B.V. RAJU COLLEGE

Vishnupur, Bhimavaram

I - MCA II - SEMESTER

PYHTON LAB MANUAL

DEPARTMENT OF MCA

INDEX

Program: 1

Write python a program that takes inputs and prints its sum, multiplication, subtraction, division, modulus..etc

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

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

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

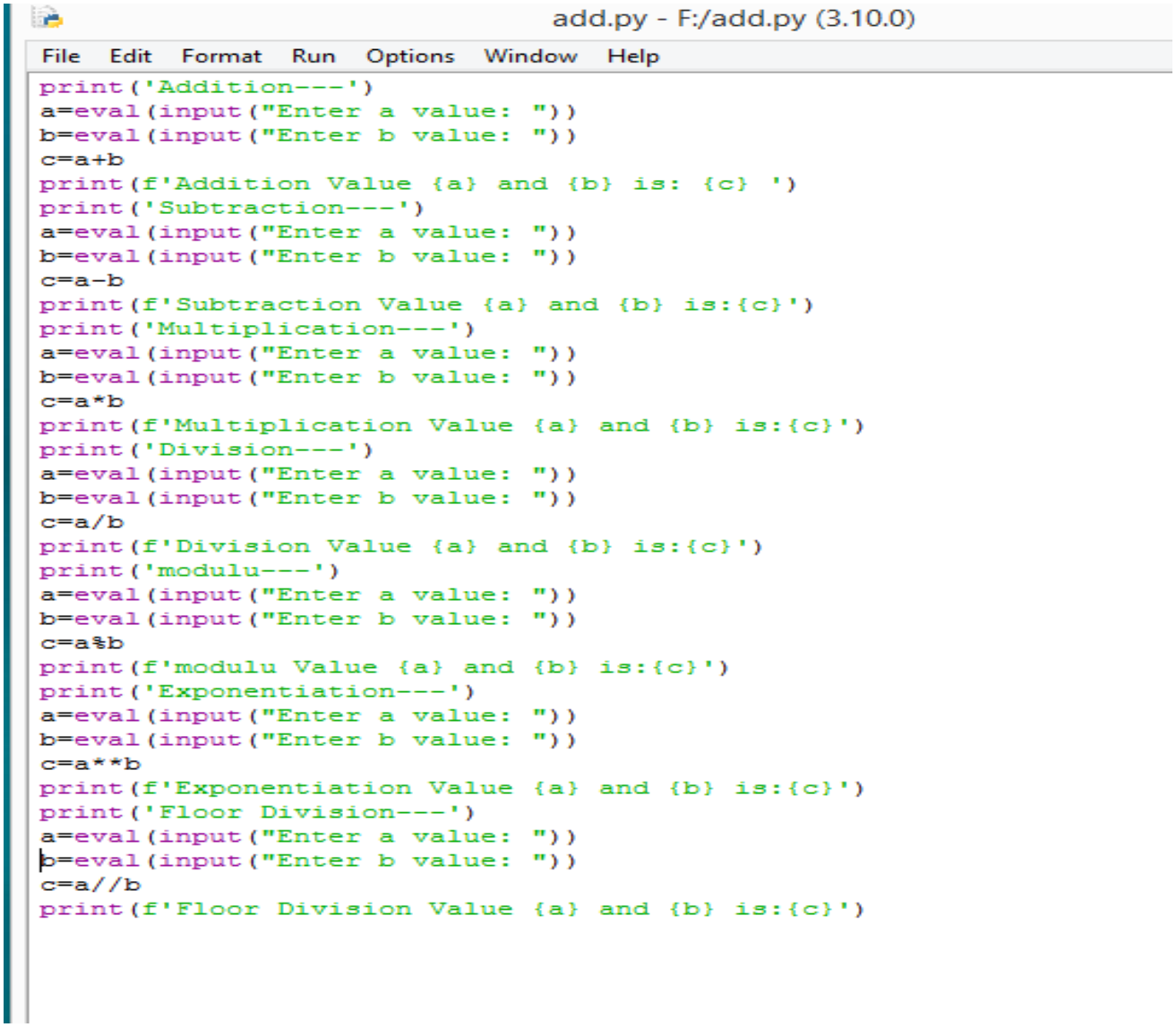
3. Multiplication Operator : In Python, * is the multiplication operator. It is used to find the product of 2 values.

