

Python Language Libraries

Tiji Tom

Department of Computer Science, J.P.M Arts and Science College, Labakkada, India

Abstract: Python is one of the most widely used languages in the world of programming languages. Python is a language that can be used to improve the quality of programming. It has added features to improve the application areas of this language. We can create GUI applications as well as database applications etc using the ability of this language. One of the main attractions of Python is its language library packages. It can be used to create multidimensional arrays, draw 2D graphics, do data analysis, etc. wide range of libraries is available in python.

Keywords: Python language, a python library, packages, pip, data analysis

1. Introduction

Python is a very emerging programming language in current trends in computer science. It mainly focuses on beginners and each one can learn python very easily with very little programming knowledge. Python language was developed in the year December 1989 by Guido Van Rossum. There are so many open-source versions available for Python. The goal should be clear before learning Python. Python is an easy, vast language as well. It includes several libraries, modules, in-built functions, and data structures. If the goal is unclear then it will be a boring and monotonous journey of learning Python. Without any clear goal, you perhaps won't make it done.

So, first figure out the motivation behind learning, which can anything be such as knowing something new, develop projects using Python, switch to Python, etc. The main application areas of python include Data Analysis and Processing, Artificial Intelligence, Games, Hardware/Sensor/Robots, Desktop Applications

2. Python Packages

Packages are generally a group of classes with similar functionalities. Python has a wide variety of packages. A huge library of Python contains several packages. Packages are already developed programs that are available to the programmers. To download and install packages we can use a special command called pip. The abbreviation of pip is Python Installation of Packages. We should go to command prompt and then use the command as shown below:

Pip install *package name*

This pip command is already included in Python software by default. After executing this pip command, it searches the

latest version of the given package on the internet, downloads it, and then installs that package in our system.

3. Package Collections in Python

3.1 Numpy Package

By default Python support only single dimensional arrays. Numpy package is mainly used to create multidimensional arrays in python. Numpy is the abbreviation of the name Numerical Python Packages. The command used to install Numpy is, pip install NumPy

The figure below shows the application areas of Numpy

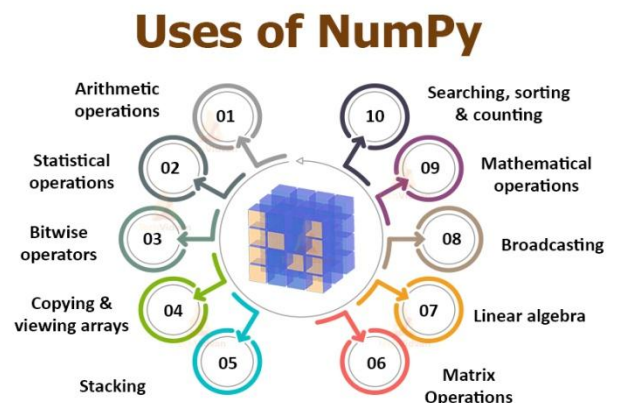


Figure 1: Uses of Numpy Package

3.2 Pandas

The main application area of the Pandas package in Python is data analysis and data science. It is mainly used to create applications for stock prediction, advertisement, Big data analysis, etc. The command used to install pandas is, pip install pandas



Figure 2: Applications of Pandas Package in Python

3.3. Xlrd Package

Not all programming languages support direct reading of spreadsheets from excel. xlrd package is used to read data

from Microsoft Excel Spreadsheet files. So it is very useful in data analysis.

The command used to install Xlrd is, pip install xlrd

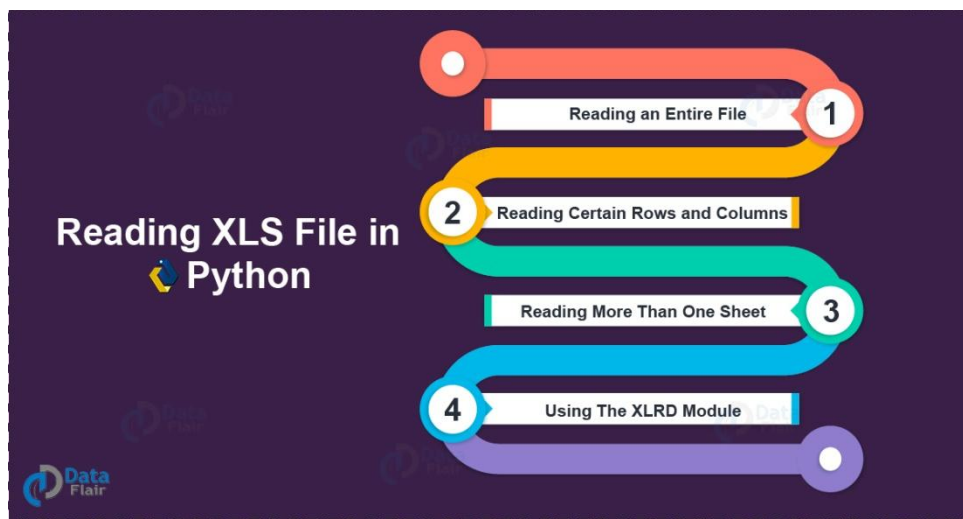


Figure 3: Application of Xlrd Package

3.4. Matplotlib package

Drawing 2D graphics and image processing is an added advantage of the python language. We can download and use the easily available package matplotlib for 2D graphics. It is mainly used for representing data in the form of graphs,

charts, etc. It is also used for designing electronics circuits, machinery parts, etc.

The command used to install matplotlib is, pip install matplotlib

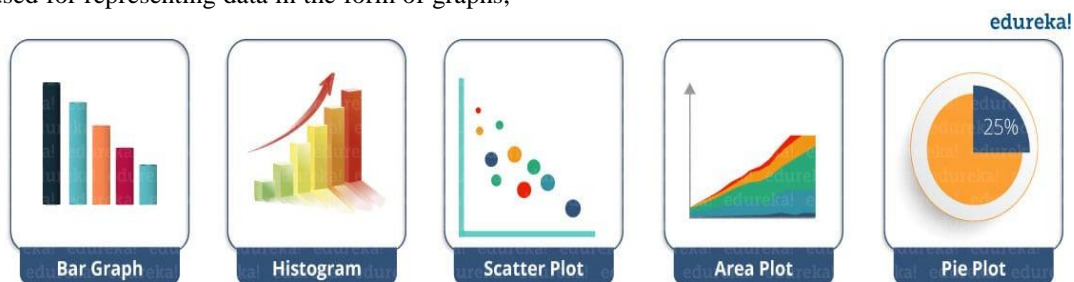


Figure 4: Uses of matplotlib package

4. Conclusion

A Python library is a set of reusable code that we can include in your programs/ projects. The wide range of application areas of python libraries includes image processing, graphics drawing, data analysis, data science, etc. Compared to languages like C++ or C, Python libraries

loosely describe a collection of core modules. The packages can be installed using a package manager like pip.

References

- [1] <https://techvidvan.com/tutorials/python-numpy-tutorial>
- [2] <https://data-flair.training/blogs/applications-of-pandas/>

- [3] <https://data-flair.training/blogs/python-data-file-formats/>
- [4] <https://www.edureka.co/blog/python-matplotlib-tutorial/>
- [5] <https://beginnersbook.com/2018/01/introduction-to-python-programming/>
- [6] R Nageswara Rao, Python Programming, 2nd Edition, Wiley India