 Marwadi University Marwadi Chandarana Group	Marwadi University Faculty of Engineering & Technology Department of Information and Communication Technology	
Subject: Programming With Python (01CT1309)	Aim: Write a program to perform different arithmetic operations on numbers in python.	
Experiment No: 01	Date:14/07/2025	Enrollment No:92400133037

Aim: Write a program to perform different arithmetic operations on numbers in python.

IDE:

Arithmetic operations are fundamental to programming, and Python provides straightforward operators to perform these calculations. Let's revisit these basic arithmetic operations, which you've likely encountered in your math classes, and see how they can be used in Python.

Types of Arithmetic Operators in Python

Arithmetic operators in Python are fundamental tools used for performing basic mathematical operations. Here are the primary types of arithmetic operators:

- Addition
- Subtraction
- Multiplication
- Division
- Modulus
- Exponentiation
- Floor Division

Let's take a closer look at each of these operators to understand them better.

Addition


The addition operator in Python is “+”. It is used to add or sum two values.

Python Code:

```
num1, num2 = 10, 30
```

```
sum= num1+num2
```

```
print("The sum of",num1,"and",num2,"is:",sum)
```

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Output:

Ex7_String.py
Ex8.py
MembershipOp.py
collection.py
PostLab.py lab1
operations.py

lab2 > operations.py > ...

```

1 x,y=10,30
2 print("Sum:",x+y)
3 print("Difference",x-y)
4 print("Product",x*y)
5 print("Quotient",x/y)
6 print("Remainder",x%y)
7 print("Exponentiation",10**3)
8 print("floor division",x//y)
9

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

TERMINAL

```

PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\operations.py"
Sum: 40
Difference -20
Product 300
Quotient 0.3333333333333333
Remainder 10
Exponentiation 1000
floor division 0

```

Subtraction


The subtraction operator in Python is “-”. It is used to subtraction or difference two values.

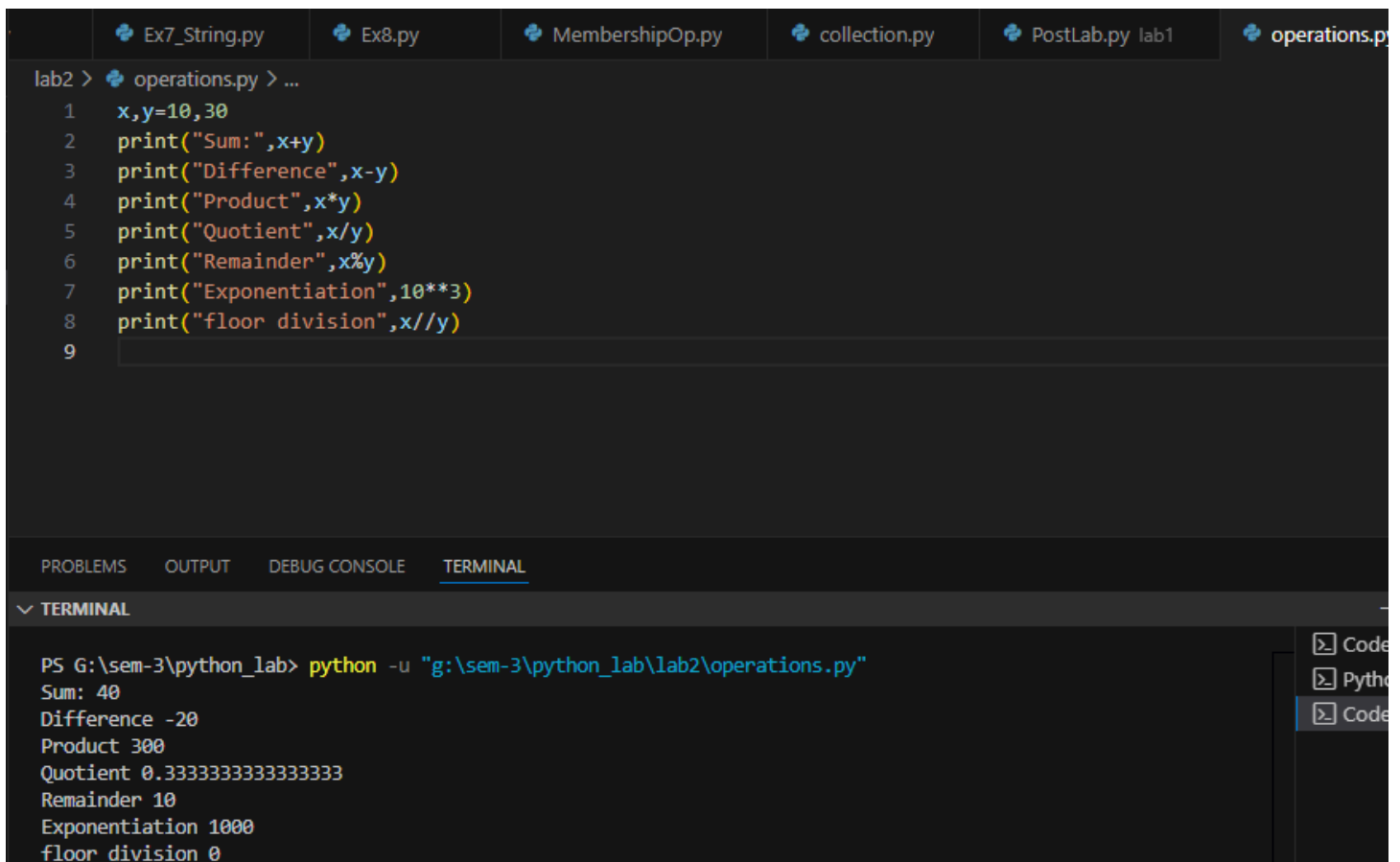
```
num1, num2 = 10, 30
```

