Python:

- Python is a high-level, interpreted programming language.
- Created by Guido Van Rossum and released in 1991.
- It is a versatile and beginner-friendly language.
- Python is known for its readability and efficiency.
- Easily adaptable for Web applications and Database projects.
- Majorly supports Software Development.
- Python has simple syntax, which makes it easier to grasp.
- Code will be executed line by line, easy to debug.
- Rich library sets make it easier to perform various tasks from web development to manipulate the data.
- Supports object oriented programming, allows for the creation of the objects.
- Can run on various platforms.

WHY PYTHON?

- Python works on different platforms like Windows, Mac, Linux etc.
- Python has simple syntax.
- Allows the developer to write programs in fewer lines and some other languages.
- Interpreter language, which means the language can be executed line by line.
- Procedural execution process and it is an Object Oriented Language.

APPLICATIONS OF PYTHON:

- Web Development
- Data Science and Analytics
- Machine language and Artificial Intelligence
- Automation and Scripting

COMMENTS:

- Comments used to explain the python code but it won't be executed.
- Comments will be started with ' # '.
- Ex:
    - #To print Hello World.
    - print("Hello World")

Variables:

- Containers used to store the data values.
- Variables must be case-sensitive.
- Should not contain special characters.
- Must be alphanumeric characters.
- Can store multiple values.
- Variables can not be keywords.
- Variables should not start with a digit.
- Ex:
    - a=20
    - b=55
    - Name="Lekha"

Data Types:

- Data types define the kind of the value that the variable holds.
- The list of Data Types;
- Numeric :
    - Integer - can be directly defined
    - Ex: a=10
    - Float - can be directly defined
    - Ex: a=90
    - Complex - a+ib, here a is real number and b is an imaginary number.
- Sequence:
    - String - The names will be defined in this. Uses double Quotations(" ").

    - Ex: Name = “Lekha”
- Boolean:
    - Boolean - has 2 built-in functions. True / False.
    - According to the situation it displays the values.

OPERATORS:

- Arithmetic Operations: used to do the mathematical calculations.
- SUM: Addition of two numbers.
    - Ex:

```
a=10
b=5
c=a+b
print("Sum is: ", c)
```

    - Sum is: 15

- Substracton: Difference of two numbers.
    - Ex:

```
a=10
b=5
c=a-b
print("Difference is: ", c)
```

- Difference is: 5

- Multiplication: Product of two numbers.
    - Ex:

```
a=10
b=5
c=a*b
print("Product is: ", c)
```

    - Product is: 50

- Division: division of two numbers.
  - Ex:

```
a=10
b=4
c=a/b
print("Div is: ", c)
```

  - Div is: 2.5

- Modulus Division: Displays the remind of the two numbers.
  - Ex:

```
a=10
b=5
c=a%b
print("Moddiv is: ", c)
```

  - Moddiv is: 0

- Floor Division:
  - Ex:

```
a=10
b=5
c=a//b
print("Fdiv is: ", c)
```

  - Fdiv is: 2

ASSIGNMENT OPERATORS:

- Equals to:

```
a=10
print(a)
```

  - 10

- +=:

```
a=10
a+=25
```

```
print(a)
```

- 35

- -=:

```
a=10
a-=25
print(a)
```

- -15

- *=:

```
a=10
a*=25
print(a)
```

- 250

- /=:

```
a=10
a/=5
print(a)
```

- 2.0

- &=:

```
a=10
a%=5
print(a)
```

- 0

- //=:

```
a=10
a//=5
print(a)
```

- 2

- |=:
  - ```
    a=10
    a|=5
    print(a)
    ```
  - 15
- ^=:
  - ```
    a=10
    a^=5
    print(a)
    ```
  - 15
- >>=:
  - ```
    a=10
    a>>=5
    print(a)
    ```
  - 0
- <<=:
  - ```
    a=10
    a<<=5
    print(a)
    ```
  - 320

COMPARISON OPERATORS:

- DOUBLE EQUALS TO :
  - ```
    a=10
    b=60
    print(a==b)
    ```
  - False
    ```

- NOT EQUALS TO:
  ```
  a=10
  b=60
  print(a!=b)
  ```
  - True

- Greater than:
  ```
  a=10
  b=60
  print(a>b)
  ```
  - False

- Less than:
  ```
  a=10
  b=60
  print(a<b)
  ```
  - True

- Greater than equal to:
  ```
  a=10
  b=10
  print(a>=b)
  ```
  - True

- Less than equal to:
  ```
  a=10
  b=5
  print(a<=b)
  ```
  - False

LOGICAL OPERATORS :

- AND: Return TRUE if two statements are true.
  - ```
    a=10
    print(a > 3 and a < 10)
    ```
  - False

- OR: Return TRUE if any of the two statements are true.
  - ```
    a=10
    print(a > 3 or a < 10)
    ```
  - True

- NOT: Reveses the result.
  - ```
    a=10
    print(not(a > 3 or a < 10))
    ```
  - False
    ```