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public class ip{
    public static char class_type(String address){
        int i=0;
        while(address.charAt(i)!='.'){
            i++;
        }
        int n=Integer.parseInt(address.substring(0,i));
        if(n<128)
            return 'A';
        if(n<192)
            return 'B';
        if(n<224)
            return 'C';
        return 'D';
    }
    public static double[] no_of_hosts(String mask,char cla){
        int c=0;
        for(int i=0;i<mask.length();i++){
            if(mask.charAt(i)=='1')
                c++;
        }
        int hosts=32-c;
        int subnets=0;
        if(cla=='A'){
            subnets=c-8;
        }
        else if(cla=='B'){
            subnets=c-16;
        }
        else if(cla=='C'){
            subnets=c-24;
        }
        return new double[]{Math.pow(2,hosts),Math.pow(2,subnets)};
    }
    public static String decimal_mask(String mask){
        String[] m=mask.split("\\.");
        String d="";
        for(int i=0;i<4;i++){
            int a=Integer.parseInt(m[i],2);
            d=d+String.valueOf(a)+ ".";
        }
        return d;
    }
    public static String[] addresses(String ip,char cla){
        String[] a=ip.split("\\.");
        String dba="";
        String first="";
        String last="";
        if(cla=='A'){
            dba=a[0]+ ".255.255.255";
            last=a[0]+ ".255.255.254";
        }
    }
}

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else if(cla=='B'){
    dba=a[0]+"."+a[1]+".255.255";
    last=a[0]+"."+a[1]+".255.254";
}
else if(cla=='C'){
    dba=a[0]+"."+a[1]+"."+a[2]+".255";
    last=a[0]+"."+a[1]+"."+a[2]+".254";
}
int x=Integer.parseInt(a[3]);
first=a[0]+"."+a[1]+"."+a[2]+"."+String.valueOf(x+1);
return new String[]{dba,last,first};
}
public static void main(String[] args) {
    String[] ip =new String[]{"192.168.1.0","1.3.5.192"};
    String [] mask=new String[]
{"11111111.11111111.11111111.11100000","11111111.11111111.11111111.11000000"};
    System.out.println("IP address"+"\\t"+"Mask in decimal"+"\\t"+"\\tNo of hosts"+"\\t"+"No of
subnets"+"\\t"+"Direct Broadcast Address"+"\\t"+"First host id"+"\\t"+"Last host id");
    for(int i=0;i<ip.length;i++){
        char cla=class_type(ip[i]);
        double [] a=no_of_hosts(mask[i],cla);
        String [] add=addresses(ip[i],cla);
        System.out.println(ip[i]+"\\t"+decimal_mask(mask[i])+"\\t\\t"+a[0]+"\\t\\t"+a[1]+"\\t\\t"+add[0]+"\\t\\t"+
\\t\\t"+add[2]+"\\t\\t"+add[1]);
    }
}
}

```