**Class 03: Strings, Numbers & Operations in Python**

1. **Strings**

=>. A **String** is a **sequence of characters** — letters, numbers, symbols — enclosed in **quotes**.

**- Single Quotes**

Example: name='Web are programming by "python"'

**- Double Quotes**

Example: demo= " Web are programming by 'python'"

**- Triple Single Quotes**

Example:

demo1='''

Lorem Ipsum is simply

dummy text of the printing

and "typesetting" industry

'''

**- Double Single Quotes**

Example:

demo2="""

Lorem Ipsum is simply

dummy text of the printing

and 'typesetting' industry

"""

**2. String Indexing**

- **Positive Indexing**

Example:

text= "Hello World"

# 0 -> 1 -> 2-> 3 -> 4 -> 5 ->6 ->>>>>>>>>>

print(text[1])

**output is (e)**

**- Negative Indexing**

Example:

text= "Hello World"

# -1 -> -2 -> -3 -> -4 -> -5 -> -6

print(text[-1])

**output is (l)**

**3. String Slicing**

**=>** String slicing means taking a part (or slice) of a string using indexes.

Example:

# text[start:end]

text = "Tonmoy"

print(text[0:3]) # Output: Ton

print(text[:5]) # Output: Tonmoy

**4. String Concatenation**

**=>** String Concatenation means joining (or combining) two or more strings together using the + operator.

Example:

string="Tonmoy"  
string1="Sarker"  
combined=string + " "+ string1  
print(combined)

**5. String Method**

**=>** A string method is a function that you can use with a string to change it, analyze it, or get information from it.

**- String Repetition**

Example:

string="Tonmoy "  
repeat=string \* 10  
print(repeat)

**- Formate Using %**

Example:

name="Tonmoy"  
age=23  
height=5.6  
total= "My name is %s and my age is %d. My hight is %f" %(name,age,height)  
print(total)

%s---string/text

%d---integer/number

%f---float/decimal

# %s string placeholder

# %d number placeholder (int)

# %f number placeholder (float)

**- uppercase**

text="Tonmoy"  
print(text.upper())

Output: TONMOY

**- lowercase**

text="Tonmoy"  
print(text.lower())

Output: tonmoy

**- Capitalize**

text="Tonmoy"  
print(text.capitalize())

Output: tonmoy

**- Title case**

text="Tonmoy"  
print(text.title())

Output: tonmoy

**6. String Replacement**

String replacement means changing a specific part of a string to something new using the .replace() method.

Example:

text="Hello world"

new\_text=text.replace("world","Tonmoy")

print(new\_text)

Output is: Hello Tonmoy

**7. String Split into List**

Example:

text = "Tonmoy Sarker"  
textlist=text.split()  
print(textlist)

Output: ['Tonmoy', 'Sarker']

**8. String tripping - removing white space**

**=>** String stripping means removing unnecessary spaces from the beginning and end of a string using the .strip() method.

**- lstrip**

text= " Tonmoy Sarker "  
print(text.lstrip())

**- rstrip**

text= " Tonmoy Sarker "  
print(text.rstrip())

**- strip**

text= " Tonmoy Sarker "  
print(text.strip())

**9. Math or Number Arithmetic calculation**

**- Addition**

**- Subtraction**

**- Multiplication**

**- Division**

**- Modulus**

Example:

a=10

b=20

c=5.67

print("Addition:",a+b)

print("Subtraction:",a-b)

print("Multiplication:",a\*b)

print("Division:",a/b)

print("Modulus:",a%b)

**10. Type Conversion**

**- Int->Float**

**- Float->Int**

**- []->String**

Example:

x=10

y=3.1516

print(float(x)) #Int->Float

print(int(y))  #Float->Int

print(str(x))  #Int->String

print(str(y))  #Float->String

**11. Python Operator Precedence**

**=>** Operator precedence means the priority order in which operations are performed in Python.

**- Multiplication (\*)**

**- Division (/)**

**- Modulus (%)**

**- Addition (+)**

**- Subtraction (-)**

Example:

a=10

b=20

c=5.67

print("Addition:",a+b)

print("Subtraction:",a-b)

print("Multiplication:",a\*b)

print("Division:",a/b)

print("Modulus:",a%b)

**12. Python Math**

**- Square root**

**- Power**

**- Trigonometric functions**

**- Logarithmic**

**- Factorial**

**- Greatest common divisor**

Example:

#Square root

import math  
print("Square Root",math.sqrt(16))  
  
#Power

import math  
print("Power",math.pow(10,2))  
  
  
#Trigonometric

import math  
print("Trigonometric",math.sin(math.radians(90)))  
print("Trigonometric",math.cos(math.radians(90)))  
print("Trigonometric",math.tan(math.radians(45)))  
  
  
#Logarithmic

import math  
print("Logarithmic",math.log(10))  
print("Logarithmic",math.log10(10))  
  
  
# Factorial 5\*4\*3\*2\*1=120

import math  
print("Factorial",math.factorial(5))  
  
  
# Greatest common divisor

import math  
print(" Greatest common divisor",math.gcd(50,100))  
  
# Lowest Common Multiple

import math  
print(" Lowest Common Multiple",math.lcm(50,100))