

## Python programs:

1.

# python program to add two numbers

# take inputs

```
num1 = 5
```

```
num2 = 10
```

# add two numbers

```
sum = num1 + num2
```

# displaying the addition result

```
print('{0} + {1} = {2}'.format(num1, num2, sum))
```

2.

# python program to add two numbers provided by the user

# store input numbers

```
num1 = input('Enter First Number: ')
```

```
num2 = input('Enter Second Number: ')
```

# add two numbers

# User might also enter float numbers

```
sum = float(num1) + float(num2)
```

# displaying the adding result

# value will print in float

```
print('The sum of numbers {0} and {1} is {2}'.format(num1, num2, sum))
```

3.

# Python program to add two numbers using function

```
def add_num(a,b): #user-defined function
```

```
    sum = a + b #adding numbers
```

```
    return sum #return value
```

#taking input from the user

```
num1 = float(input('Enter first number : '))
```

```
num2 = float(input('Enter second number : '))
```

#function call

```
print('The sum of numbers {0} and {1} is {2}'.format(
    num1, num2, add_num(num1, num2)))
```

4.

# Python program to add two numbers in one line  
# Without using any variables

```
print('The sum is %.2f' %(float(input('Enter First Number: '))  
    + float(input('Enter Second Number: '))))
```

5.

# Python program to multiply three number

# take inputs

```
num1 = float(input('Enter first number: '))  
num2 = float(input('Enter second number: '))  
num3 = float(input('Enter third number: '))
```

# calculate product

```
product = num1 * num2 * num3
```

# print multiplication value

```
print("The product of number: %0.2f" %product)
```

6.

# Python program to multiply three numbers using function

```
def product_num(num1, num2, num3): #user-defind function  
    num = (num1 * num2 * num3) #calculate product  
    return num #return value
```

# take inputs

```
num1 = float(input('Enter first number: '))  
num2 = float(input('Enter second number: '))  
num3 = float(input('Enter third number: '))
```

# function call

```
product = product_num(num1, num2, num3)
```

# print multiplication value

```
print("The product of number: %0.2f" %product)
```

7.

# Python program to find average of five numbers

# take inputs

```
num1 = float(input('Enter first number: '))  
num2 = float(input('Enter second number: '))  
num3 = float(input('Enter third number: '))  
num4 = float(input('Enter four number: '))
```

```
num5 = float(input('Enter fifth number: '))

# calculate average
avg = (num1 + num2 + num3 + num4 + num5) / 5

# print average value
print('The average of numbers = %0.2f' %avg)
```

8.  
# Python program to find the average of five numbers

```
# denotes total sum of five numbers
total_sum = 0
```

```
for n in range (5):
    # take inputs
    num = float(input('Enter number: '))
    # calculate total sum of numbers
    total_sum += num
```

```
# calculate average of numbers
avg = total_sum / 5
```

```
# print average value
print('Average of numbers =', avg)
```

9.  
# Python program to find square root of the number

```
# take inputs
num = float(input('Enter the number: '))
```

```
# calculate square root
sqrt = num ** 0.5
```

```
# display result
print('Square root of %0.2f is %0.2f'%(num, sqrt))
```

10.  
# python program to find area of circle

```
# store input
r = float(input('Enter the radius of the circle: '))
```

```
# calculate area of circle
area = 3.14 * r * r
```

```
# display result
print('Area of circle = %.2f ' %area)
```

11.

# python program to find the area of the right-angle triangle

```
# take inputs
base = float(input('Enter the base of the triangle: '))
height = float(input('Enter the height of the triangle: '))
```

```
# calculate area of triangle
area = (1/2) * base * height
```

```
# display result
print('Area of triangle = ',area)
```

12.

# Python program to calculate simple interest using function

```
def calculate_simple_interest(P, R, T):
    # calculate simple interest
    SI = (P * R * T) / 100
    return SI;
```

```
if __name__ == '__main__':
    # store the inputs
    P = float(input('Enter principal amount: '))
    R = float(input('Enter the interest rate: '))
    T = float(input('Enter time: '))

    # calling function
    simple_interest = calculate_simple_interest(P, R, T)
    # display result
    print('Simple interest = %.2f' %simple_interest)
    print('Total amount = %.2f' %(P + simple_interest))
```

13.

What does the if `__name__ == "__main__"`: do in Python?

When the Python interpreter reads a source file, it executes all of the code found in it.

Before executing the code, it will define a few special variables. For example, if the python interpreter is running that module (the source file) as the main program, it sets the special `__name__` variable to have a value `"__main__"`. If this file is being imported from another module, `__name__` will be set to the module's name.

One reason for doing this is that sometimes you write a module (a .py file) where it can be executed directly. Alternatively, it can also be imported and used in another module. By doing the main check, you can have that code only execute when you want to run the module as a program and not have it execute when someone just wants to import your module and call your functions themselves.

