**Python:**

--> It is the top most programming language

--> Python is a high level programming language

High level language:

--> Uses either complier or interpreter to translate the code

Low level language:

--> Uses assembler to translate the instructions machine language

--> It is an Interpreted language

Interpreter: Line by line execution

compiler: every line will be executive once

--> Designed by Guido van Rossum in 1991

--> latest version of python is 3.12

**Why python?**

1. Simple syntax

2. code written will understand even for beginners

3. code consumes less lines when compared with java

4. Platform independent : It can work on any of the operating systems

5.It is an open source

**Applications of python:**

1.Web development

2.Software development

3.AI&ML

4.Game development

5.To handle complex data operations

6. Data Analysis

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1.indentation: Spaces

2.Variables: Containers- to store the data/values

3.Comment line: Data which could not execute. By using the #

Ex: #print(‘Hi , how are you’)

4. Data Types: built-in data types

int-numerical value(whole numbers, positive and negative numbers)

EX: 1,-1,0

float-decimal values

Ex: 2.0,3.14,-2.3

complex-both real and imaginary part

ex:3+6j,-3-6j

string-alphabetics enclosed with double or single quotes

ex: ‘hello’, “hi”

byte,bits- size

ex:b’hello’

true/False-condition is correct it returns true else false

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**operators:**

used to perform operations both variables and values

types of operators:

**1.Arthematic operators**

-->used to perform arthematic operations such as add,sub,mul,div.

**a. Addition:**

It preforms addtion

Ex:

A=10

B=20

Sum=A+B

Print(Sum)

Output: 30

**b. Subtraction**

It performs subtraction

ex:

a=20

b=10

diff=a-b

print(diff)

Output:10

**c. Multiplication**

It performs multiplication

ex

a=10

b=20

mul=a\*b

print(mul)

output: 200

**d. Division**

It performs division which displays quotient of float values

ex:

a=20

b=10

div=a/b

print(div)

output: 2.0

**e. floor division**

It also performs same division but gives quotient as int values

ex:

a=20

b=10

fdiv=a//b

print(fdiv)

output: 2

**f. exponential**

It performs power operations

ex:

a=2

b=3

exp=a\*\*b

print(exp)

output: 8

**g. Modulus:**

It performs division but displays the output of remainder

ex:

a=20

b=10

modulus=a%b

print(modulus)

output: 0