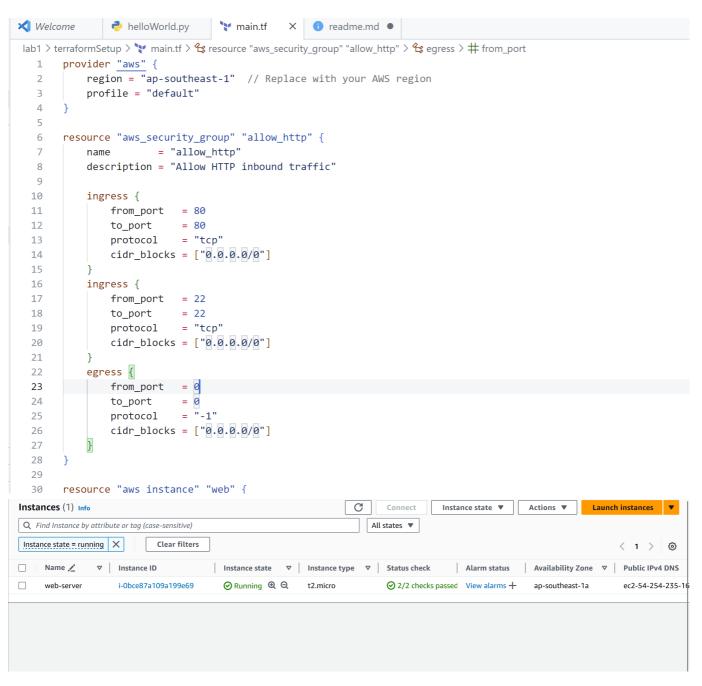
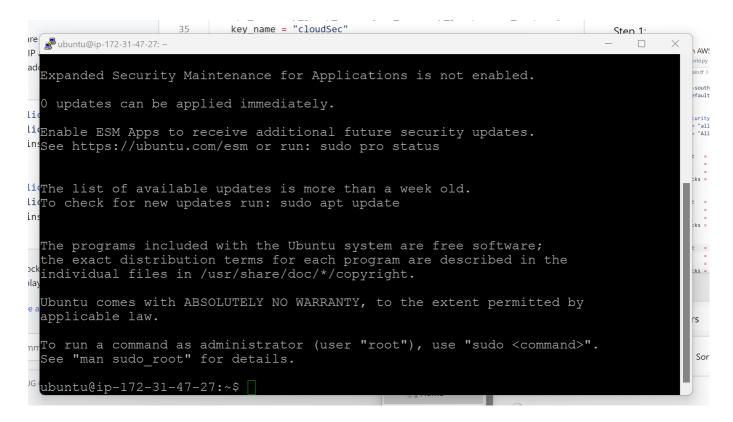
Class 2 report

Step 1: Deploy a EC2 instance allowing SSH access on AWS using terraform.



Step 2: Connect to instance using putty.



Step 3: Install Python Setup the environment.

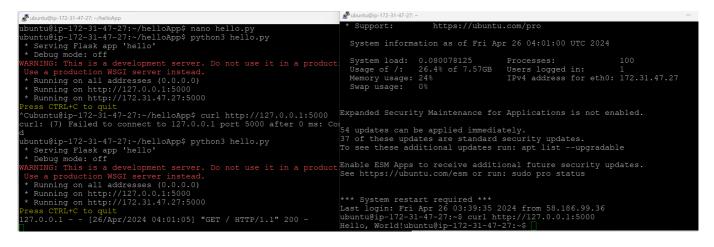
```
sudo apt install python 3
# ubuntu@ip-172-31-47-27: ~
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo root" for details.
ubuntu@ip-172-31-47-27:~$ sudo apt install python3
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
python\overline{3} is already the newest version (3.\overline{10.6-1}~22.04).
python3 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded. ubuntu@ip-172-31-47-27:~$ \square
```

Step 4: Install Flask.

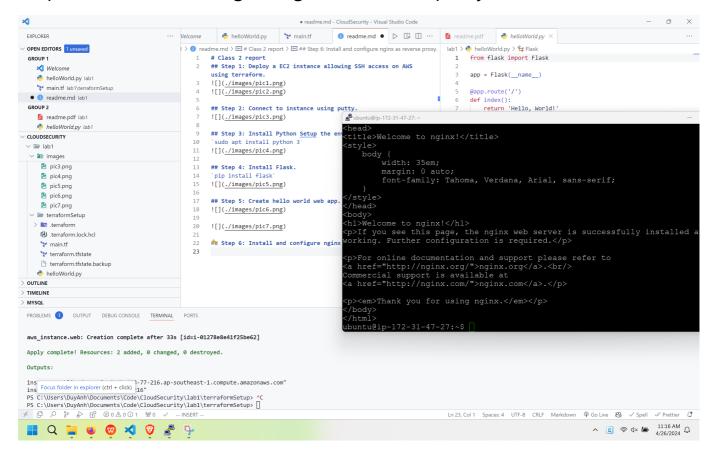
pip install flask

```
# ubuntu@ip-172-31-47-27: ~/helloApp
                                                                                 Downloading blinker-1.7.0-py3-none-any.whl (13 kB)
Collecting click>=8.1.3
  Downloading click-8.1.7-py3-none-any.whl (97 kB)
                                          ----- 97.9/97.9 KB 10.8 MB/s eta 0:00:00
Collecting Jinja2>=3.1.2
 Downloading Jinja2-3.1.3-py3-none-any.whl (133 kB)
                                               133.2/133.2 KB 16.5 MB/s eta 0:00:00
Collecting Werkzeug>=3.0.0
 Downloading werkzeug-3.0.2-py3-none-any.whl (226 kB)
                                                   5.8/226.8 KB <mark>25.6 MB/s eta 0:00:00</mark>
Requirement already satisfied: MarkupSafe>=2.0 in /usr/lib/python3/dist-packages
(from Jinja2>=3.1.2->flask) (2.0.1)
Collecting MarkupSafe>=2.0
 Downloading MarkupSafe-2.1.5-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x
86 64.whl (25 kB)
Installing collected packages: MarkupSafe, itsdangerous, click, blinker, Werkzeu
g, Jinja2, flask
WARNING: The script flask is installed in '/home/ubuntu/.local/bin' which is n
Consider adding this directory to PATH or, if you prefer to suppress this warn ing, use --no-warn-script-location.
Successfully installed Jinja2-3.1.3 MarkupSafe-2.1.5 Werkzeug-3.0.2 blinker-1.7
0 click-8.1.7 flask-3.0.3 itsdangerous-2.2.0
```

