**College of Technology and Engineering, MPUAT, Udaipur**

Name – Abhishek Pandey Class – B.Tech III yr

Subject – Data Analysis with Python (CS- 366) Semester – VI

# Program – 1

**Object** – Write a program to print ‘Hello’.

**Code** :

```
#print(‘Hello’)
str = ‘Hello’
print(str)
```

**Output**:-

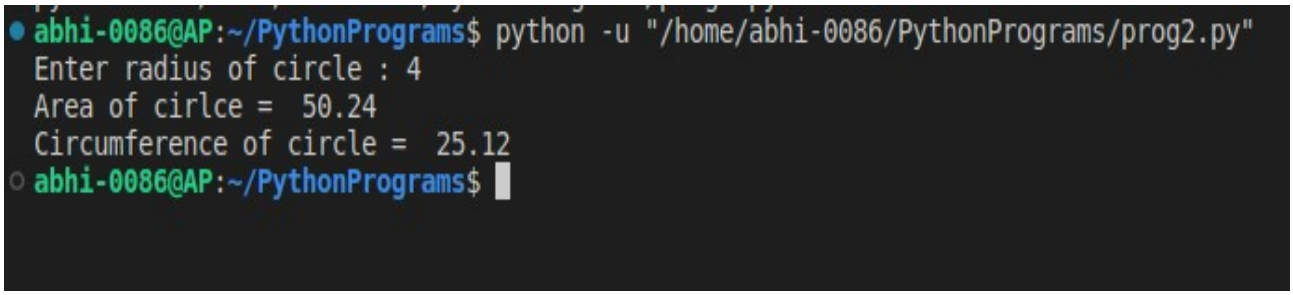
# Program – 2

**Object** – Write a prgram to calculate area and circumference of a circle.

**Code** :

```
pi = 3.14
radius = float(input("Enter radius of circle : "))
area = pi * radius * radius
circumference = 2 * pi * radius
print("Area of cirlce = ", area)
print("Circumference of circle = ", circumference)
```

**Output** :



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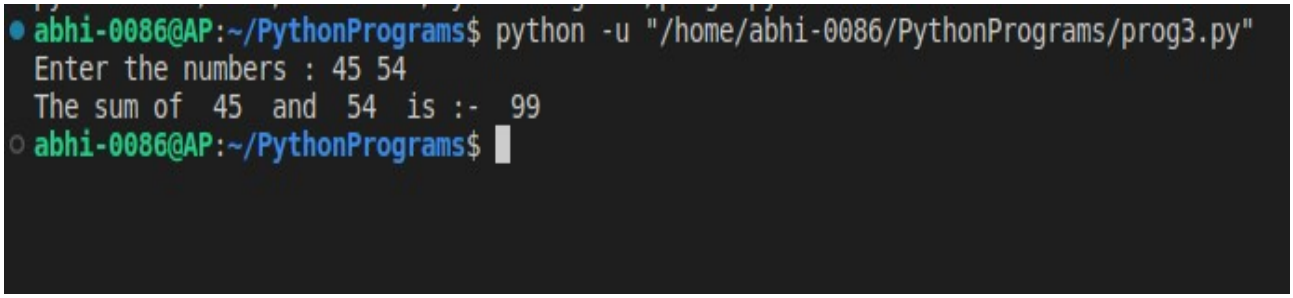
# Program – 3

**Object** – Write a program to find the addition of two numbers.

**Code** :

```
num1, num2 = map(int, input("Enter the numbers : ").split())
print("The sum of ", str(num1), " and ", str(num2), " is :- ", num1+num2)
```

**Output** :



# Program – 4

**Object** – Write a program to find Simple interest.

**Code** :

```
principal = float(input("Enter principal amount : "))
ROI = float (input("Enter rate of interest : "))
time = float(input("Enter time : "))
print("Simple interest : ",principal*ROI*time/100)
```

**Output** :

# Program – 5

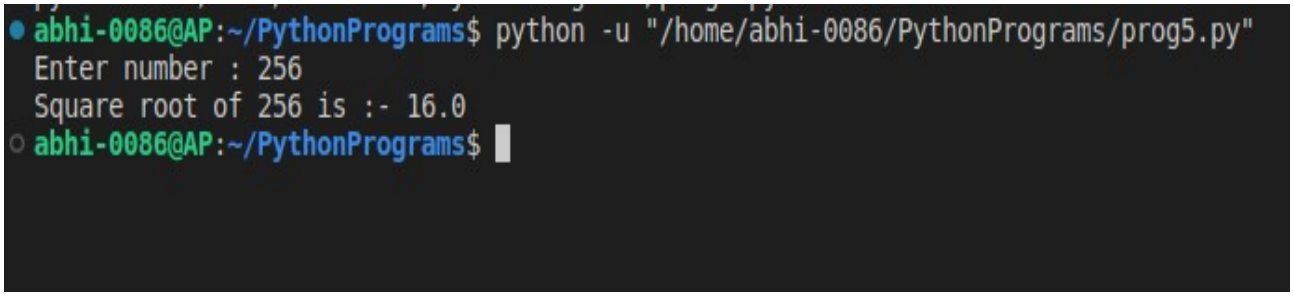
**Object** – Write a program to find sqaure root of a number.

