Arithmetic Operations

Arithmetic Operations on Strings

1. **Addition Operator**

```
str1 = 'Geeksfor'
str2 = 'Geeks'
print(str1 + str2)
```

Output - `GeeksforGeeks`

2. **Subtraction Operator**
   The subtraction operator does not work on strings and will throw TypeError.

```
str1 = 'Geeksfor'
str2 = 'Geeks'
print(str1 - str2)
```

Output -

```
---------------------------------------------------------------------
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TypeError                                 Traceback (most recent
call last)
<ipython-input-2-6e5745747226> in <module>
      1 str1 = 'Geeksfor'
      2 str2 = 'Geeks'
----> 3 print(str1 - str2)

TypeError: unsupported operand type(s) for -: 'str' and 'str'
```

3. **Multiplication Operator**
   Multiplying a string by an integer gives the string times the integer. However, two strings cannot be multiplied.

```
>>>str1 = 'Geeksfor'
str2 = 'Geeks'
print(str1* str2)
```

Output -

```
---------------------------------------------------------------
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TypeError                                 Traceback (most recent
call last)
<ipython-input-3-25c90a55b6f3> in <module>
      1 str1 = 'Geeksfor'
      2 str2 = 'Geeks'
----> 3 print(str1* str2)

TypeError: can't multiply sequence by non-int of type 'str'
```

```
>>>str1 = 'Geeks'
print(str1*3)
```

Output -

```
GeeksGeeksGeeks
```

4. **Division Operator**

   Strings cannot be divided within themselves and neither with any other integer.

----------Arithmetic Operators on Numbers ----------

Arithmetic operators are used to perform mathematical operations like addition, subtraction, multiplication and division.

There are 7 arithmetic operators in Python :

1. Addition
2. Subtraction
3. Multiplication
4. Division

5. Modulus
6. Exponentiation
7. Floor division

1. Addition Operator : In Python, **+** is the addition operator. It is used to add 2 values.

Example :

```
val1 = 2
val2 = 3

# using the addition
operator
res = val1 + val2
print(res)
```

Output :

```
5
```

2. Subtraction Operator : In Python, **–** is the subtraction operator. It is used to subtract the second value from the first value.

Example :

```
val1 = 2
val2 = 3

# using the subtraction
operator
res = val1 - val2
print(res)
```

Output :

```
-1
```

3. Multiplication Operator : In Python, ***** is the multiplication operator. It is used to find the product of 2 values.

Example :

```
val1 = 2
val2 = 3

# using the multiplication
operator
res = val1 * val2
print(res)
```

Output :

```
6
```

4. Division Operator : In Python, **/** is the division operator. It is used to find the quotient when the first operand is divided by the second.

Example :

```
val1 = 3
val2 = 2

# using the division
operator
res = val1 / val2
print(res)
```

Output :

```
1.5
```

5. Modulus Operator : In Python, **%** is the modulus operator. It is used to find the remainder when the first operand is divided by the second.

Example :

```
val1 = 3
val2 = 2

# using the modulus
operator
res = val1 % val2
print(res)
```

Output :

```
1
```

6. Exponentiation Operator : In Python, **** is the exponentiation operator. It is used to raise the first operand to the power of second.

Example :

```
val1 = 2
val2 = 3

# using the exponentiation
operator
res = val1 ** val2
print(res)
```

Output :

```
8
```

7. Floor division : In Python, **//** is used to conduct the floor division. It is used to find the floor of the quotient when the first operand is divided by the second.

Example :

```
val1 = 3
val2 = 2

# using the floor
division
res = val1 // val2
print(res)
```

Output :

```
1
```

Below is the summary of all the 7 operators :

Operator	Description	Syntax
+	Addition: adds two operands	x + y
–	Subtraction: subtracts two operands	x – y
*	Multiplication: multiplies two operands	x * y
/	Division (float): divides the first operand by the second	x / y
//	Division (floor): divides the first operand by the second	x // y
%	Modulus: returns the remainder when first operand is divided by the second	x % y

**	Power : Returns first raised to power second	x ** y