Ubuntu_Commands

EDITORS

Nano (terminal editor)

```
nano main.py
```

Gedit (GUI editor)

```
gedit main.py
```

DIRECTORY & FILE CREATION

```
mkdir cps_lab
cd cps_lab
```

```
nano main.py
# or
gedit main.py
```

PYTHON 3 VIRTUAL ENVIRONMENT

Create virtual environment

```
python3 -m venv venv
```

If venv command fails

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

Activate / Deactivate

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

RUNNING PYTHON FILES

Normal run

```
python3 main.py
```

With sudo (hardware access)

```
sudo python3 main.py
```

With sudo + venv

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

GLOBAL INSTALLATIONS (SYSTEM-WIDE)

```
sudo apt update
sudo apt upgrade -y
```

```
sudo apt install python3-opencv -y ## doesnt run in virtual env,run globally.
sudo apt install python3-rpi.gpio -y
```

PIP (INSIDE VENV)

```
pip install package_name
pip uninstall package_name
pip list
pip install --upgrade pip
```

DATE FIX (FOR DOWNLOAD / SSL ISSUES)

Check date

```
date
```

Set date manually (example format)

```
sudo date -s "2026-01-01 15:00:00" # yy-mm-dd, 24 hour format
```

After setting correct date, package downloads work normally.

QUICK RULES

```
python3 only
nano or gedit for editing
venv for pip installs
apt for system libraries
date wrong → fix once
```