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

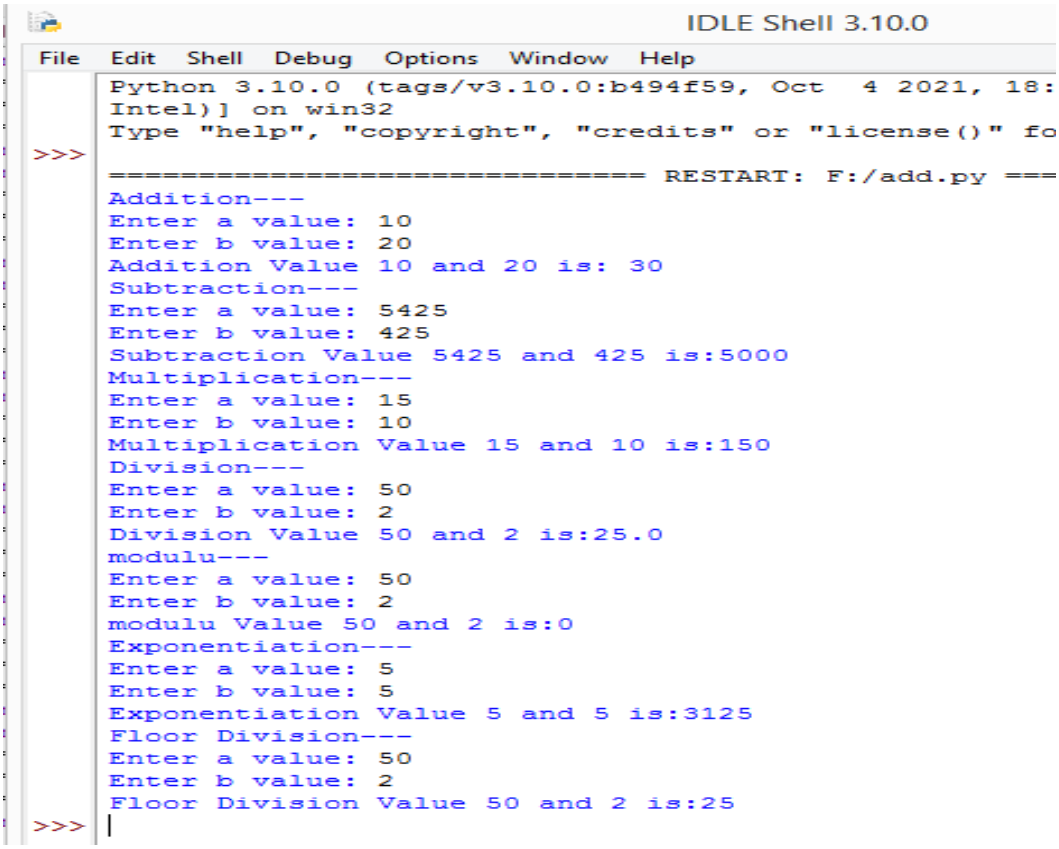
5. Modulus Operator : In Python, **%** is the modulus operator. It is used to find the remainder when first operand is divided by the second.

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

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



OUTPUT:



Program: 2

Write a python program to find the square root of a number by Newton's Method.

The **square root** of a number is defined as **the value, which gives the number when it is multiplied by itself**. The radical symbol √ is used to indicate the square root. For example, $\sqrt{16} = 4$.

