40, src : 3 nbr : 4 wt : 5
4 --> [src : 4 nbr : 3 wt : 5, src : 4 nbr : 5 wt : 3, src : 4 nbr : 6 wt : 8]
5 --> [src : 5 nbr : 4 wt : 3, src : 5 nbr : 6 wt : 3]
6 --> [src : 6 nbr : 5 wt : 3, src : 6 nbr : 4 wt : 8]
```





T

0 1 2 3 4 5 6

0 1 2 3 4 6

0 3 4 5 6

0 3 4 6