```
sub= num1-num2
```

```
print("The subtraction of",num1,"and",num2,"is:",sub)
```

output:

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```

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2  print("Sum:",x+y)
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6  print("Remainder",x%y)
7  print("Exponentiation",10**3)
8  print("floor division",x//y)
9

```

```

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▼ TERMINAL
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Sum: 40
Difference -20
Product 300
Quotient 0.3333333333333333
Remainder 10
Exponentiation 1000
floor division 0

```

Multiplication


The Arithmetic Operator in Python for multiplication is “*”. With this operator, we can find the product of two values.

```
num1, num2 = 10, 30
```

```
product= num1*num2
```

```
print("The product of",num1,"and",num2,"is:",product)
```

Output:

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```

lab2 > operations.py > ...
1  x,y=10,30
2  print("Sum:",x+y)
3  print("Difference",x-y)
4  print("Product",x*y)
5  print("Quotient",x/y)
6  print("Remainder",x%y)
7  print("Exponentiation",10**3)
8  print("floor division",x//y)
9

```

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

```

```

▼ TERMINAL
PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\operations.py"
Sum: 40
Difference -20
Product 300
Quotient 0.3333333333333333
Remainder 10
Exponentiation 1000
floor division 0

```

Division


The “/” operator is the division operator in Python. We can find the quotient when the first operand is divided by the second.

```
num1, num2 = 10, 30
```

```
div = num1/num2
```

```
print("The division of",num1,"and",num2,"is:",div)
```

output:

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```

lab2 > operations.py > ...
1  x,y=10,30
2  print("Sum:",x+y)
3  print("Difference",x-y)
4  print("Product",x*y)
5  print("Quotient",x/y)
6  print("Remainder",x%y)
7  print("Exponentiation",10**3)
8  print("floor division",x//y)
9

```

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

```

```

▼ TERMINAL
PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\operations.py"
Sum: 40
Difference -20
Product 300
Quotient 0.3333333333333333
Remainder 10
Exponentiation 1000
floor division 0

```

Modulus


The “%” operator is the division operator in Python. Using this, we can find the remainder when the first operand is divided by the second.

```
num1, num2 = 10, 30
```

```
rem = num1%num2
```

```
print("The reminder of",num1,"and",num2,"is:",rem)
```

output:

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```

lab2 > operations.py > ...
1  x,y=10,30
2  print("Sum:",x+y)
3  print("Difference",x-y)
4  print("Product",x*y)
5  print("Quotient",x/y)
6  print("Remainder",x%y)
7  print("Exponentiation",10**3)
8  print("floor division",x//y)
9

```

```

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```

```

✓ TERMINAL
PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\operations.py"
Sum: 40
Difference -20
Product 300
Quotient 0.3333333333333333
Remainder 10
Exponentiation 1000
floor division 0

```

Exponentiation


The exponentiation operator in Python is denoted by “**”. It is used to raise the power of the first operand to the power of the second.