Newton's Method: Let N be any number then the square root of N can be given by the formula: **root = 0.5 * (X + (N / X))**

```
def newton_method(number, number_iters = 100):

    a = float(number)

    for i in range(number_iters):

        number = 0.5 * (number + a / number)

    return number

a=int(input("Enter first number:"))

b=int(input("Enter second number:"))

print("Square root of first number:",newton_method(a))

print("Square root of second number:",newton_method(b))
```

OUTPUT:

```
Enter first number:81
Enter second number:5
Square root of first number: 9.0
Square root of second number: 2.23606797749979
```

Program :3

Write a python program to biggest of three numbers?

```
num1 =  int(input("enter the value"))
num2 =  int(input("enter the value"))
num3 = int(input("enter the value"))
if (num1 >= num2) and (num1 >= num3):
  largest = num1
elif (num2 >= num1) and (num2 >= num3):
  largest = num2
else:
  largest = num3
print("The largest number is", largest)
```

OUTPUT:

```
enter the value:10
enter the value:14
enter the value:12
The largest number is 14
```

Program: 4

Write a python program to find sum of digits of a given number

```
def getSum(n):
    sum=0
    for digit in str(n):
        sum+=int(digit)
        return sum
        n=12345
```

```
    print(getSum(n))
```

OUTPUT:

15

Program: 5

Write a python program to find GCD of two numbers?

```
def hcf(a, b):
    if(b == 0):
        return a
    else:
        return hcf(b, a % b)
a = 60
b = 48
print("The gcd of 60 and 48 is : ", end="")
print(hcf(60, 48))
```

OUTPUT:

The gcd of 60 and 48 is : 12

Program: 6

Write a python program to print the following pattern.

```
        1
      2   2
    3   3   3
  4   4   4   4
5   5   5   5   5
```

```
n=int(input())
for i in range(1,n+1):
    left-space p=" "+(n-i)
```

```
numbers=”  “
for j in range(1,i+1):
        numbers=numbers + (str(i)+”  “)
print(left-space + numbers)
```

OUTPUT:

```
          1
        2   2
      3   3   3
    4     4     4     4
5     5       5   5     5
```

Program: 7

Write a python program to find factorial of a given number

```
n=23
fact=1
for i in range(1,n+1):
   fact=fact*i
print("The factorial of 23 is : ",end=" ")
print(fact)
```

OUTPUT:

```
The factorial of 23 is :  2.58520
```

Program: 8

Write a python program to print all the prime numbers below the givennumber

```
lower_value = int(input("Enter the lower_value : "))
upper_value = int(input("Enter the upper_value : "))
 for n in range(lower_value,upper_value + 1):
        if n > 1:
                for i in range(2,n):
```

```
                    if (n % i) == 0:
                        break
                    else:
                       print(n)
```

OUTPUT:

Enter the lower_value :2

Enter the upper_value : 20

2 3 5 7 11 13 17 19

Program: 9

Write a python program to count the number of characters in the string using loop?

```
str1 = input("Please Enter your Own String : ")
total = 0
for i in str1:
   total = total + 1
print ("Total Number of Characters in this String = ", total)
```

OUTPUT:

Please Enter your Own String: BVRAJUCOLLEGE

Total Number of Characters in this String =13

Program: 10

Write a python program to read a string from the user and print lowercase character in uppercase and uppercase character in lowercase.

```
str1="Great Power"
 newStr = ""
 for i in range(0, len(str1)):
    if str1[i].islower():
        newStr += str1[i].upper()
```

```
        elif str1[i].isupper():
            newStr += str1[i].lower()
        else:
            newStr += str1[i]
    print("String after case conversion :  " +  newStr)
```

OUTPUT:

```
String after case conversion :  gREAT pOWER
```

Program: 11

Write a python program to perform linear Search

```
def linearSearch(array, n, x):
    # Going through array sequencially
    for i in range(0, n):
        if (array[i] == x):
            return i
    return -1
array = [2, 4, 0, 1, 9]
x = 1
n = len(array)
result = linearSearch(array, n, x)
if(result == -1):
    print("Element not found")
else:
    print("Element found at index: ", result)
```

