**PYTHON TRAINING**

**PYTHON INRODUCTION :-**

* Python is a high-level programming language.
* Python allows programming in Object-Oriented and Procedural paradigms.
* Python programs generally are smaller than other programming languages like Java.
* It was created by Guido van Rossum in 1991 and further developed by the Python Software Foundation
* The biggest strength of Python is huge collection of standard library which can be used for the following:
  + Machine learning
  + GUI Applications (like Tkinter, PyQt )
  + Web frameworks like [Django](https://www.geeksforgeeks.org/django-tutorial/)
  + Image processing (like [OpenCV](https://www.geeksforgeeks.org/opencv-python-tutorial/), Pillow)
  + Web scraping (like Scrapy, BeautifulSoup, Selenium)
  + Test frameworks
  + Multimedia
  + Scientific computing
  + Text processing

**ADVANTAGES :-**

* Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
* Python has a simple syntax similar to the English language.
* Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
* Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
* Python can be treated in a procedural way, an object-oriented way or a functional way.

**DISADVANTAGES :-**

* Python is Slow at Runtime

## Python is Not Great for Mobile Application Development

## **Python Programmers face Difficulty in Using Other Languages**

## Python has High Memory Consumption

## Python is not used commonly in the Enterprise Development Sector

## KEYWORDS :-

* Keywords are the reserved words in Python.
* We cannot use a keyword as a [variable](https://www.programiz.com/python-programming/variables-datatypes) name, [function](https://www.programiz.com/python-programming/function) name or any other identifier.
* They are used to define the syntax and structure of the Python language.
* In Python, keywords are case sensitive.

**IDENTIFIRES :-**

* An identifier is a name given to entities like class, functions, variables, etc. It helps to differentiate one entity from another.

### **Rules for writing identifiers**

* + Identifiers can be a combination of letters in lowercase **(a to z)** or uppercase **(A to Z)** or digits **(0 to 9)** or an underscore \_.

Example:- variable, Variable, variable1, \_variable.

* + An identifier cannot start with a digit. **Example :- 1abc**
  + Keywords cannot be used as identifiers
  + We cannot use special symbols like **!**, **@**, **#**, **$**, **%** etc. in our identifier.
  + An identifier can be of any length.

**PYTHON STATEMENT:-**

Instructions that a Python interpreter can execute are called statements. For example, a = 1 is an assignment statement. If statement, for statement etc.

**PYTHON COMMENTS :-**

Comments are very important while writing a program. They describe what is going on inside a program, so that a person looking at the source code does not have a hard time figuring it out.

**VARIABLES: -**

* A variable is a container where we put value.
* We don’t need to specify the data types for creating a variable in python like java, c, c++ and programming language.
* Syntax for creating a variable in python is

X=5 where x is the name of variable and 5 is the value of variable.

The value of variable shows its datatype.

* If the two variables have same value and different name then its stores to the same address in the memory.
* We can change the value of variable within the program.

**DATATYPES: -**

**NUMBER: -**

* We can find complex numbers, floating point numbers and integers in the category of Python Numbers.
* Complex numbers are defined as a complex class, floating point numbers are defined as float and integers are defined as an int in Python.

**LIST: -**

* List are just like the arrays declared in other language.
* A single list may contain datatypes like integer, string, as well as objects
* In python list is like a container in data structure which is used to store multiple data at same time.
* List are mutable.
* It is represented by square bracket [].
* Example :- List1 = [1, 2.3, “Mukund”, “Vijay”]

**TUPLE :-**

* Tuple are just like to list.
* The basic difference between list and tuple is, list is mutable and tuple is immutable.
* Iteration in tuple is faster than list.
* Tuple is represented bycurly bracket {}.
* Example :- tuple1 = {1, 2.3, “Mukund”, “Vijay”}

**SET :-**

* Sets never follows a sequence.
* Sets using the concept of hash.
* Sets is represented by round bracket ()
* Example :- (5, 2, 3, 4)
* It doesn’t contain duplicate element.

**DICTIONARY :-**

* Dictionary stores the in the form of key and value pairs.
* Example :- dic = {‘krishna’ : ‘Samsung’ }