// Online IDE - Code Editor, Compiler, Interpreter

import java.util.\*;

public class exp7 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter an IP Address");

String IP = sc.next();

// String arr[] = IP.split(".");

if (!IP.contains(".")) {

System.out.println("IP address " + IP + " is invalid");

sc.close();

return;

}

int IPClass;

if (IP.charAt(1) == '.')

IPClass = Integer.parseInt(IP.substring(0, 1));

else if (IP.charAt(2) == '.')

IPClass = Integer.parseInt(IP.substring(0, 2));

else

IPClass = Integer.parseInt(IP.substring(0, 3));

if (IPClass >= 1 && IPClass <= 126)

System.out.println("The IP address " + IP + " belongs to class A\nNet ID: " + IP

+ "\nTotal no. of IP addresses possible: 256\*256\*256\nNetwork mask: 255.0.0.0");

else if (IPClass >= 128 && IPClass <= 191)

System.out.println("The IP address " + IP + " belongs to class B\nNet ID: " + IP

+ "\nTotal no. of IP addresses possible: 256\*256\nNetwork mask: 255.255.0.0");

else if (IPClass >= 192 && IPClass <= 223)

System.out.println("The IP address " + IP + " belongs to class C\nNet ID: " + IP

+ "\nTotal no. of IP addresses possible: 256\nNetwork mask: 255.255.255.0");

else if (IPClass >= 224 && IPClass <= 239)

System.out.println("The IP address " + IP + " belongs to class D\nNet ID: " + IP

+ "\nTotal no. of IP addresses possible: 256\nNetwork mask: 255.255.255.0");

else if (IPClass >= 240 && IPClass <= 255)

System.out.println("The IP address " + IP + " belongs to class E\nNet ID: " + IP

+ "\nTotal no. of IP addresses possible: 256\nNetwork mask: 255.255.255.0");

else {

System.out.println("IP address " + IP + " is invalid");

sc.close();

return;

}

System.out.println("Now enter the number of subnets(power of 2)");

int subnets = sc.nextInt();

if ((subnets & 1) == 1)

System.out.println("Number of subnets is not in the power of 2");

String binary = Integer.toBinaryString(subnets);

System.out.println("Number of subnets: " + subnets);

System.out.println("Number of bits in subnets ID: " + (binary.length() - 1));

int noOfSubnetAddress = ((int) Math.pow(2, 8 - (binary.length() - 1)));

System.out.println(

"Total no of IP addresses possible in each subnet: " + ((int) Math.pow(2, 8 - (binary.length() - 1))));

int temp = -1;

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

System.out.println("\nSubnet " + i + ": -");

System.out.println("Subnet address - " + IP.substring(0, 12) + (temp + 1));

temp += noOfSubnetAddress;

System.out.println("Broadcast address - " + IP.substring(0, 12) + temp);

System.out.println(

"Valid range of host IP address - " + IP.substring(0, 12) + (temp - noOfSubnetAddress + 2) + " - "

+ IP.substring(0, 13) + (temp - 1));

}

sc.close();

}

}

C:\Users\Rishab\OneDrive\Desktop\CN Experiments>java exp7

Enter an IP Address

192.168.10.00

The IP address 192.168.10.00 belongs to class C

Net ID: 192.168.10.00

Total no. of IP addresses possible: 256

Network mask: 255.255.255.0

Now enter the number of subnets(power of 2)

4

Number of subnets: 4

Number of bits in subnets ID: 2

Total no of IP addresses possible in each subnet: 64

Subnet 0: -

Subnet address - 192.168.10.0

Broadcast address - 192.168.10.63

Valid range of host IP address - 192.168.10.1 - 192.168.10.62

Subnet 1: -

Subnet address - 192.168.10.64

Broadcast address - 192.168.10.0127

Valid range of host IP address - 192.168.10.65 - 192.168.10.00126

Subnet 2: -

Subnet address - 192.168.10.128

Broadcast address - 192.168.10.191

Valid range of host IP address - 192.168.10.129 - 192.168.10.190

Subnet 3: -

Subnet address - 192.168.10.192

Broadcast address - 192.168.10.255

Valid range of host IP address - 192.168.10.193 - 192.168.10.254