Operating Systems (IGJ5040-001)

Week 5 / Lab 2 Web Server using Python on Ubuntu

Dept. of Electrical & Computer Engineering

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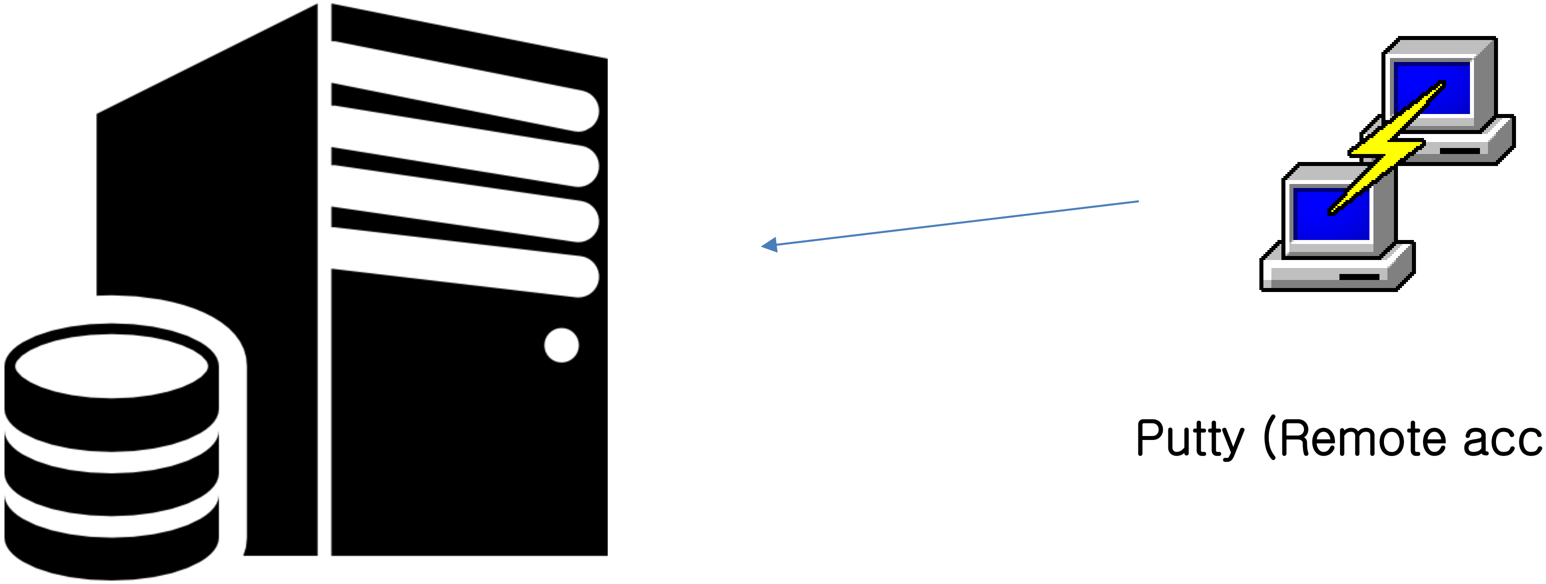
Content

- Find your username and password
- Connecting to server
- Find your unique port number
- Start your web server
- Practices

Development Environment



Putty (Remote access)

MicroServer (Ubuntu 20.04)

Find Your Username

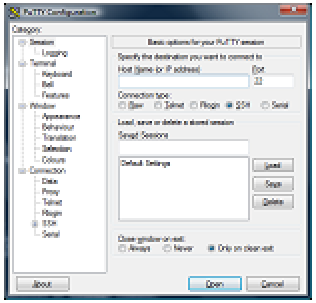
Note: Using only the assigned user is important for parallel working with the server

NO.	Student ID	Full name	Username	Password
1	52221055	정준민	s01	p01
2	52232007	정성제	s02	p02
3	52241047	조우석	s03	p03
4	52241063	유창현	s04	p04
5	52221106	강지훈	s05	p05
6	52241114	전성욱	s06	p06
7	52241118	조훈	s07	p07
8	52242002	전찬희	s08	p08
9	52251040	김성민	s09	p09
10	25551042	임철현	s10	p10
11	52251043	전제훈	s11	p11