For example, if you have 2 files one.py and two.py with the following code:

one.py:

```
def func():
    print("func() in one.py")
print("Root of one.py")
if __name__ == "__main__":
    print("one.py is being run directly")
else:
    print("one.py is being imported")
```

Two.py:

```
import one
print("Root of two.py")
one.func()
if __name__ == "__main__":
    print("two.py is being run directly")
else:
    print("two.py is being imported")
```

Now if you run,

```
$ python one.py
```

You will get the output:

Root of one.py

one.py is being run directly

But if you run,

```
$ python two.py
```

You will get the output:

Root of in one.py

one.py is being imported

Root of in two.py

func() in one.py

two.py is being run directly

14.

# Python program to calculate compound interest using function

```
def compound_interest(principal, rate, time, number):
    # calculate total amount
    amount = principal * pow( 1+(rate/number), number*time)
    return amount;

# store the inputs
principal = float(input('Enter principal amount: '))
rate = float(input('Enter the interest rate: '))
time = float(input('Enter time (in years): '))
number = float(input('Enter the number of times that
                    interest is compounded per year: '))

# convert rate
rate = rate/100

# calling function
amount = compound_interest(principal, rate, time, number)
# calculate compound interest
ci = amount - principal

# display result
print('Compound interest = %.2f' %ci)
print('Total amount = %.2f' %amount)
```

15.

# Python Program to get the first digit of number

```
# take input
num = int(input('Enter any Number: '))

# get the first digit
while (num >= 10):
    num = num // 10

# printing first digit of number
print('The first digit of number:', num)
```

16.

# Python program to reverse a number

```
# take inputs
num = int(input('Enter an integer number: '))

# calculate reverse of number
```

```

reverse = 0
while(num > 0):
    last_digit = num % 10
    reverse = reverse * 10 + last_digit
    num = num // 10

# display result
print('The reverse number is = ', reverse)

```

17.

# Python program to make a simple calculator

```

# take inputs
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))

# choose operation
print("Operation: +, -, *, /")
select = input("Select operations: ")

# check operations and display result
# add(+) two numbers
if select == "+":
    print(num1, "+", num2, "=", num1+num2)

# subtract(-) two numbers
elif select == "-":
    print(num1, "-", num2, "=", num1-num2)

# multiplies(*) two numbers
elif select == "*":
    print(num1, "*", num2, "=", num1*num2)

# divides(/) two numbers
elif select == "/":
    print(num1, "/", num2, "=", num1/num2)

else:
    print("Invalid input")

```

18.

# Python program to print fibonacci series up to n-th term

```

# take input
num = int(input('Enter number of terms: '))

# print fibonacci series

```

```
a, b = 0, 1
i = 0

# check if the number of terms is valid
if num <= 0:
    print('Please enter a positive integer.')
```

```
elif num == 1:
    print('The Fibonacci series: ')
    print(a)
```

```
else:
    print('The Fibonacci series: ')
    while i < num:
        print(a, end=' ')
        c = a + b
        a = b
        b = c
        i = i+1
```

19.

# Python program to print fibonacci series up to n-th term

```
# take input
num = int(input('Enter number of terms: '))
```

```
# print fibonacci series
a, b = 0, 1
```

```
# check if the number of terms is valid
if num <= 0:
    print('Please enter a positive integer.')
```

```
elif num == 1:
    print('The Fibonacci series: ')
    print(a)
```

```
else:
    print('The Fibonacci series: ')
    for i in range (1, num+1):
        print(a, end=' ')
        c = a + b
        a = b
        b = c
```



20.

# Python program to print multiplication table

# take inputs

num = int(input('Display multiplication table of: '))

# print multiplication table

for i in range(1, 11):

print ("%d \* %d = %d" % (num, i, num \* i))

21.

# Python program to print multiplication table

# take inputs

num = int(input('Display multiplication table of: '))

# print multiplication table

i = 1

while i <= 10:

print ("%d \* %d = %d" %(num, i, num \* i))

i = i+1

22.

# Python program to find factors of a number

# take inputs

num = int(input('Enter number: '))

# find factor of number

print('The factors of', num, 'are:')

for i in range(1, num+1):

if(num % i) == 0:

print(i, end=' ')

23.

# Python program to find the factorial of a number

# take input

num = int(input("Enter number: "))

# check number is positive, negative, or zero

if num < 0:

print('Factorial does not exist for negative numbers')

elif num == 0:

print('The factorial of 0 is 1')

else:

# find factorial of a number

```
fact = 1
for i in range(1,num + 1):
    fact = fact*i
print('The factorial of',num,'is',fact)
```

24.

# Python program to convert decimal to binary

```
# take input
num = int(input('Enter any decimal number: '))
```

```
# display result
print('Binary value:', bin(num))
```

25.

# Python program to convert decimal to hexadecimal

```
# take inputs
num = int(input('Enter a decimal number: '))
```

```
# display result
print('HexaDecimal value = ', hex(num))
```

26.

# Python program to convert decimal to hexadecimal

```
# take inputs
num = int(input('Enter a decimal number: '))
```

```
# display result
print('HexaDecimal value = ', hex(num))
```

27.

# Python program to print numbers from 1 to 10

```
print('Numbers from 1 to 10:')
for n in range(1, 11):
    print(n, end=' ')
```

28.

# Python program to print numbers from 1 to 10

```
print('Numbers from 1 to 10:')
n = 1
while n <= 10:
    print(n, end=' ')
    n = n+1
```

29.