Day 1 - What is Programming and Python?

What is Programming

Programming is a way for us to tell computers what to do. Computer is a very dumb machine and it only does what we tell it to do. Hence we learn programming and tell computers to do what we are very slow at - computation. If I ask you to calculate 5+6, you will immediately say 11. How about 23453453 X 56456?

What is Python?

- Python is a dynamically typed, general purpose programming language that supports an object-oriented programming approach as well as a functional programming approach.
- Python is an interpreted and a high-level programming language.
- It was created by Guido Van Rossum in 1989.

Features of Python

- Python is simple and easy to understand.
- It is Interpreted and platform-independent which makes debugging very easy.
- Python is an open-source programming language.
- Python provides very big library support. Some of the popular libraries include NumPy, Tensorflow, Selenium, OpenCV, etc.
- It is possible to integrate other programming languages within python.

What is Python used for

- Python is used in Data Visualization to create plots and graphical representations.
- Python helps in Data Analytics to analyze and understand raw data for insights and trends.
- It is used in AI and Machine Learning to simulate human behavior and to learn from past data without hard coding.
- It is used to create web applications.
- It can be used to handle databases.
- It is used in business and accounting to perform complex mathematical operations along with quantitative and qualitative analysis.

Modules and pip in Python!

Module is like a code library which can be used to borrow code written by somebody else in our python program. There are two types of modules in python:

1. **Built in Modules** - These modules are ready to import and use and ships with the pyton interpreter. there is no need to install such modules explicitly.
2.
3. **External Modules** - These modules are imported from a third party file or can be installed using a package manager like pip or conda. Since this code is written by someone else, we can install different versions of a same module with time.

The pip command

It can be used as a package manager pip to install a python module. Lets install a module called pandas using the following command

```
pip install pandas
```

Using a module in Python (Usage)

We use the import syntax to import a module in Python. Here is an example code:

```
import pandas

# Read and work with a file named 'words.csv'
df = pandas.read_csv('words.csv')
print(df) # This will display first few rows from the words.csv file
```

Similarly we can install other modules and look into their documentations for usage instructions.
We will find ourselved doing this often in the later part of this course