**Code** :

```
num = int(input("Enter number : "))
print("Square root of",num,"is :-",num**0.5)

# import math as M
# print("Square root of",num,"is :-",M.sqrt(num))
```

**Output** :



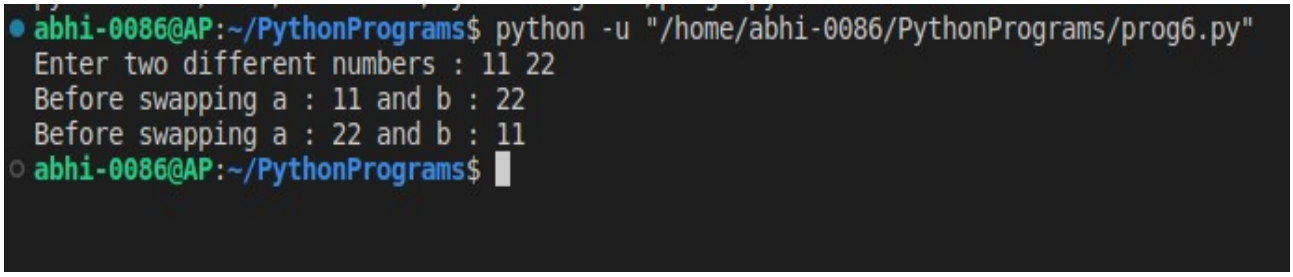
# Program – 6

**Object** – Write a program to swap two numbers.

**Code** :

```
a, b = map(int, input("Enter two different numbers : ").split())
print("Before swapping a :",a,"and b :",b)
a,b = b,a
print("Before swapping a :",a,"and b :",b)
```

**Output** :



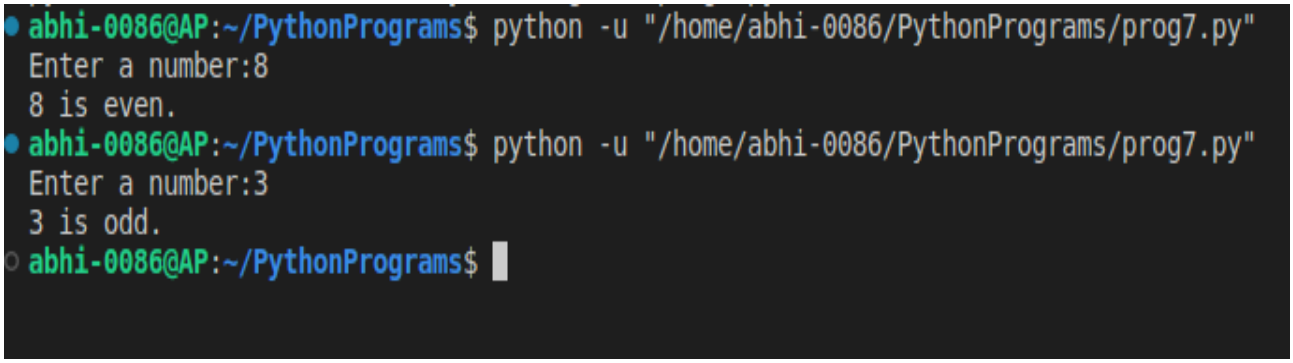
# Program – 7

**Object** – Write a program to check a number is even or odd.

**Code :**

```
num = int(input("Enter a number:"));
if(num%2 == 0):
    print(num,"is even.")
else:
    print(num,"is odd.")
```