Required credentials

Connecting to Server

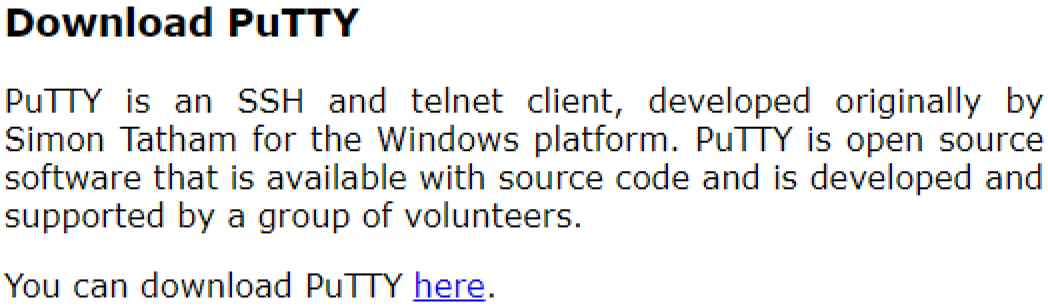
- Download putty.exe from https://www.putty.org/ :



Port
22

Connection type:
○ Raw ○ Telnet ○ Rlogin ● SSH ○ Serial

Close window on exit:
○ Always ○ Never ● Only on clean exit



Download PuTTY

PuTTY is an SSH and telnet client, developed originally by Simon Tatham for the Windows platform. PuTTY is open source software that is available with source code and is developed and supported by a group of volunteers.

You can download PuTTY here.

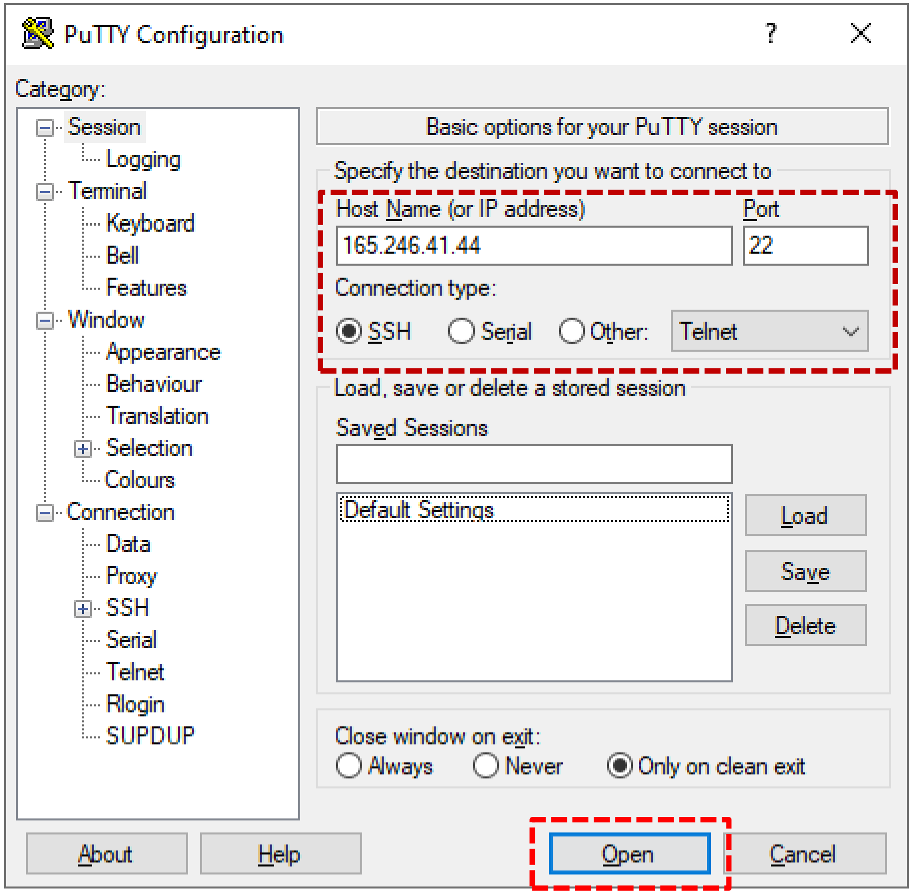
- Install putty.exe into your system

Connecting to Server

- Open Putty and input the server credentials and click “Open”:

IP: 165.246.41.44
Port: 22

Connection: SSH



PuTTY Configuration

Category:

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address): 165.246.41.44

Port: 22

Connection type: ● SSH ○ Serial ○ Other: Telnet

Load, save or delete a stored session

Saved Sessions

Default Settings

Close window on exit: ○ Always ○ Never ● Only on clean exit

What is Web Server ?

🌐 What is a Web Server?

A web server is a program (or a computer running that program) that:

✅ Receives requests from web browsers (like Chrome, Firefox)

✅ Finds the right file (like index.html, images, etc.)

