```
#1 Python program to exchange the values of two numbers without using
temporary variables.

x = int(input("Enter number x: "))
y = int(input("Enter number y: "))

print("Before swapping: x = {0} and y = {1}".format(x,y))

x = x * y

y = x // y;

x = x // y;

print("After Swapping: x = {0} y ={1}".format(x,y));
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Enter number x: >? 78

Enter number y: >? 7878

Before swapping: x = 78 and y = 7878

After Swapping: x = 7878 y =78

```
#2 Python Program to solve Quadratic equation.

import cmath

a = int(input("Enter the value of a: "))
b = int(input("Enter the value of b: "))
```

```
c = int(input("Enter the value of c: "))


d = (b**2) - (4*a*c)


sol1 = (-b-cmath.sqrt(d))/(2*a)
sol2 = (-b+cmath.sqrt(d))/(2*a)

print('The solution are {0} and {1}'.format(sol1,sol2))
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Enter the value of a: >? 1

Enter the value of b: >? 5

Enter the value of c: >? 6

The solution are (-3+0j) and (-2+0j)

```
#3 Python program to generate a random number.

import random

random_int = random.randint(1,5000)

print(random_int)
```

Output:

```
import sys; print('Python %s on %s' % (sys.version, sys.platform))
sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])
PyDev console: starting.
Python 3.9.4 (tags/v3.9.4:1f2e308, Apr  6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32
runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')
114
```

```
#4 Python program to display a group of messages when the condition is
true.

condition = int(input('PLease any number between 1 to 9: '))
num = 1
while  num <= condition:
    print("This loop will execute {0} times.".format(condition))
    num += 1
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

PLease any number between 1 to 9: >? 5

This loop will execute 5 times.

This loop will execute 5 times.

This loop will execute 5 times.

This loop will execute 5 times.

This loop will execute 5 times.

```
#5 Python Program to accept number from the keyboard and checks if the
number is odd or even.

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

if (num % 2 == 0):
    print("The number {0} is even.".format(num))
else:
    print("The number {0} is odd.".format(num))
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Enter any number: >? 13579

The number 13579 is odd.

```
#6 Python program to accept a number from the keyboard and check if the
number is positive or negative and display an appropriate message.

try:
    num = int(input("Enter any number: "))
    if (num < 0):
        print("The number '{0}' is Negative.".format(num))
    elif (num > 0):
        print("The number '{0}' is Positive.".format(num))

except:
    print("The entered number is not a valid number.")
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Enter any number: >? 78

The number '78' is Positive.

```
#7 Python program to test whether a given number is in between 10 to 100.

num = int(input("Please enter a positive number: "))

while(num < 0):
    print("Invalid input!!!")
    num = int(input("Please enter a positive number: \n"))

if num in range(10,101):
    print("The number {0} is in the range of 10 and 100.".format(num))
else:
    print("The number {0} is not in the range of 10 and 100.".format(num))
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Please enter a positive number: >? 154

The number 154 is not in the range of 10 and 100.

```
#8 Python program to find square root of number by newton's method.

number = float(input("Enter a number: "))
aroot = number
limit = 0.0001
while True:
    root = 0.5 * (aroot + (number / aroot))
    x = abs(root - aroot)
    if(x < limit):
        break
    aroot = root

print("Square Root of {0} is: {1:.2f}".format(int(number),root))
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Enter a number: >? 49

Square Root of 49 is: 7.00

```
#9 Python program to accept numeric digit between 0-9 and display it in
words.

list = [0,1,2,3,4,5,6,7,8,9]


number = int(input('Please enter a number between 0 - 9: '))
for i in list:
        if number == list[i]:
            if number == 1:
                print('One')
            elif number == 2:
                print('Two')
            elif number == 3:
                print('Three')
            elif number == 4:
                print('Four')
            elif number == 5:
                print('Five')
            elif number == 6:
                print('Six')
            elif number == 7:
                print('Seven')
            elif number == 8:
                print('Eight')
            elif number == 9:
                print('Nine')
            else:
                print('Zero')
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Please enter a number between 0 - 9: >? 8

Eight

```
#10 Python program to check whether a year is leap year or not.

yearr = int(input("Please enter a year: "))

if (yearr % 4) == 0:
 print("Year {0} is a leap year.".format(yearr))
else:
 print("Year {0} is not a leap year.".format(yearr))
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Please enter a year: >? 2020

Year 2020 is a leap year.

```python
#11 Python program to check whether a number is Fibonacci number or not.

import math
number = int(input("Please enter an integer: "))
number1 = (5 * number * number) + 4
number2 = (5 * number * number) - 4

fibonacci = ((pow(number1,2) == number) or (pow(number2,2) == number))
if (fibonacci == True):
 print("Number {0} is in Fibonacci Series.".format(number))
else:
 print("Number {0} is not in Fibonacci Series.".format(number))
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Please enter an integer: >? 1

Number 1 is in Fibonacci Series.

```python
#12 Python program to check whether a number is Armstrong number or not.

import math

number = int(input("Enter an integer: "))
number1 = number
count = 0
while (number1 != 0):
 count += 1
 number1 = number1 // 10
number2 = number
sum = 0
while (number2 != 0):
 r = number2 % 10
 sum = sum + math.pow(r, count)
 number2 = number2 // 10
if sum == number:
 print("Number {0} is an Armstrong number.".format(number))
else:
 print("Number {0} is not an Armstrong number.".format(number))
```

Output:

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\CODING\\PYTHON', 'D:/CODING/PYTHON'])

PyDev console: starting.

Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32

runfile('D:/CODING/PYTHON/venv/program12.py', wdir='D:/CODING/PYTHON/venv')

Enter an integer: >? 153

Number 153 is an Armstrong number.