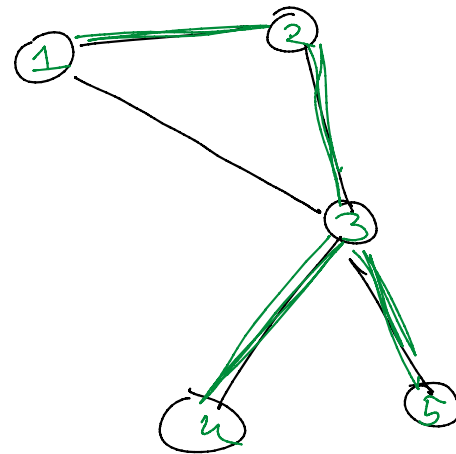
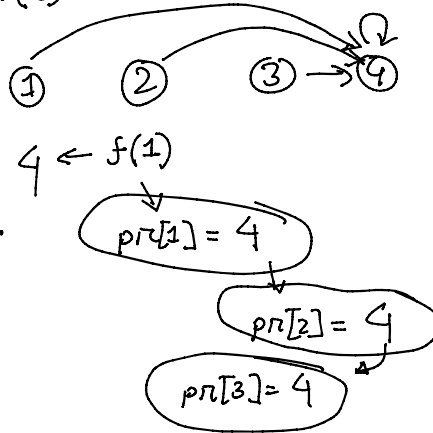


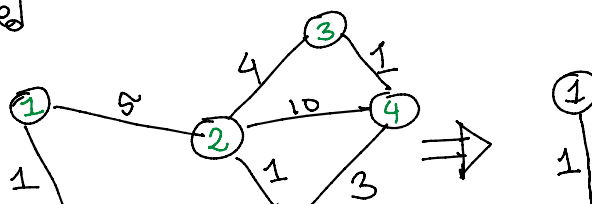
$N \rightarrow \text{update} + \text{query}$
 $O(4 \times N) \rightarrow \text{Inverse Ackermann function}$
 $\approx 4 \rightarrow O(1)$

```
int pr[N+1];
void connect(A, B)
{
    pA = getPR(A)    pB = getPR(B)
    pr[pA] = pB;
}
int getPR(A)
{
    if (pr[A] == A) return A;
    pr[A] = getPR(A);
}
return pr[A];
```

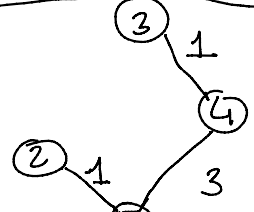


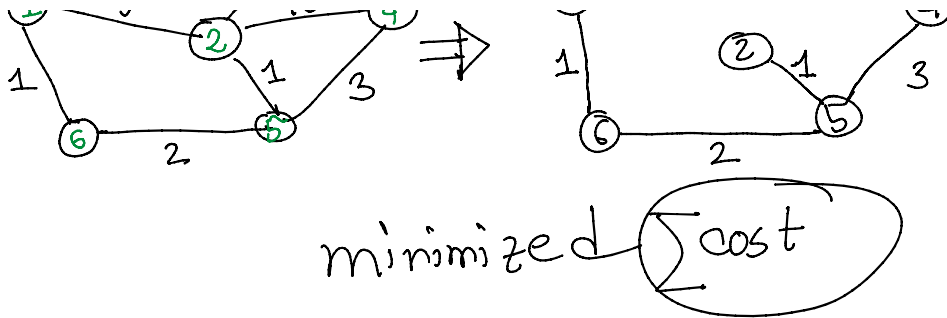
Minimum Spanning Tree (MST) \rightarrow Kruskal (DSU)

weighted - undirected



$$1+1+1+2+3=8$$





1	2	3	4
2	3	3	4