✅ Sends it back over the internet using the HTTP protocol

🔁 How it Works (in simple steps):

1. You visit http://localhost:8080
2. Your browser sends a GET request to the server
3. The server checks your folder for index.html
4. It sends that file back
5. The browser displays it

What Web Servers are available ?

💡 Common Web Servers

- ✓ **Python’s http.server (great for learning!)**
- ✓ Apache
- ✓ Nginx
- ✓ Node.js (Express)
- ✓ Flask, Django (Python web frameworks with server components)

Let’s start

Web server installation

Web server installation using Python

First of all, remember your specific port number:

NO.	Student ID	Full name	Defined Port
1	52221055	정준민	8055
2	52232007	정성제	8007
3	52241047	조우석	8047
4	52241063	유창현	8063
5	52221106	강지훈	8006
6	52241114	전성욱	8014
7	52241118	조훈	8018
8	52242002	전찬희	8002
9	52251040	김성민	8040
10	25551042	임철현	8042
11	52251043	전제훈	8043

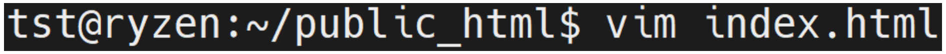
Hint: ***The last two digits of the port number are same with the last two digits of your student number.***

Make a local directory

`mkdir public_html -` Create directory for web page

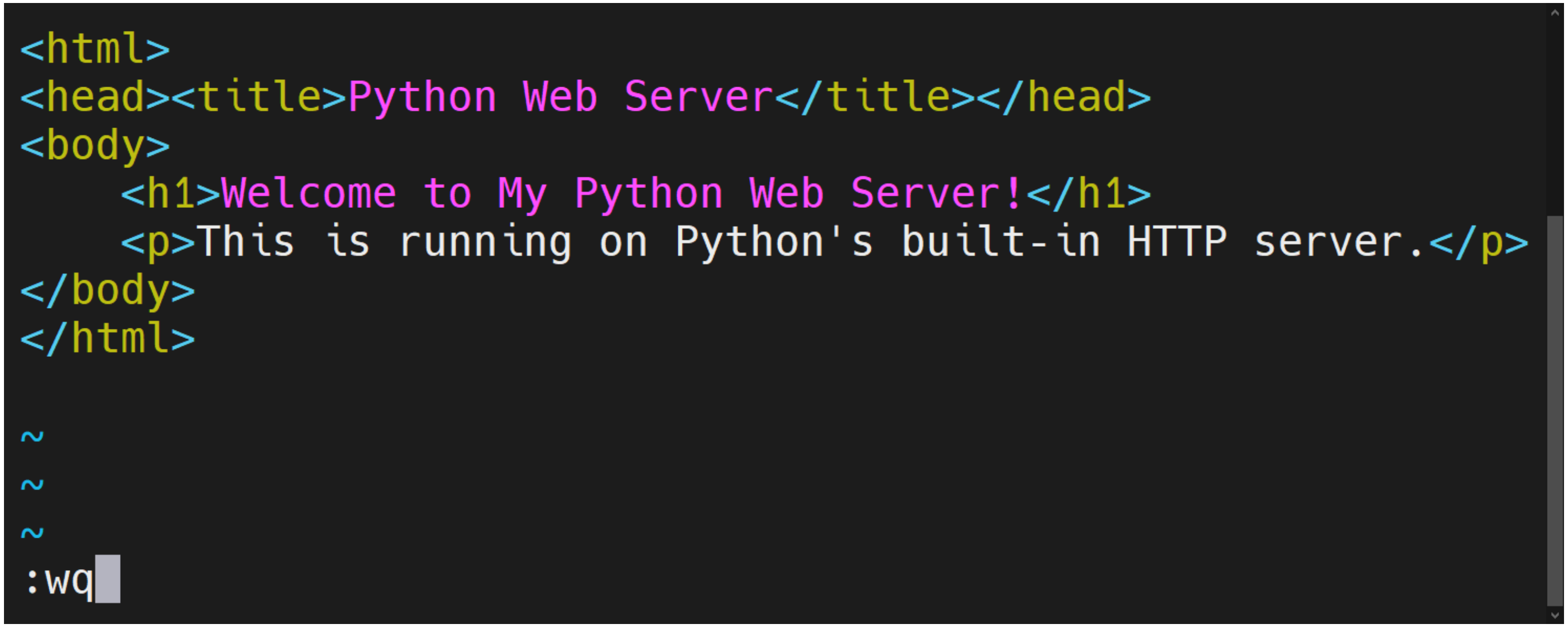
`cd ~/public_html -` Go inside the director

- Create a new file named index.html



```
tst@ryzen:~/public_html$ vim index.html
```

- Write the content below and save the file.