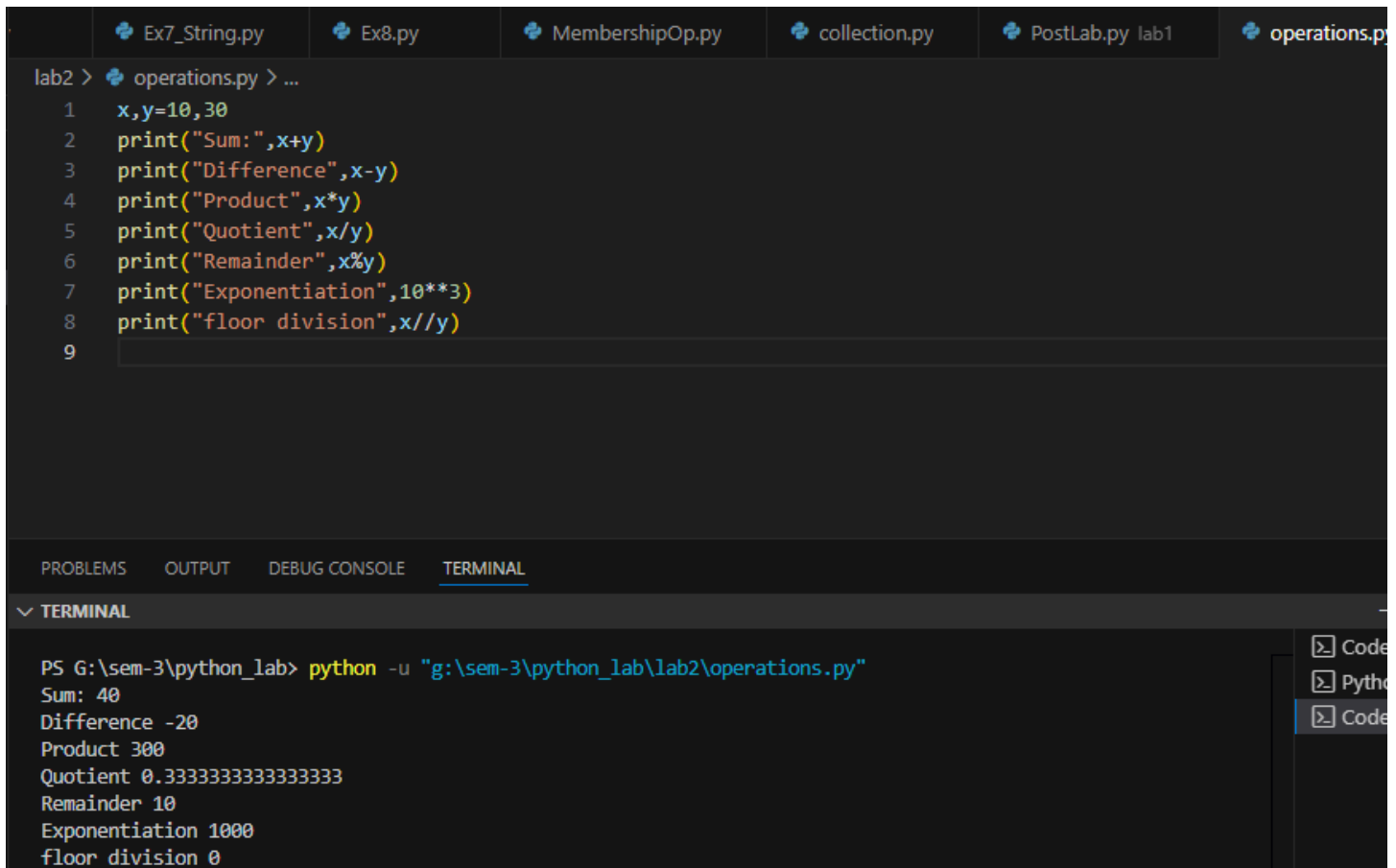
```
num1, num2 = 10, 3
```

```
exp = num1**num2
```

```
print("The exponentiation of",num1,"and",num2,"is:",exp)
```

Output:

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```

lab2 > operations.py > ...
1  x,y=10,30
2  print("Sum:",x+y)
3  print("Difference",x-y)
4  print("Product",x*y)
5  print("Quotient",x/y)
6  print("Remainder",x%y)
7  print("Exponentiation",10**3)
8  print("floor division",x//y)
9

```

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

```

```

v TERMINAL
PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\operations.py"
Sum: 40
Difference -20
Product 300
Quotient 0.3333333333333333
Remainder 10
Exponentiation 1000
floor division 0

