**Python**

**Introduction: -**

* Python is a programming Language and present trending language.
* Because its syntax (Rules) of the code is simple to understand.
* The length and complexity of the code is short so essay.
* Python is both object & procedural programming language. here we are storing the python files with “.**py**” (Filename.py).
* Python is open source and any one utilizes these environments. any one can modify the setting based on their needs. p

**Features: -**

* Simple to learn to compare to other programming languages.
* It is portable so we use this programming language in any operating systems.
* High level interpreter and automatically control the memory storing management.
* Object oriented with standard libraries (200+) with different functions.
* According to Nov 2023 we are use Python in “**version 3.9**”.

**Applications: -**

**Python is used in different applications**

* Web & internet Develop applications. Image Processing Applications
* Desktop Gui Applications Business Applications
* Ai &ML Applications Gaming and 3D Applications
* Graphics Applications Data base applications
* Network Applications Back End Development(Server)

**Environments: -**

1.Python IDLE 2. Jupyter 3.Atom 4.Anakonda 5.Pycharm 6.Eric 7.Spyder

8.Thomy 9. Vs code 10. PyDev

**Main Fundamentals: -**

1.Variables 2. Data Types & Key Words 3. Operators 4.Class/Objects 5. Functions& Conditions 6.Exceptions Handlings

**Variables: -**

A variable is simply defined as an alternate name or memory location to assigned the data.

There is some rules for declares a variables.

1. A variable name must start with a letter(AZ-az) or under score(\_) not in any numeric (1,2,3,…..x)
2. A Variable should not match with any key words

**Data Types: -**

* String .Str (Alphabetical data “A-Z or a-z”)

**.** Int (Integers 0-n natural numbers)

* Numeric . Float (0.0-N.∞)

. Complex (Reall and imaginary values A+Bj)

. Range (To check range of operation)

* Sequence . List “[]” assigned the data inside the brackets

. Tuple” ()” assigned the data inside the braces/parenesis

. True

* Boolean

.False

* Mapping . Dict {p1:data, p2:data} (Dictionary object defined data type)
* Set . Obj def {data obj} = {variables}

**Key words: -**

1.False 2.True 3. else 4. import 5.pass 6.None 7.break 8.except 9.in 10. raise 11. class 12. Finally 13.is 14. return 15. and 16. continue 17.for 18. lambda 19.try 20.as 21.def 22.from 23.nonlocal 24.while 25.assert 26.del 27.global 28.not 29.with 30.async 31.elif 32.if 33.or 34.yield 35. await

Note: - A Key word are the reserved word which have predefined meaning and Functionality.

**Operators: -**

Python divides the operators in the following groups:

* Arithmetic operators (+,-,\*,/,%.....etc)
* Assignment operators (=(+,-,\*,/,<,>,=…..etc))
* Comparison operators (<,>,=,!=……etc)
* Logical operators (And, or, Not)
* Identity operators (is, is not )
* Membership operators (in, not in)
* Bitwise operators for Binary data i/p(&,l,~,^,)

**Class and Objects:** -

* Python is an object-oriented programming language.
* Almost everything in Python is an object, with its properties and methods.
* A Class is like an object constructor, or a "blueprint" for creating objects.
* Here we are use **“Class**” Keyword to create class some time in a class we use functions to define the object properties.

**Function & Conditions: -**

* A Function is a Block of Code and it perform some length of instruction based on conditions.
* A Condition is a type of rule to execute the operations.
* Some times a single statement is also a condition as well as some times we predict the result after we execute the operation that time we are use condition.
* Mainly looping or Boolean or using of operators we are use conditions.
* In Python we have declare the function by using “**def**” Key word and when we call that function the code will execute.

Python supports the usual logical conditions from mathematics:

* Equals: a == b
* Not Equals: a != b
* Less than: a < b
* Less than or equal to: a <= b
* Greater than: a > b
* Greater than or equal to: a >= b

These conditions can be used in several ways, most commonly in "if statements" and loops.

An "**if** statement **Else elif**” is written by using the  keywords.

In Python we have only two loops**: ”FOR ,WHILE”** These two loop we access by using key words.

For Functions we use “def” key word and create the function block.

**Exceptions Handlings: -**

In Handling techniques, we use local files/drive files in specific purpose. Specific operation

Here that files we use in 4 modes of operations

1.Read (r) 2. Write (w) 3. Create (x) 4. Append (a)

Some-times the data in text(t) and Some other Format and it consider as binary(b) file format.

Ex: - X=open(C:\Users\le20e\Desktop\office work) # file Location.

X =open(day1.txt) #file name in db

After we give key word for utilize the file

X= open (day1.txt,rt/wt/at) #already we define file in txt format and use our operation

For multiple file access

We use again key word like as

X1= open(doc1,r/w/a/x)as file 1, open(file1,r/w/a/x)as file 2

And give some DB for two files……

* In python we mostly used in back end i.e server-side development by using frame works like Django, Flask.
* For data science we use Num py, pandas, py torch……etc.