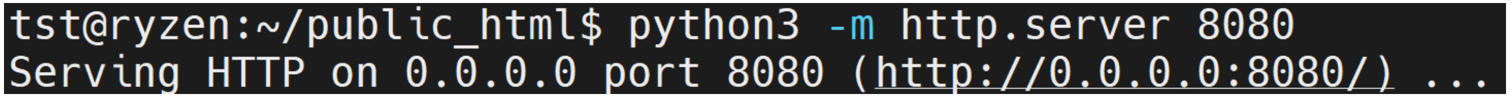
```
<html>
<head><title>Python Web Server</title></head>
<body>
    <h1>Welcome to My Python Web Server!</h1>
    <p>This is running on Python's built-in HTTP server.</p>
</body>
</html>

~
~
~
:wq
```

Run webserver

1. Make sure you are already in the **`public_html`** directory.
2. Give permissions to the directory: **`chmod -R 755 ~/public_html`**

3. Start web server: **`python3 -m http.server`** ***`port_number`***



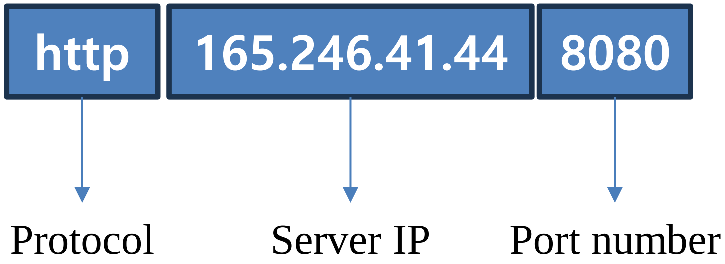
```
tst@ryzen:~/public_html$ python3 -m http.server 8080
Serving HTTP on 0.0.0.0 port 8080 (http://0.0.0.0:8080/) ...
```

Note* ~ indicates home directory for current user.
Example: **`cd ~/Documents`**

How to access to the web page ?

1. Open web browser (Edge, Chrome, ..etc)
2. Go to URL section and type IP Address and port number of the Ubuntu server

Example: http://165.246.41.44:8080/



http

165.246.41.44

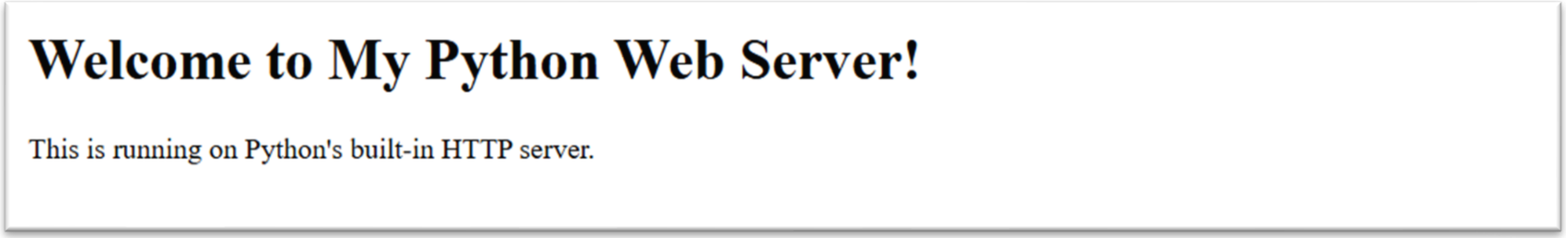
8080

Protocol

Server IP

Port number

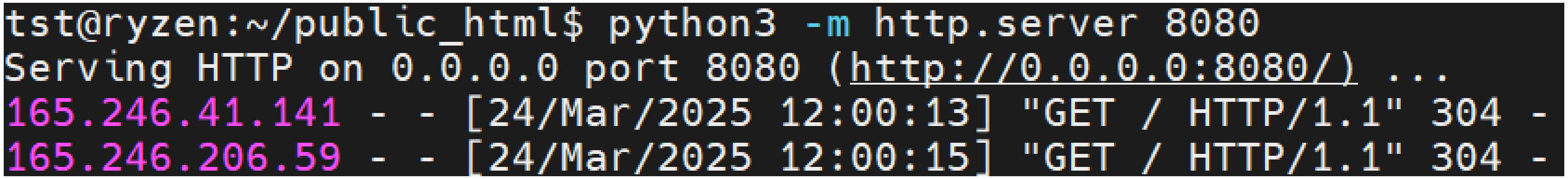
If everything is fine, you will see the following response on browser



Welcome to My Python Web Server!

