Code:

package cnl\_subnet;

import java.io.\*;

import java.net.InetAddress;

import java.util.Scanner;

public class subnet {

public static void main(String[] args) {

String ip;

Scanner scanner = new Scanner(System.in);

System.out.println("Enter the IP Address: ");

ip = scanner.nextLine();

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

String split\_bip[] = new String[4]; //split binary ip

String bip = "";

System.out.println("IP Address in binary is");

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

{

split\_bip[i] = appendZeros(Integer.toBinaryString(Integer.parseInt(split\_ip[i])));

System.out.println(split\_bip[i]);

bip += split\_bip[i];

}

int numberOfSubnets;

System.out.println("Enter number of subnets required: ");

numberOfSubnets = scanner.nextInt();

scanner.nextLine();

//Calculating class of IP

int subnet;

int cc = Integer.parseInt(ip.substring(0, 3));

if(cc >= 0 && cc <= 127)

{

System.out.println("The IP Address belongs to class A");

subnet = 8;

}

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

{

System.out.println("The IP Address belongs to class B");

subnet = 16;

}

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

{

System.out.println("The IP Address belongs to class C");

subnet = 24;

}

else

{

System.out.println("Invalid IP Address");

return;

}

//Calculating nearest power of 2 to numberOfSubnets and storing it in variable x

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

System.out.println("Number of bits required for address = "+bits);

int x = (int)Math.pow(2, bits);

subnet += (int)Math.ceil(Math.log(x)/Math.log(2));

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

String subnetmask = "";

int i;

for(i=1; i<=subnet; i++)

{

subnetmask += '1';

}

for(i=i; i<=32; i++)

{

subnetmask += '0';

}

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

int ansDecimal[] = {0, 0, 0, 0};

for(i=0; i<32; i+=8)

{

ans[i/8] = subnetmask.substring(i, i+8);

ansDecimal[i/8] = Integer.parseInt(subnetmask.substring(i, i+8), 2);

}

System.out.println("Subnet mask in Binary:" );

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

{

if(i<3)

{

System.out.print(ans[i] + ".");

}

else

{

System.out.print(ans[i]);

}

}

System.out.println();

System.out.println("Subnet mask in decimal" );

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

{

if(i<3)

{

System.out.print(ansDecimal[i] + ".");

}

else

{

System.out.print(ansDecimal[i]);

}

}

System.out.println();

int fbip[] = new int[32];

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

fbip[i] = (int)bip.charAt(i)-48;

for(i=31;i>31-bits;i--)

fbip[i] &= 0;

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

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

fip[i/8] = new String(fip[i/8]+fbip[i]);

System.out.print("Subnet address is = ");

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

lbip[i] = (int)bip.charAt(i)-48;

for( i=31;i>31-bits;i--)

lbip[i] |= 1;

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

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

lip[i/8] = new String(lip[i/8]+lbip[i]);

System.out.print("Broadcast address is = ");

for( 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;

}

}