VirtualEnv_RPi

Check Python 3

```
python3 --version
```

Create Working Directory

```
mkdir cps_lab
cd cps_lab
```

Create Virtual Environment (try first)

```
python3 -m venv venv
```

If the above command fails, install venv support and retry

```
sudo apt update
sudo apt install python3-venv -y
python3 -m venv venv
```

Activate Virtual Environment

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

Verify Python and Pip (inside venv)

```
python --version
pip --version
```

Install Required Libraries (inside venv)

```
pip install requests
pip install adafruit-blinka
pip install adafruit-circuitpython-dht
```

Install GPIO Library (system-wide)

```
sudo apt install python3-rpi.gpio -y
```

Create Program Files using nano

```
nano program3.py
nano program4.py
nano program5.py
```

For Client–Server Program

```
mkdir program8
nano program8/server.py
nano program8/client.py
```

Nano Shortcuts

```
CTRL + O  → Save
ENTER     → Confirm
CTRL + X  → Exit
```

Run Programs

```
python3 program3.py
```

GPIO Programs

```
sudo python3 program5.py
```

GPIO Programs using venv

```
sudo venv/bin/python program5.py
```

Deactivate Virtual Environment

```
deactivate
```