This is running on Python's built-in HTTP server.

Server monitoring



```
tst@ryzen:~/public_html$ python3 -m http.server 8080
Serving HTTP on 0.0.0.0 port 8080 (http://0.0.0.0:8080/) ...
165.246.41.141 - - [24/Mar/2025 12:00:13] "GET / HTTP/1.1" 304 -
165.246.206.59 - - [24/Mar/2025 12:00:15] "GET / HTTP/1.1" 304 -
```

Why monitor your server?

- Ensure it's running
- See if people are connecting
- Watch for errors or suspicious activity

Check the terminal output to see

- Who accessed your page
- What time they accessed it
- What they tried to load

Look for:

- ⚠ 404 — page not found
- 🚫 403 — permission denied
- 🟢 200 — OK!

Deep monitoring

```
python3 -m http.server 8080 > access.log 2>&1
```

1 = stdout → normal output

2 = stderr → error messages

Part	Meaning
>	Redirect stdout
access.log	Where stdout goes
2>&1	Redirect stderr (2) to same place as stdout (1)

Now you can bring the content of access.log file to the console using

```
cat access.log
```

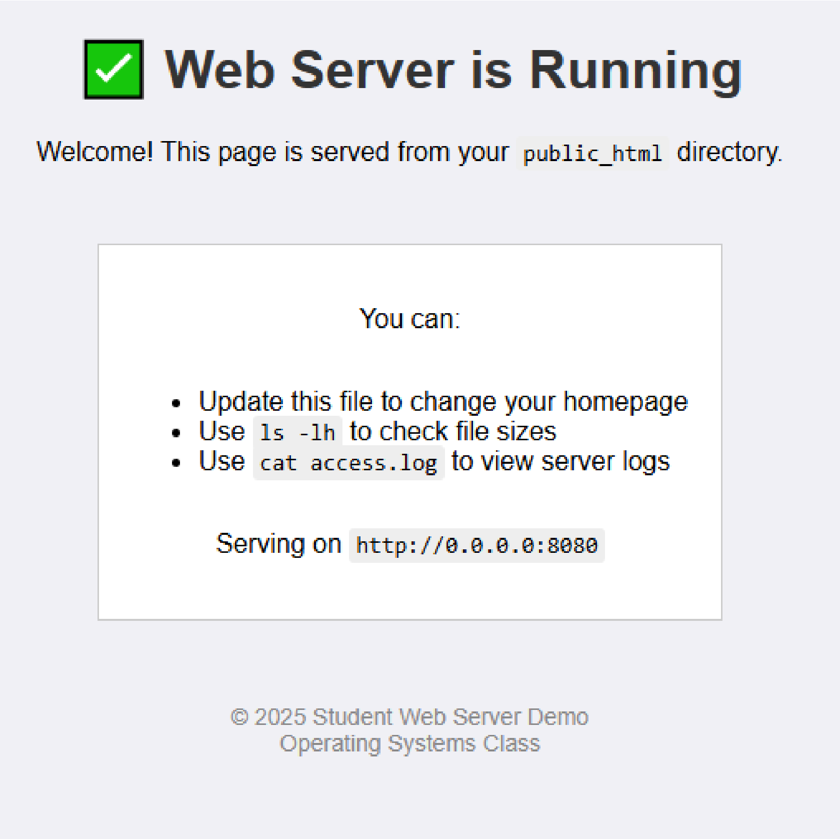
Task

Steps:

1. Rename existing `public_html` to **`public_html2`**
2. Download ready web-page zip file from the CDN (Content Delivery Network) `wget https://cdn.agarmen.com/os/page.zip`
3. Unzip it (extract)
4. Make a new `public_html` directory
5. Copy the extracted files into **`public_html`**
6. Start the new web server with **access.log,** log file
7. Use ls command to view the sizes of files.
8. Use cat command to view the content of the log file.

Demo

- You should see this result in your browser. (see image)
- If it’s same, you have successfully completed the task.
- If there are any errors/warnings start over may help to fix.



✅ Web Server is Running

Welcome! This page is served from your `public_html` directory.

You can:

- Update this file to change your homepage
- Use `ls -lh` to check file sizes
- Use `cat access.log` to view server logs

Serving on `http://0.0.0.0:8080`

© 2025 Student Web Server Demo
Operating Systems Class

Solution

1.

2.

3.

4.

5.

6.

7.

8.

Content is hidden
Only available in PPT

Questions?

Contact TA if you have questions
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