Step 5: Create hello world web app.



Step 6: Install and configure nginx as reverse proxy.



Create a file with the name of the EC2 instance's IP address:

```
cd /etc/nginx/sites-enabled
nano "13.228.77.216"
```

The content inside the file:

```
server {
    listen 80;
    listen [::]:80;
    server_name 13.228.77.216;

    location / {
        proxy_pass http://127.0.0.1:5000;
        include proxy_params;
    }
}
```

Restart Nginx server and check the status of server.

```
sudo systemctl restart nginx
sudo systemctl status nginx
```

```
🥏 ubuntu@ip-172-31-47-27: /etc/nginx/sites-enabled
                                                                                 default
ubuntu@ip-172-31-47-27:/etc/nginx/sites-enabled$ nano "13.228.77.216"
ubuntu@ip-172-31-47-27:/etc/nginx/sites-enabled$ sudo chmod 777
ubuntu@ip-172-31-47-27:/etc/nginx/sites-enabled$ nano "13.228.77.216"
ubuntu@ip-172-31-47-27:/etc/nginx/sites-enabled$ nano "13.228.77.216"
ubuntu@ip-172-31-47-27:/etc/nginx/sites-enabled$ sudo systemctl restart nginx
ubuntu@ip-172-31-47-27:/etc/nginx/sites-enabled$ sudo systemctl status nginx
 nginx.service - A high performance web server and a reverse proxy server
     Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset:>
     Active: active (running) since Fri 2024-04-26 08:49:07 UTC; 10s ago
       Docs: man:nginx(8)
  Process: 19028 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_proc>
Process: 19031 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (>
Main PID: 19032 (nginx)
Tasks: 2 (limit: 1121)
Memory: 3.8M
        CPU: 30ms
     CGroup: /system.slice/nginx.service
              Apr 26 08:49:07 ip-172-31-47-27 systemd[1]: Starting A high performance web ser
   26 08:49:07 ip-172-31-47-27 systemd[1]: Started A high performance web serv
```

Step 7: Install Python virtual environment and gnuicorn.

```
sudo apt-get install python3-venv -y
pip install wheel
```

```
pip install gunicorn
```

Step 9: Create WSGI Entry Point for Gunicorn.

~/helloApp\$ vim wsgi.py

```
from hello import app
if __name__ == "__main__":
    app.run()
```

Activate virtual environment and create entry point for the app:

```
source venv/bin/activate ~/helloApp$ gunicorn --bind 0.0.0.0:5000 wsgi:app
```

Step 10: Check the result:

```
J ubuntu@ip-172-31-47-27: ~/helloApp
                                                                                            \square \times
   compliance features.
   https://ubuntu.com/aws/pro
Expanded Security Maintenance for Applications is not enabled.
17 updates can be applied immediately.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
Last login: Fri Apr 26 14:36:28 2024 from 183.80.8.81
ubuntu@ip-172-31-47-27:~$ ls
ubuntu@ip-172-31-47-27:~$ cd helloApp/
ubuntu@ip-172-31-47-27:~/helloApp$ ls
             hello.py venv wsgi.py
ubuntu@ip-172-31-47-27:~/helloApp$ vim wsgi.py
ubuntu@ip-172-31-47-27:~/helloApp$ vim wsgi.py
ubuntu@ip-172-31-47-27:~/helloApp$ ls
 pycache hello.py venv wsgi.py
ubuntu@ip-172-31-47-27:~/helloApp$
              ○ 👌 13.228.77.216
                                                                                            ତ ଠ ଥେ ≡
🖅 Import bookmarks... 🥘 ChatGPT 🛕 Lich phòng hoc FREN... 💮 Materials - Class B1 - ... 🕀 Data Link Layer - Com... 🚦 product-management... 🗘 1.2. Làm giao diện - na... 😩 vxundeground/Malw... 🗘 rootkit-io/awesome-...
                                                                                            Other Bookmarks
Hello, World!
```

```
🔡 Q 🍃 🔘 🗷 🛪 💤 🦫
  PROBLEMS 12 OUTPUT DEBUG CONSOLE
                                TERMINAL
                                        PORTS
     revoke_rules_on_delete = false
     tags_all
                       = {}
     vpc_id
                       = "vpc-0b03867ced057d0ed"
  }
  Outputs:
  instance_public_dns = "ec2-13-228-77-216.ap-southeast-1.compute.amazonaws.com"
  instance_public_ip = "13.228.77.216"
  PS C:\Users\DuyAnh\Documents\Code\CloudSecurity\lab1\terraformSetup>
```