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.
- Desktop Gui Applications
- Ai &ML Applications
- Graphics Applications
- Network Applications

Image Processing Applications
Business Applications
Gaming and 3D Applications
Data base 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")
- Numeric
  - . Int (Integers 0-n natural numbers)
  - Float (0.0-N.∞)
  - . Complex (Reall and imaginary values A+Bj)
- Sequence
  - . Range (To check range of operation)
  - . List "[]" assigned the data inside the brackets
  - . Tuple" ()" assigned the data inside the braces/parenesis
- Boolean
  - . True
  - .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.