Python ENV Management

1. Create virtual enviroment

```
python -m venv jonny
```

2. Go to your enviroment directory

```
cd jonny
```

3. Change execution policy

```
Set-ExecutionPolicy -ExecutionPolicy RemoteSigned -Scope CurrentUser
```

4. Activate python enviroment for Windows

```
.\Scripts\activate
```

5. Activate python enviroment for MacOS

```
source jonny/bin/activate
```

6. Check if any python package installed

```
pip freeze
```

7. Install flask

```
pip install flask
```

8. Deactivate python enviroment

```
deactivate
```

Deploy Flask on AWS EC2

1. Update Amazon Linux

```
sudo yum update
sudo yum upgrade
```

2. Install python

```
sudo yum install python3.11
```

3. Check python version

```
python3 --version
```

4. Create the virtual environment

```
python3 -m venv myEnv
```

5. Activate the virtual environment

```
source venv/bin/activate
```

6. Install flask

```
pip install flask
```

7. Create a simple Flask API

```
sudo vim app.py
```

1. Add this to app.py

```
from flask import Flask

app = Flask(__name__)
```

```python
@app.route('/')
def hello_world():
    return 'Hello World!'

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

8. Verify if it works by running

```
python3 app.py
```

9. Install gunicorn

```
pip install gunicorn
```

10. Run Gunicorn

```
gunicorn -b 0.0.0.0:8000 app:app
```

11. Change directory

```
cd /etc/systemd/system/
```

12. Create config for flask API

```
touch helloworld.service
```

13. Then add this into the file

```
[Unit]
Description=Gunicorn instance for a simple hello world app
After=network.target
[Service]
User=ec2-user
Group=ec2-user
WorkingDirectory=/home/ec2-user/helloworld
ExecStart=/home/ec2-user/helloworld/myEvn/bin/gunicorn -b localhost:8000 app:app
Restart=always
[Install]
WantedBy=multi-user.target
```

14. Enable and start the service

```
sudo systemctl daemon-reload
sudo systemctl enable helloworld.service
sudo systemctl start helloworld.service
```

15. sudo systemctl status helloworld.service

```
sudo systemctl status helloworld.service
```

16. Check if the app is running

```
curl localhost:8000
```

17. Start and enable the Nginx service and go to the Public IP address of your EC2

```
sudo systemctl start nginx
sudo systemctl enable nginx
```

18. Change directory to config file

```
cd /etc/nginx/conf.d/
```

19. Edit the config the file to bridging flask and nginx

```
vim jonny.conf
```

20. Add the following code at the top of the file

```
http {
    # ...

    upstream flaskhelloworld {
        server 127.0.0.1:8000;
    }

    # ...
}
```

21. Add a proxy_pass to flaskhelloworld atlocation

```
server {
    # ...

    location / {
        proxy_pass http://flaskhelloworld;
    }

    # ...
}
```

22. Restart nginx

```
sudo systemctl restart nginx
```