OUTPUT:

```
Element found at index:3
```

Program: 12

Write a python program to perform Binary Search

```
nums = []
print("Enter 10 Numbers (in ascending order):")
for i in range(10):
    nums.insert(i, int(input()))
print("Enter a Number to Search:")
search = int(input())
first = 0
last = 9
middle = (first+last)/2
middle = int(middle)
while first <= last:
    if nums[middle]<search:
        first = middle+1
    elif nums[middle]==search:
        print("The Number Found at Position:")
        print(middle+1)
        break
    else:
        last = middle-1
    middle = (first+last)/2
    middle = int(middle)
if first>last:
    print("The Number is not Found in the List")
```

OUTPUT:

```
Enter 10 Numbers (in ascending order):
10
20
30
40
50
60
70
80
90
100
Enter a Number to Search:
60
The Number Found at Position:
6
```

Program: 13

Write a python program to perform Bubble Sort

```
def  bubblesort(elements):
        swapped = False
        for n in range(len(elements)-1, 0, -1):
              for i in range(n):
                    if elements[i] > elements[i + 1]:
                        swapped = True
                        elements[i], elements[i + 1] = elements[i + 1], elements[i]
             if not swapped:
                return
elements = [39, 12, 18, 85, 72, 10, 2, 18]
print("Unsorted list is,")
print(elements)
bubblesort(elements)
print("Sorted list is, ")
print(elements)
```

OUTPUT:

```
Unsorted  list is,
[39,12,18,85,72,10,2,18]
Sorted list is,
[2,10,12,18,18,39,72,85]
```

Program: 14

Write a python program to perform Selection Sort

```
def selectionSort(array, size):
    for ind in range(size):
        min_index = ind
        for j in range(ind + 1, size):
            if array[j] < array[min_index]:
                min_index = j
        (array[ind], array[min_index]) = (array[min_index], array[ind])
arr = [-2, 45, 0, 11, -9,88,-97,-202,747]
size = len(arr)
selectionSort(arr, size)
print('The array after sorting in Ascending Order by using selection sort is:')
print(arr)
```

OUTPUT:

```
The array after sorting in Ascending Order by using selection sort is:
[-202, -97, -9, -2, 0, 11, 45, 88, 747]
```

Program: 15

Write a python program to demonstrate try with multiple exception Statements

Eg:1

```
print('Hi,This is python')
print('This exception program')
a=int(input('Enter a value'))
b=int(input('Enter b value'))
print(a/b)
print(a+b)
print(a-b)
print("thank you")
```

OUTPUT:1

```
Hi,This is python
This exception program
Enter a value25
Enter b value5
5.0
30
20
thank you
```

OUTPUT:2

```
Hi,This is python
This exception program
Enter a value52
Enter b value0
```

```
Traceback (most recent call last):
  File "F:/ecc22.py", line 5, in <module>
    print(a/b)
ZeroDivisionError: division by zero
```

Eg:2

```
print('Hi,This is python')
print('This exception Handling program')
a=int(input('Enter a value'))
b=int(input('Enter b value'))
try:
    print(a/b)
    print(a+b)
    print(a-b)
except Exception as e:
    print(e)
print("thank you")
```

OUTPUT:1

```
Hi,This is python
This exception Handling program
Enter a value25
Enter b value3
8.333333333333334
28
22
thank you
```

OUTPUT:2

```
Hi,This is python
This exception Handling program
Enter a value25
Enter b value0
division by zero
thank you
```

Eg:3

```
try:
   import fabric
except TypeError:
      print('Adding number and string is not possible')
except NameError:
      print('Variable not defined')
except ZeroDivisionError:
      print('Division with zero is not possible')
except ModuleNotFoundError:
      print("please install fabric module to use it")
except Exception as e:
      print(e)
finally:
      print("This will execute always")
```

OUTPUT:1

```
please install fabric module to use it
This will execute always
```

Eg:4

```
try:
   print(5/0)
except TypeError:
      print('Adding number and string is not possible')
except NameError:
      print('Variable not defined')
except ZeroDivisionError:
      print('Division with zero is not possible')
except ModuleNotFoundError:
      print("please install fabric module to use it")
except Exception as e:
      print(e)
finally:
      print("This will execute always")
```

OUTPUT:1

```
Division with zero is not possible
This will execute always
```