



## CEVAPLAR

```
void right(int i, int p, int n, int k, int s)
{
    s += i;
    if(n == k)
    {
        cout << s << endl;
        return;
    }
    else right(i+p, p, n+1, k, s);
}

void down(int i, int p, int n, int k)
{
    if(n == k) cout << i << endl;
    else right(i, p, 1, k, 0);

    if(i == 1) return;
    else down(i/2, p/2, 1, k*2);
}

void main()
{
    down(8, 16, 1, 1);
}
```

Çıktı

8  
16  
32  
64

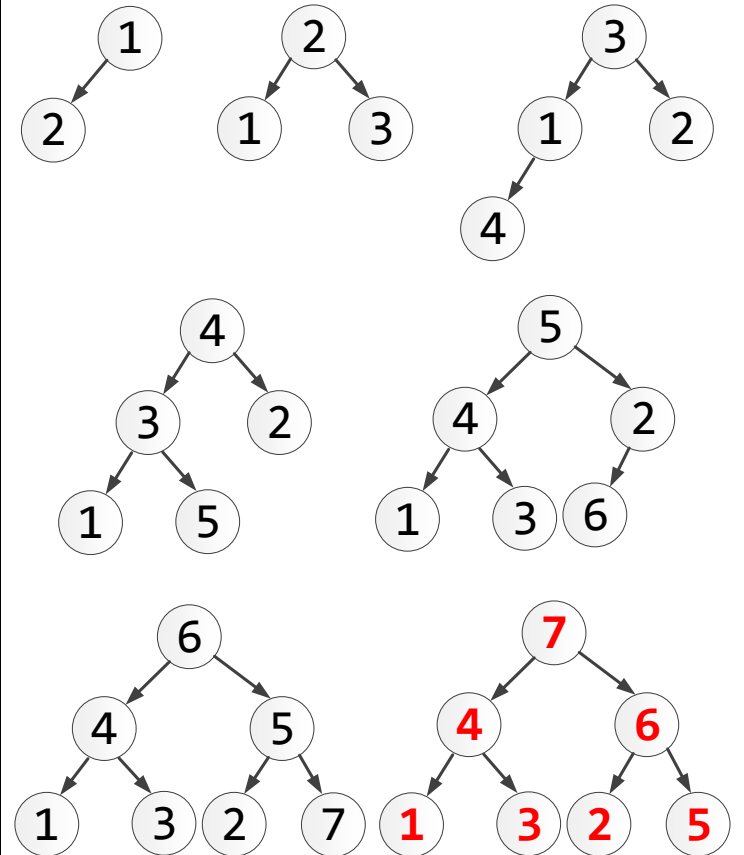
1. Yukarıdaki programın çıktısı nedir? (25P)

1 2 3 4 5 6 7

2. Yukarıdaki verileri aşağıdaki koda göre Heap'e ekleyiniz.  
İpucu → root, min yerine max elemandır. (25P)

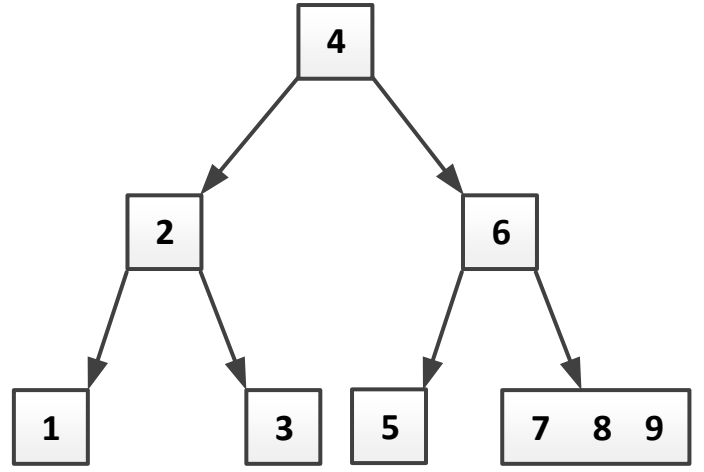
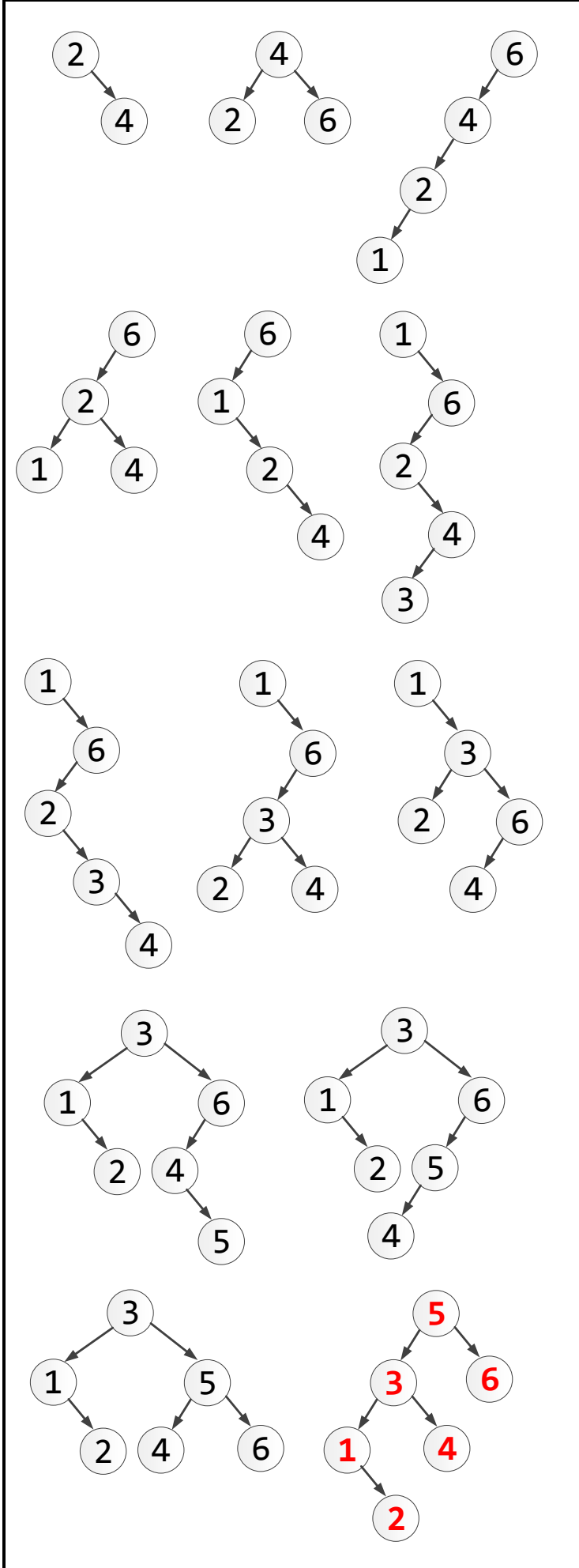
```
bool isLess(const int& e, const int& f)
{
    if(e<f) return true; else return false;
}

void insert(const int& e)
{
    T.addLast(e);
    Position v = T.last();
    while (!T.isRoot(v))
    {
        Position u = T.parent(v);
        if (isLess(*v, *u)) break;
        T.swap(v, u);
        v = u;
    }
}
```



2 4 6 1 3 5

3. Yukarıdaki verileri Splay Ağacı'na ekleyiniz. (25P)



4. Yukarıdaki 2-3-4 Ağacı'ndan 5'i siliniz. (25P)

