Day_1 Introduction to Python

Notes :

Python Introduction :

Python is popular programming language. It was created by Guido van Rossum, and released in 1991

It is used for :

- Web development (Server side),
- Software Dvelopment,
- Mathematics,
- System Scripting

What can python do?

- Used to create web applications.
- Used alongside software to create workflows.
- Python can connect to database systems.
- It can also read and modify files.
- Used to handle big data and perform complex mathematics.
- Used for rapid prototyping, or for production-ready software development.

Why Python?

- Easy to Learn and Use
- Works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
- Has a simple syntax similar to the English Language
- Has syntax that allows developers to write programs with fewer lines
- Extensively used in Data Science
- Has multiple Libraries and Frameworks
- Python can be treated in a procedural way, an object-oriented way or a functional way.

Good to know

- The most recent major version of Python is Python 3, which we shall be using in this course.
- The name Python was selected from the TV Show "The Complete Monty Python's Circus", which was broadcasted in BBC from 1969 to 1974
- Guido developed Python language by taking almost all programming features from different languages.
    1. Functional programming Features from C
    2. Object Oriented Programming Features from C++
    3. Scripting language features from Perl and Shell Script
    4. Modular Programming Features from Modula-3

Python Syntax compared to other programming languages

- Python was designed for redability, and has some similarities to the English language with influence from mathematics.
- Python uses new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.
- Python relies on indentation, using white space, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose.

Example 1 : To print HelloWorld

Java :

```
public class HelloWorld

p s v main(String[] args)
{
SOP("Hello World");
}
```

C : ¶

```
#include<stdio.h>
```

```
void main() { print("Hello World"); }
```

Python :

```
print("Hello World")
```

Python Indentation :

- Indentation refers to the spaces at the beginning of a code line.
- Python uses indentation to indicate a block of code.
- Python will give you an error if you skip the indentation.
- The number of spaces is up to you as a programmer, the most common use is four, but it has to be at least one.
- You have to use the same number of spaces in the same block of code, otherwise Python will give you an error.

Comments

- Comments in Python is the inclusion of short descriptions along with the code to increase its readability.
- A developer uses them to write his or her thought process while writing the code.
- It explains the basic logic behind why a particular line of code was written.
- There are multiple uses of writing comments in Python. Some significant uses include :
  1. Increasing readability
  2. Explaining the code to others
  3. Understanding the code easily after a long-term
  4. Including resources
  5. Re-using the existing code.

1. Writing Single-Line Block Comments

In [1]:

```
# printinng a string
print("Hello World")
```

```
Hello World
```

2. Writing a In-line Block Comments

In [2]:

```
print("Hello World")  # printing a string
```

```
Hello World
```

3. Multi-line comments '# symbol'

In [3]:

```
# It is a
# multiline
# comment
print("Hello World")
```

```
Hello World
```

4. Multi-line comments with triple "'single"' or """double""" quotes

In [4]:

```
'''
I am a
multiline S
comment!
'''
print("Hello World!")
```

```
Hello World!
```

In [5]:

```
"""
I am a
multiline
comment!
"""
print("Hello World!")
```

```
Hello World!
```

Code Section :

In [1]:

```
print("Hello World")
```

```
Hello World
```

In [2]:

```
list1 = [1,2,3,4,5,6]
```

In [3]:

```
for i in list1:
    print(i)
```

```
1
2
3
4
5
6
```

In [10]:

```
# This code finds the square of number in a list  -> This is called as block comment
for i in list1:
    print("Square of " + str(i) + " : " + str(i*i))  # Finds square of numbers  ->  Inline comment
    print("Cube of " + str(i) + ":" + str(i**3))
    print("-----------------------------")

print("Block Ended!")
```

```
Square of 1 : 1
Cube of 1:1
-----------------------------
Square of 2 : 4
Cube of 2:8
-----------------------------
Square of 3 : 9
Cube of 3:27
-----------------------------
Square of 4 : 16
Cube of 4:64
-----------------------------
Square of 5 : 25
Cube of 5:125
-----------------------------
Square of 6 : 36
Cube of 6:216
-----------------------------
Block Ended!
```

In [9]:

```

```

In [ ]:

```

```