## 8 Template Week 6 - Networking

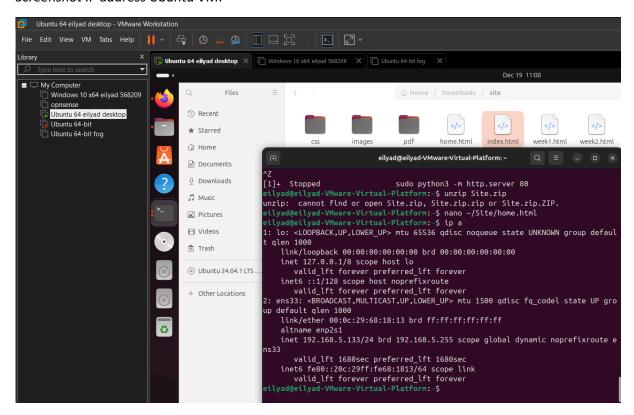
Student number: 568209 eilyad Assignment 6.1: Working from home Screenshot installation openssh-server: Screenshot successful SSH command execution: Screenshot successful execution SCP command: Screenshot remmina: Assignment 6.2: IP addresses websites Relevant screenshots nslookup command: Screenshot website visit via IP address: Assignment 6.3: subnetting How many IP addresses are in this network configuration 192.168.110.128/25? What is the usable IP range to hand out to the connected computers? Check your two previous answers with this calculator: https://www.calculator.net/ip-subnet-calculator.html

IT FUNDAMENTALS 1

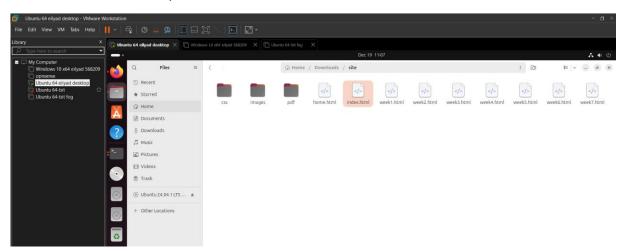
Explain the above calculation in your own words.

## **Assignment 6.4: HTML**

Screenshot IP address Ubuntu VM:



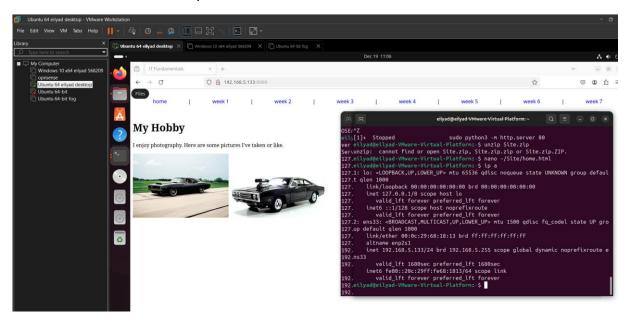
Screenshot of Site directory contents:



Screenshot python3 webserver command:

```
eilyad@eilyad-VMware-Virtual-Platform: ~/Downloads/site
                                                               Q
OSError: [Errno 98] Address already in use
eilyad@eilyad-VMware-Virtual-Platform:~/Downloads/site$ sudo python3 -m http.ser
ver 8080
Serving HTTP on 0.0.0.0 port 8080 (http://0.0.0.0:8080/) ...
127.0.0.1 - - [19/Dec/2024 11:01:42] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [19/Dec/2024 11:01:44] "GET /home.html HTTP/1.1" 200 -
127.0.0.1 - - [19/Dec/2024 11:01:44] "GET /css/mypdfstyle.css HTTP/1.1" 200 -
                                                                                      ul
127.0.0.1 - - [19/Dec/2024 11:01:44] code 404, message File not found
127.0.0.1 - - [19/Dec/2024 11:01:44] "GET /favicon.ico HTTP/1.1" 404 -
127.0.0.1 - - [19/Dec/2024 11:01:44] "GET /images/automain.jpg HTTP/1.1" 200 -
127.0.0.1 - - [19/Dec/2024 11:01:44] "GET /images/turbo.jpg HTTP/1.1" 200 -
127.0.0.1 - - [19/Dec/2024 11:03:01] "GET / HTTP/1.1" 200 -
127.0.0.1 - [19/Dec/2024 11:03:03] "GET /home.html HTTP/1.1" 200 - 127.0.0.1 - [19/Dec/2024 11:03:03] "GET /css/mypdfstyle.css HTTP/1.1" 200 -
                                                                                      ILO
127.0.0.1 - [19/Dec/2024 11:03:03] "GET /css/mypdfstyle.css HTTP/1.1" 200 -
127.0.0.1 - - [19/Dec/2024 11:03:03] "GET /images/automain.jpg HTTP/1.1" 200 -
127.0.0.1 - - [19/Dec/2024 11:03:03] "GET /images/turbo.jpg HTTP/1.1" 200 -
192.168.5.133 - - [19/Dec/2024 11:04:11] "GET / HTTP/1.1" 200 -
                                                                                       e
192.168.5.133 - - [19/Dec/2024 11:04:13] "GET /home.html HTTP/1.1" 200 -
192.168.5.133 - - [19/Dec/2024 11:04:13] "GET /css/mypdfstyle.css HTTP/1.1" 200
192.168.5.133 - - [19/Dec/2024 11:04:13] code 404, message File not found
192.168.5.133 - - [19/Dec/2024 11:04:13] "GET /favicon.ico HTTP/1.1" 404 -
192.168.5.133 - - [19/Dec/2024 11:04:13] "GET /images/automain.jpg HTTP/1.1" 200
```

## Screenshot web browser visits your site



## 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

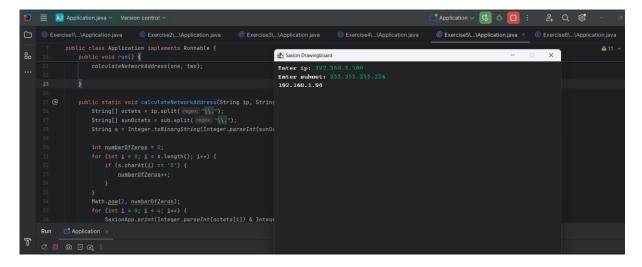
IP Address: 11000000.10101000.00000001.01100100

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 (2<sup>5</sup>). 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 nl.saxion.app.SaxionApp;

```
import java.awt.*;
import java.util.ArrayList;
import java.util.Scanner;

public class Application implements Runnable {
    public static void main(String[] args) {
        SaxionApp.start(new Application(), 700, 700);
    }

    static Scanner scanner = new Scanner(System.in);
    public void run() {
```

```
SaxionApp.print("Enter ip: ");
  String one = SaxionApp.readString();
  SaxionApp.print("Enter subnet: ");
  String two = SaxionApp.readString();
  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++) {
    SaxionApp.print(Integer.parseInt(octets[i]) & Integer.parseInt(sunOctets[i]));
    if (i < 3) SaxionApp.print(".");</pre>
  }
}
private double calculateAreaOfCircle(int radius) {
  double result = Math.PI * radius * radius;
  return result;
}
private boolean isPalindrome(String word) {
  String result = "";
  for (int i = word.length() - 1; i >= 0; i--) {
    result += word.charAt(i);
  }
  if (word.equalsIgnoreCase(result)) {
    return true;
  }
  return false;
}
```

Ready? Save this file and export it as a pdf file with the name: week6.pdf