

## 1.SORU

### KOD

```
class Test {
    static class Dugum
    {
        int icerik;
        Dugum sag;
        Dugum sol;
    }
    static int dugumSayisi(Dugum kok)
    {
        if (kok == null)
            return 0;

        int res = 0;
        if (kok.sag != null && kok.sag != null)
            res++;

        res += (dugumSayisi(kok.sol) + dugumSayisi(kok.sag));
        return res;
    }

    static Dugum yeniDugum(int icerik)
    {
        Dugum dugum = new Dugum();
        dugum.icerik = icerik;
        dugum.sol = null;
        dugum.sag = null;
        return (dugum);
    }

    public static void main(String[] args)
    {
        Dugum kok = yeniDugum(1881);
        kok.sol=yeniDugum(1938);
        kok.sag=yeniDugum(1920);
        kok.sol.sol=yeniDugum(1923);
        kok.sol.sag=yeniDugum(1929);
        kok.sol.sag.sol=yeniDugum(1997);
        kok.sol.sag.sag=yeniDugum(1447);
        kok.sol.sag.sol.sag=yeniDugum(1887);
        kok.sol.sag.sag.sol=yeniDugum(1774);
        kok.sag.sag=yeniDugum(1052);
        kok.sag.sol=yeniDugum(1111);

        System.out.println("Dolu Düğüm Sayısı "+dugumSayisi(kok));
    }
}
```

## EKRAN ÇIKTISI

```
"C:\Program Files\Java\jdk-13.0.2\bin\java.  
Dolu Düğüm Sayısı 5  
  
Process finished with exit code 0
```

## 2.SORU

## KOD

```
public class Dugum {  
    int icerik;  
    Dugum sol;  
    Dugum sag;  
    public Dugum (int icerik){  
        this.icerik=icerik;  
        sol=null;  
        sag=null;  
    }  
}  
class Agac {  
    Dugum kok;  
    public Agac(){  
        kok=null;  
    }  
  
    boolean ikiliAramaAgaciMi(){  
        return ikiliAramaAgaci(kok,Integer.MIN_VALUE,Integer.MAX_VALUE);  
    }  
  
    boolean ikiliAramaAgaci(Dugum dugum,int min,int max){  
        if(dugum==null){  
            return true;  
        }  
        if(dugum.icerik<min || dugum.icerik>max){  
            return false;  
        }  
        return (ikiliAramaAgaci(dugum.sol,min,dugum.icerik-1)&&  
ikiliAramaAgaci(dugum.sag,dugum.icerik+1,max));  
    }  
}
```

## KOD

```
public class Main {  
  
    public static void main(String[] args) {  
        Agac agac = new Agac();  
        agac.kok = new Dugum(1905);  
        agac.kok.sol = new Dugum(1907);  
        agac.kok.sag = new Dugum(1903);  
        agac.kok.sol.sol = new Dugum(1961);  
        agac.kok.sag.sol = new Dugum(1998);  
        agac.kok.sag.sag = new Dugum(1999);  
        if (agac.ikiliAramaAgaciMi()) {  
            System.out.println("İkili Arama Ağacıdır");  
        } else {  
            System.out.println("İkili Arama Ağacı değildir");  
        }  
  
        Agac agac1 = new Agac();  
        agac1.kok = new Dugum(63);  
        agac1.kok.sol = new Dugum(49);  
        agac1.kok.sag = new Dugum(101);  
        agac1.kok.sol.sol = new Dugum(35);  
        agac1.kok.sag.sol = new Dugum(77);  
        agac1.kok.sag.sag = new Dugum(119);  
        if (agac1.ikiliAramaAgaciMi()) {  
            System.out.println("İkili Arama Ağacıdır");  
        } else {  
            System.out.println("İkili Arama Ağacı değildir");  
        }  
    }  
}
```

## EKRAN ÇIKTISI

```
"C:\Program Files\Java\jdk-13.0.2\bin\java.exe"  
İkili Arama Ağacı değildir  
İkili Arama Ağacıdır  
  
Process finished with exit code 0
```