ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

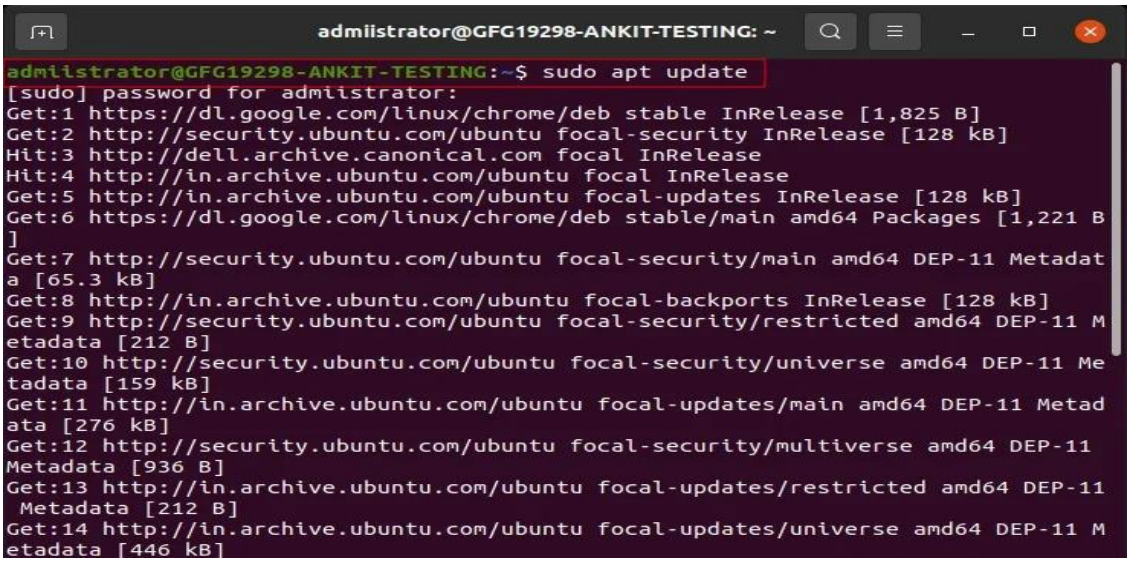
DAY – 6

Date: June 30, 2025

INSTALLING PYTHON

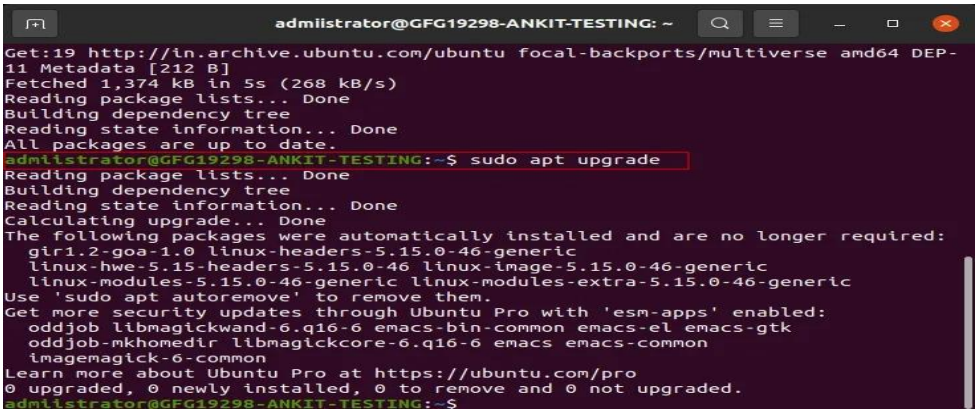
Step 1: First Update the List of Available Packages

Command: sudo apt update



Step 2 Update the Available Package

Command: sudo apt upgrade



Command: sudo apt install python[version number]

```
ck@ch:~$ sudo apt install python3.11
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libpython3.11-minimal libpython3.11-stdlib python3
Suggested packages:
  python3.11-venv binfmt-support
The following NEW packages will be installed:
  libpython3.11-minimal libpython3.11-stdlib python3
```

Install PIP for Python 3 Version on Ubuntu

Step 1: Check if Python is installed on your device or not. open Terminal with "CTRL+ALT+T" and run the command.If Python in already installed, go to step 2, then install Python first.

Command: python3 –version

```
gfg0407-kapil@kapil:~$ python3 --version
Python 3.10.12
gfg0407-kapil@kapil:~$
```

Step 2: After that, the following main Linux Commands will be used to directly Install the PIP3 on Ubuntu.

Command: sudo apt install python3-pip

```
ubuntu@ubun:~$ sudo apt install python3-pip
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  dh-python libexpat1-dev libpython3-dev libpython3.6-dev
  python-pip-whl python3-dev python3-setuptools python3-wheel
  python3.6-dev
Suggested packages:
  python-setuptools-doc
```

Step 3: Now, it is time to verify the installation. For that purpose, the following command will be executed on Linux Terminal.

Command: pip3 –version

```
ubuntu@ubun:~$ pip3 --version
pip 9.0.1 from /usr/lib/python3/dist-packages (python 3.6)
```

Jupyter Notebook

Jupyter Notebook is a web-based interactive computational environment for creating Jupyter notebook documents. It supports multiple programming languages, including Python, Julia, and R, through the use of different kernels. Jupyter Notebook provides a simple and straightforward interface with a linear flow, where you can create and run cells within a single notebook1.

- To install Jupyter Notebook, you can use the following command:
  Command: pip install notebook
- To run Jupyter Notebook, use:
  Command: jupyter notebook

Scikit-learn

Scikit-learn (also known as sklearn) is a widely-used open-source Python library for machine learning. It builds on other scientific libraries like NumPy, SciPy and Matplotlib to provide efficient tools for predictive data analysis and data mining.

Installing Scikit-Learn in a Ubuntu system

Command: pip3 install scikit-learn --user

```
h2s@Ubuntu22:~$ pip install scikit-learn --user
Collecting scikit-learn
  Downloading scikit_learn-1.3.0-cp310-cp310-manylinux_2_17_x86_64.manylinux2014
_x86_64.whl (10.8 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 10.8/10.8 MB 1.8 MB/s eta 0:00:00
Requirement already satisfied: numpy>=1.17.3 in ./.local/lib/python3.10/site-pac
kages (from scikit-learn) (1.24.3)
Collecting scipy>=1.5.0 (from scikit-learn)
  Downloading scipy-1.11.1-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_6
4.whl (36.3 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 36.3/36.3 MB 1.6 MB/s eta 0:00:00
Collecting joblib>=1.1.1 (from scikit-learn)
  Downloading joblib-1.3.1-py3-none-any.whl (301 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 302.0/302.0 kB 5.0 MB/s eta 0:00:00
Collecting threadpoolctl>=2.0.0 (from scikit-learn)
  Downloading threadpoolctl-3.2.0-py3-none-any.whl (15 kB)
Installing collected packages: threadpoolctl, scipy, joblib, scikit-learn
Successfully installed joblib-1.3.1 scikit-learn-1.3.0 scipy-1.11.1 threadpoolct
l-3.2.0
```

Run this code in jupyter notebook

```
[1]: from sklearn import datasets
     from sklearn.model_selection import train_test_split
     from sklearn.ensemble import RandomForestClassifier

     X, y = datasets.load_iris(return_X_y=True)
     X_train, X_test, y_train, y_test = train_test_split(X, y, random_state=42)

     clf = RandomForestClassifier()
     clf.fit(X_train, y_train)

     print("Accuracy:", clf.score(X_test, y_test))

     Accuracy: 1.0

[ ]:
```