

Ex.No-9

### Implementation of sub netting applications

```
import java.util.Scanner;

class subnet{

public static void main(String args[]){

Scanner sc = new Scanner(System.in);

System.out.print("Ip address: ");

String ip = sc.nextLine();

String split_ip[] = ip.split("\\."); //Split the string after every .

String split_bip[] = new String[4]; //split binary ip

String bip = "";

for(int i=0;i<4;i++){

split_bip[i] = appendZeros(Integer.toString(Integer.parseInt(split_ip[i])));

bip += split_bip[i];

}

System.out.println("Binary Format "+bip);

System.out.print("Enter the number of addresses in each subnet: ");

int n = sc.nextInt();

//Calculation of mask

int bits = (int)Math.ceil(Math.log(n)/Math.log(2));

int mask = 32-bits;

System.out.println("Subnet mask = "+mask);

//Calculation of first address and last address

int fbip[] = new int[32];

for(int i=0; i<32;i++) fbip[i] = (int)bip.charAt(i)-48; //convert cahracter 0,1 to integer 0,1

for(int i=31;i>31-bits;i--)//Get first address by ANDing last n bits with 0

fbip[i] &= 0;

String fip[] = {"", "", "", ""};

for(int i=0;i<32;i++)
```

```

fip[i/8] = new String(fip[i/8]+fbip[i]);
System.out.print("Network address is = ");
for(int i=0;i<4;i++){
System.out.print(Integer.parseInt(fip[i],2));
if(i!=3) System.out.print(".");
}
System.out.println();

```

```

int lbip[] = new int[32];
for(int i=0; i<32;i++) lbip[i] = (int)bip.charAt(i)-48; //convert cahracter 0,1 to integer 0,1
for(int i=31;i>31-bits;i--)//Get last address by ORing last n bits with 1
lbip[i] |= 1;
String lip[] = {"", "", "", ""};
for(int i=0;i<32;i++)
lip[i/8] = new String(lip[i/8]+lbip[i]);
System.out.print("Broadcast address is = ");
for(int i=0;i<4;i++){
System.out.print(Integer.parseInt(lip[i],2));
if(i!=3) System.out.print(".");
}
System.out.println();
}
static String appendZeros(String s){
String temp = new String("00000000");
return temp.substring(s.length()+ s;
}
}

```

### Output:

```
F:\>javac subnet.java

F:\>java subnet
Ip address: 192.168.1.20
Binary Format 11000000101010000000000100010100
Enter the number of addresses in each subnet: 14
Subnet mask = 28
Network address is = 192.168.1.16
Broadcast address is = 192.168.1.31

F:\>
```