

```

a=9; b=4
print("addition of a:",a,"& b:",b,"is:",a+b)
print("subtraction of a:",a,"& b:",b,"is:",a-b)
print("multiplication of a:",a,"& b:",b,"is:",a*b)
print("division of a:",a,"& b:",b,"is:",a/b)
print("floor divison of a:",a,"& b:",b,"is:",a//b)
print("moduli of a:",a,"& b:",b,"is:",a%b)
print("exponent of a:",a,"& b:",b,"is:",a**b)

```

```

addition of a: 9 & b: 4 is: 13
subtraction of a: 9 & b: 4 is: 5
multiplication of a: 9 & b: 4 is: 36
division of a: 9 & b: 4 is: 2.25
floor divison of a: 9 & b: 4 is: 2
moduli of a: 9 & b: 4 is: 1
exponent of a: 9 & b: 4 is: 6561

```

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# Adding two numbers
num_1 = 5
num2 = 9
sum = num_1 + num2
print('The sum of {2} and {1} is {0}'.format(num_1, num2, sum))

```

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☐ The sum of 14 and 9 is 5

```

```

# Addition of two numbers by taking input numbers from user
num1 = input('Enter first number: ')
num2 = input('Enter second number: ')
sum = float(num1) + float(num2)
print('The sum of {0} and {1} is {2}'.format(num1, num2, sum))

```

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Enter first number: 3
Enter second number: 8
The sum of 3 and 8 is 11.0

```

```

# Square of a given number using multiplication
#Declaring the number.
n = 7
square = n * n
print(square)

```

```

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```

# subtraction of two numbers by taking input numbers from user
num1 = input('Enter first number: ')
num2 = input('Enter second number: ')
difference = float(num1) - float(num2)
print('The sum of {0} and {1} is {2}'.format(num1, num2, difference))

```

```

Enter first number: 6
Enter second number: 3
The sum of 6 and 3 is 3.0

```

```

# Python program to find the quotient and remainder of 2 numbers
a=int(input("Enter the first number: "))

```

```
b=int(input("Enter the second number: "))
quotient=a//b
print("Quotient is:",quotient)
```

```
Enter the first number: 6
Enter the second number: 2
Quotient is: 3
```

```
# Python Program to Calculate Cube of a Number using exponent operator
number = float(input(" Please Enter any numeric Value : "))
cube = number ** 3
print("The Cube of a Given Number {0} = {1}".format(number, cube))
```

```
Please Enter any numeric Value : 8
The Cube of a Given Number 8.0 = 512.0
```

```
# Python program to find the quotient and remainder of 2 numbers
a=int(input("Enter the first number: "))
b=int(input("Enter the second number: "))
remainder=a%b
print("Remainder is:",remainder)
```

```
Enter the first number: 12
Enter the second number: 5
Remainder is: 2
```

```
print("SALARY PROGRAM")
name= str(input("Enter name of employee:"))
basic_salary=float(input("Enter Basic Salary :"))
da=float(basic_salary*0.25)
hra=float(basic_salary*0.15)
p_f=float((basic_salary+da)*0.12)
t_a=float(basic_salary*0.075)
net_pay=float(basic_salary+da+hra+t_a)
gross_pay=float(net_pay-p_f)

print("\n\n")
print("S A L A R Y   D E T A I L E D   B R E A K U P ")
print(" NAME OF EMPLOYEE : ",name)
print(" BASIC SALARY : ",basic_salary)
print(" DEARNESS ALLOW. : ",da)
print(" HOUSE RENT ALLOW.: ",hra)
print(" TRAVEL ALLOW. : ",t_a)
print(" NET SALARY PAY : ",net_pay)
print(" PROVIDENT FUND : ",p_f)
print(" GROSS PAYMENT : ",gross_pay)
```

```
SALARY PROGRAM
Enter name of employee:srikar
Enter Basic Salary :500000
```

```
S A L A R Y   D E T A I L E D   B R E A K U P
NAME OF EMPLOYEE :  srikar
BASIC SALARY :  500000.0
DEARNESS ALLOW. :  125000.0
HOUSE RENT ALLOW.:  75000.0
```

```
TRAVEL ALLOW. : 37500.0
NET SALARY PAY : 737500.0
PROVIDENT FUND : 75000.0
GROSS PAYMENT : 662500.0
```

```
# Python 3 program to find factorial of given number iteration
num = int(input("Enter a number: "))
factorial = 1
if num < 0:
    print(" Factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1,num + 1):
        factorial = factorial*i
    print("The factorial of",num,"is",factorial)
```

```
Enter a number: 5
The factorial of 5 is 120
```

```
# Circulate the values of n variables
#range(start, stop[, step])5
terms = int(input("Enter number of values : "))

list1 = []
for val in range(0,terms,1):
    ele = int(input("Enter integer : "))
    list1.append(ele)

print("Circulating the elements of list ", list1)

for val in range(0,terms,1):
    ele = list1.pop(0)
    list1.append(ele)
    print(list1)
```

```
Enter number of values : 5
Enter integer : 4
Enter integer : 5
Enter integer : 6
Enter integer : 7
Enter integer : 3
Circulating the elements of list  [4, 5, 6, 7, 3]
[5, 6, 7, 3, 4]
[6, 7, 3, 4, 5]
[7, 3, 4, 5, 6]
[3, 4, 5, 6, 7]
[4, 5, 6, 7, 3]
```

```
# Python program to check if year is a leap year or not
year = int(input("Enter a year: "))

if (year % 400 == 0) and (year % 100 != 0):
    print("{0} is a leap year".format(year))
elif (year % 4 == 0) and (year % 100 != 0):
    print("{0} is a leap year".format(year))
```

```
else:
    print("{0} is not a leap year".format(year))
```

```
Enter a year: 8024
8024 is a leap year
```

```
#to check whether the given number is a palindrome or not
```

```
string=input("Enter string:")
if(string==string[::-1]):
    print("The string is a palindrome")
else:
    print("The string isn't a palindrome")
```

```
Enter string:srikar
The string isn't a palindrome
```

```
#perform 2x2 matrix operations using python library
#import numpy
import numpy as np
mat1=np.array([[22,5],[30,91]])
mat2=np.array([[44,75],[97,80]])
print("Matrix1\n",mat1)
print("Matrix2\n",mat2)
```

```
#addition
print ("\nAddition of two matrices: ")
print (np.add(mat1,mat2))
```

```
Matrix1
[[22  5]
 [30 91]]
Matrix2
[[44 75]
 [97 80]]
```

```
Addition of two matrices:
[[ 66  80]
 [127 171]]
```

```
import numpy as np
mat1=np.array([[81,44],[45,11]])
mat2=np.array([[46,35],[67,39]])
print("Matrix1\n",mat1)
print("Matrix2\n",mat2)
#multiplication
print ("\nMultiplication of two matrices: ")
print (np.multiply(mat1,mat2))
```

```
Matrix1
[[81 44]
 [45 11]]
Matrix2
[[46 35]
 [67 39]]
```

Multiplication of two matrices:

```
[[3726 1540]  
 [3015  429]]
```

```
import numpy as np  
mat1=np.array([[18,56],[85,45]])  
mat2=np.array([[25,45],[77,50]])  
print("Matrix1\n",mat1)  
print("Matrix2\n",mat2)  
#transpose  
print("Transpose of 2x2 matrix:\n",mat1.T)
```

```
Matrix1  
[[18 56]  
 [85 45]]
```

```
Matrix2  
[[25 45]  
 [77 50]]
```

```
Transpose of 2x2 matrix:  
[[18 85]  
 [56 45]]
```