Lab : CL-VII, ML

Assignment 1

Study of platform for Implementation - Python

AIM

Download the open source software of your interest. Document the distinct features and functionality of the software platform. You may choose WEKA or R or Python

Introduction

What is Python ?

Python is an interpreted, high-level and general-purpose programming language. Created by Guido van Rossum and first released in 1991, Python's design philosophy emphasizes code readability with its notable use of significant whitespace.

Its Features

As stated earlier, R is a programming language and software environment for statistical analysis, graphics representation and reporting. The following are the important features of R −

- Easy to Code. Python is a very developer-friendly language which means that anyone and everyone can learn to code it in a couple of hours or days.
- Open Source and Free.
- Support for GUI.
- Object-Oriented Approach.
- High-Level Language.
- Integrated by Nature.
- Highly Portable.
- Highly Dynamic.

Installation

1. Update and Refresh Repository Lists with “sudo apt update”
2. Install with “sudo apt install python3.8”

```
(base) ayan_gadpal@AyanGadpal:~$ sudo apt install python3.8
Reading package lists... Done
Building dependency tree
Reading state information... Done
python3.8 is already the newest version (3.8.2-1ubuntu1.2).
python3.8 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 176 not upgraded.
```

3. Check Python version with “python--version”

```
(base) ayan_gadpal@AyanGadpal:~$ python --version
Python 3.8.3
```

4. Run python shell with “python”

```
(base) ayan_gadpal@AyanGadpal:~$ python
Python 3.8.3 (default, May 19 2020, 18:47:26)
[GCC 7.3.0] :: Anaconda, Inc. on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello, Lab CL-VII")
Hello, Lab CL-VII
>>>
```

iPython Notebook:

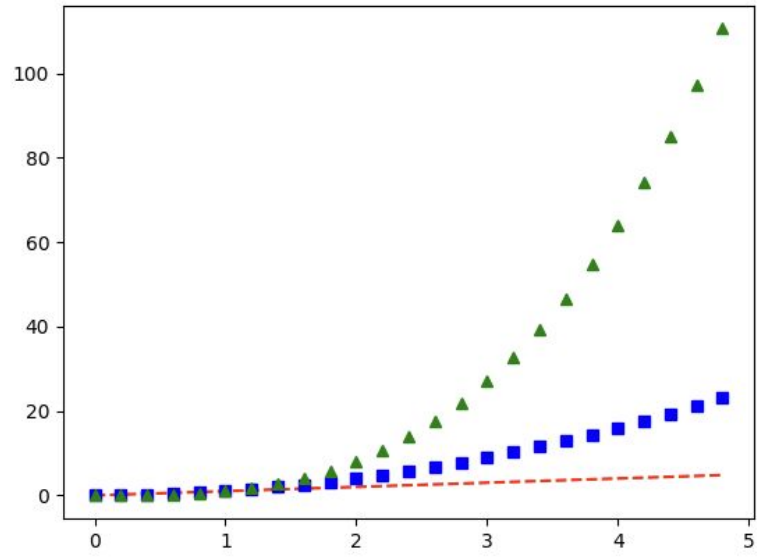
The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

- In-browser editing for code, with automatic syntax highlighting, indentation, and tab completion/introspection.
- The ability to execute code from the browser, with the results of computations attached to the code which generated them.
- Displaying the result of computation using rich media representations, such as HTML, LaTeX, PNG, SVG, etc. For example, publication-quality figures rendered by the matplotlib library, can be included inline.

Demo

```
import numpy as np
import matplotlib.pyplot as plt

# evenly sampled time at 200ms intervals
t = np.arange(0., 5., 0.2)
# red dashes, blue squares and green triangles
plt.plot(t, t, 'r--', t, t**2, 'bs', t, t**3, 'g^')
plt.show()
```



Conclusion

As a conclusion, Python is an easy to use, widely supported tool for various applications. One of which is Data Science, Machine Learning etc. The iPython notebook enables us to create detailed reports and perform various applications.