

```

- size = 7
- Vertices[] - adj[i][j]

```

0	0	1	2	3	4	5	6
1	0	29	0	0	0	10	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	29	0	16	0	0	0	15
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0



WGraph

bool hasEdge (int u, int v);

void insertEdge (int u, int v, int weight); ← Overloading

void load (char* filename) ← Overriding (insertEdge (int u, int v, int weight) 이 사용)



WGraphMST

```
kruskal()
MinHeap heap
VertexSets Set
```

VertexSets

```
- parent
0 1 2 3 4 5 6 7 8 9 10 11
+ findSet
+ UnionSet
```

```
findSet (int vertex) {
    id = vertex;
    while ( ! IsParent(id) ) id = parent[id];
    return id;
}
```

MinHeap

- HeapNode node[]

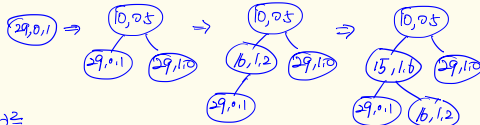
```
0
1
2
3
4
5
6
7
8
9
10
11
```

```
HeapNode
- int key
- int u
- int v
```

```
+ void insert (int key, int u, int v)
+ HeapNode remove()
```

0	1	2	3	4	5	6
0	29	0	0	0	10	0
1	29	0	16	0	0	15
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0

node u 와 node v 사이엔 링크가 없으면 이를 MinHeap에 넣기 insert()



② 1/2 비용 줄이기 Remove 하면 (10, 0, 5)

0과 5가 같은 set 인데도

```
findSet(0) => 0 => UnionSet (0, 5);
findSet(5) = 5
```

```
- parent
0 1 2 3 4 5 6 7 8 9 10 11
```