```

Floor Division


It is denoted by “//” in Python. We use it to find the floor of the quotient when the first operand is divided by the second.

```
num1, num2 = 10, 3
```

```
floordiv = num1//num2
```

```
print("The Floor Division of",num1,"and",num2,"is:",floordiv)
```

Output:

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```

lab2 > operations.py > ...
1  x,y=10,30
2  print("Sum:",x+y)
3  print("Difference",x-y)
4  print("Product",x*y)
5  print("Quotient",x/y)
6  print("Remainder",x%y)
7  print("Exponentiation",10**3)
8  print("floor division",x//y)
9

```

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✓ TERMINAL

```

PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\operations.py"
Sum: 40
Difference -20
Product 300
Quotient 0.3333333333333333
Remainder 10
Exponentiation 1000
floor division 0

```

Task:


x = 8

y = 3

mod = x % y

print (mod)

Output:

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```
lab2 > EX1.py > ...
1 x,y=8,3
2 print("Mod",x%y)
```

```
PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\EX1.py"
Mod 2
```

a = -5

b = 2

res1 = a % b

print (res1)

Output

```
3 a,b=-5,2
4 print("Mod",a%b)
```

```
Mod 1
```

m = 5

n = -2

res2 = m % n

print (res2)

Output


```
5 m,n=5,-2
6 print("Mod",m%n)
```

```
Mod -1
```

e = -5

f = -2

res3 = e % f

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```
print (res3)
```

Output

```
7 e,f=-5,-2
8 print("Mod",e%f)

Mod -1
```

Order of precedence of Arithmetic operators in Python

Arithmetic Operators in Python follow a basic order of precedence. When more than one operator is used, they are executed according to this order:

Operator	Purpose
()	Parentheses
**	Exponent
%, *, /, //	Modulos, Multiplication, Division and Floor division
+, -	Addition and Subtraction

The operator listed at the top of the table will be executed first.

```
print (((5 + 4) / 3) * 2)
```

Output

```
lab2 > precedence.py > ...
1 print((((5+4)/3)*2)#6.0


▼ TERMINAL

PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\precedence.py"
6.0
```

```
x = 3
```

```
y = 4
```

```
z = 6
```

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```
print(x*y//z)
```

```
print(x*(y//z))
```

Output:

```
2  x,y,z=3,4,6
3  print(x*y//z)#2
4  print(x*(y//z))#0
```

```
2
0
```

```
x = 2
```

```
y = 3
```

```
z = 2
```

```
print(x**y**z)
```

```
print((x**y)**z)
```

Output

```
6  x,y,z=2,3,2
7  print(x**y**z)
8  print((x**y)**z)
9
```

```
512
64
```



Post Lab

Write a python code for calculating the Area and Perimeter of a Rectangle

Write a python code for testing if a number is even or odd

Write a python code for calculate the area and volume of the Cube.

Write a python code to solve the equation $z = (x+y)*(x-y)$

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Write a python code to solve the equation $z = (x+y)*(x+y)-2xy$; write a comment on it.

Write a python code for Converting Celsius to Fahrenheit

```

lab2 > PostLab.py > ...
1  #Write a python code for calculating the Area and Perimeter of a Rectangle
2  x,y=2,3
3  print("Area of rectangle:",x*y)
4  print("Perimeter of rectangle:",(2*(x+y)))
5
6
7  #Write a python code for testing if a number is even or odd
8  num=2
9  if(num%2==0):
10     print("EVEN")
11 else:
12     print("ODD")
13
14
15 #Write a python code for calculate the area and volume of the Cube
16 l=3
17 print("Area of a cube:",6*(l**2))
18 print("Volume of a cube:",l**3)
19
20
21 #Write a python code to solve the equation z = (x+y)*(x-y)
22 x,y=1,2
23 z=(x**2)-(y**2)
24 print(z)
25
26
27 #Write a python code to solve the equation z = (x+y)*(x+y)-2xy; write a comment on it.
28 z=(x**2)+(y**2)
29 print(z)
30
31
32 #Write a python code for Converting Celsius to Fahrenheit
33 c=99
34 f=c*(9/5)+32
35 print("Fahrenheit:",f)

```

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
▼ TERMINAL

PS G:\sem-3\python_lab> python -u "g:\sem-3\python_lab\lab2\PostLab.py"
Area of rectangle: 6
Perimeter of rectangle: 10
EVEN
Area of a cube: 54
Volume of a cube: 27
-3
5
Fahrenheit: 210.20000000000002

```