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.toBinaryString(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:\>
```