Template Week 6 – Networking

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Bonus point assignment – week 6

Remember that bitwise java application you've made in week 2? Expand that application so that you can also calculate a network segment as explained in the PowerPoint slides of week 6. Use the bitwise & AND operator. You need to be able to input two Strings. An IP address and a subnet.

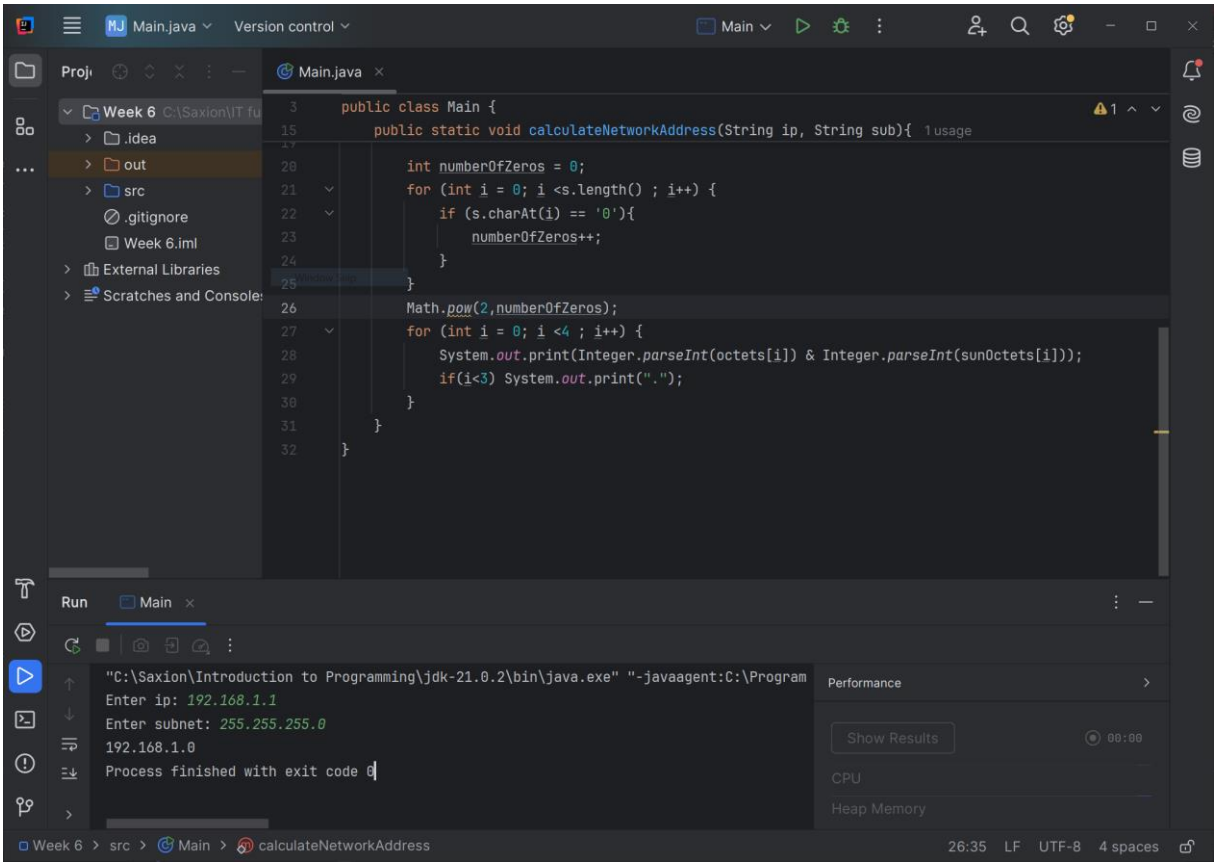
IP: 192.168.1.100 and subnet: 255.255.255.224 for /27

```
Example: 192.168.1.100/27
Calculate the network segment
IP Address:   11000000.10101000.00000001.01100100
Subnet Mask:  11111111.11111111.11111111.11100000
-----------------------------------------------
Network Addr: 11000000.10101000.00000001.01100000

This gives 192.168.1.96 in decimal as the network address.
For a /27 subnet, each segment (or subnet) has 32 IP addresses (2⁵).
The range of this network segment is from 192.168.1.96 to 192.168.1.127.
```

Paste source code here, with a screenshot of a working application.

```
import java.util.Scanner;

public class Main {
    static Scanner scanner = new Scanner(System.in);

    public static void main(String[] args) {
        System.out.print("Enter ip: ");
        String one = scanner.nextLine();
        System.out.print("Enter subnet: ");
        String two = scanner.nextLine();
        calculateNetworkAddress(one, two);

    }

    public static void calculateNetworkAddress(String ip, String sub){
        String[] octets = ip.split("\\.");
        String[] sunOctets = sub.split("\\.");
        String s =
Integer.toBinaryString(Integer.parseInt(sunOctets[3]));

        int numberOfZeros = 0;
        for (int i = 0; i <s.length() ; i++) {
            if (s.charAt(i) == '0'){
                numberOfZeros++;
            }
        }
```

```
        Math.pow(2,numberOfZeros);
        for (int i = 0; i <4 ; i++) {
            System.out.print(Integer.parseInt(octets[i]) &
Integer.parseInt(sunOctets[i]));
            if(i<3) System.out.print(".");
        }
    }
}
```



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