**Output:**



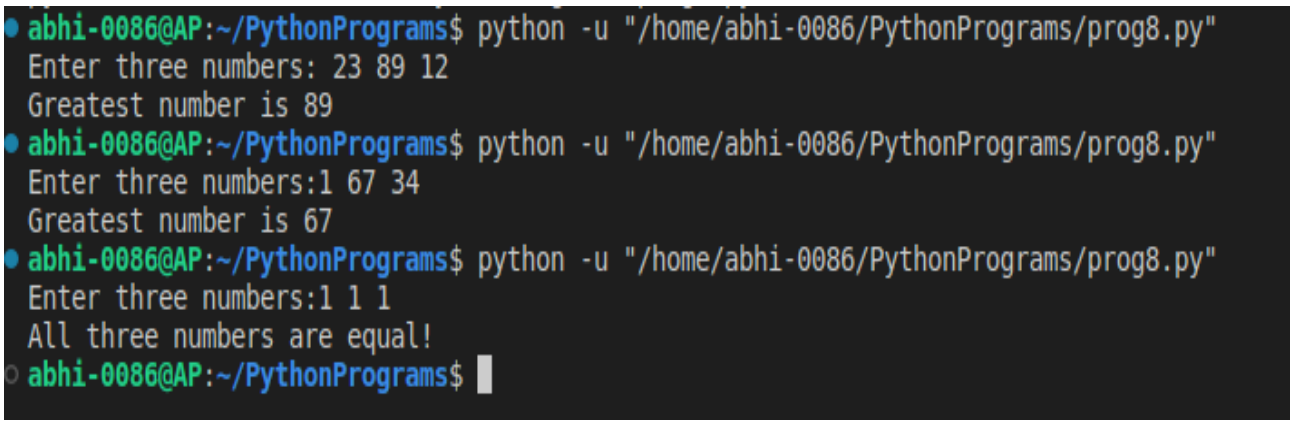
# Program – 8

**Object** – Write to program to find greatest of three numbers.

**Code** :

```
num1, num2, num3 = map(int, input("Enter three numbers:").split())
if(num1>num2 and num1>num3):
    print("Greatest number is",num1)
elif(num2>num1 and num2>num3):
    print("Greatest number is",num2)
elif(num3>num1 and num3>num2):
    print("Greatest number is",num3)
else:
    print("All three numbers are equal!")
```

**Output:**



# Program – 9

**Object** – Write a program to print multipluaction table of a number.

**Code** :

```
num = int(input("Enter a number : "))
print("Table of ", num)
for i in range(0, 11):
    print(num,'x',i,'=',num*i)
```

**Output**:

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog9.py"
Enter a number : 7
Table of  7
7 x 0 = 0
7 x 1 = 7
7 x 2 = 14
7 x 3 = 21
7 x 4 = 28
7 x 5 = 35
7 x 6 = 42
7 x 7 = 49
7 x 8 = 56
7 x 9 = 63
7 x 10 = 70
abhi-0086@AP:~/PythonPrograms$
```

# Program – 10

**Object** – Write a program to print sum of natural numbers.

**Code** :

```
num = int(input("Enter a number :"))
numSum = num*(num+1)/2
print("Sum =",numSum)
if(num<0):
    print("Enter a positive number!")
else:
    sum = 0
    while(num>0):
        sum += num
        num -= 1
    print("Sum is ",sum)
```

**Output** :

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog10.py"
Enter a number :15
Sum = 120.0
Sum is  120
abhi-0086@AP:~/PythonPrograms$
```

# Program – 11

**Object** – Write a program to print prime numbers between 900 to 1000.

**Code :**

```
low_limit = 900
high_limit = 1000
print("Prime numbers between",low_limit,"&",high_limit,":")
for i in range(low_limit, high_limit+1):
    for j in range(2,i):
        if(i%j == 0):
            break
    else:
        print(i)
```

**Output :**

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog11.py"
Prime numbers between 900 & 1000 :
907
911
919
929
937
941
947
953
967
971
977
983
991
997
abhi-0086@AP:~/PythonPrograms$
```

# Program – 12

**Object** – Write a program to print a reverse string.

**Code :**

```
# string = input("Enter a string :")
# for word in reversed(string):
#     print(word, end='')
# print()

str = input("Enter a string :")
reversed_str = ""
for i in range(len(str)-1, -1, -1):
    reversed_str += str[i]
print("Original string :",str)
print("Reversed string :",reversed_str)


# def reverse(s):
#     str = ""
#     for i in s:
#         str = i + str
#     return str
# str = input("Enter a string :")
# print("Original string :",str)
# print("Reversed string :",reverse(str))
```

**Output :**

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog12.py"
Enter a string :Aeroplane
enalporeA
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog12.py"
Enter a string :empty
Original string : empty
Reversed string : ytpme
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog12.py"
Enter a string :london
Original string : london
Reversed string : nodnol
abhi-0086@AP:~/PythonPrograms$
```

# Program – 13

**Object** – Write a program to print right angle '#' pattern.

**Code :**

```
num_row = int(input("Enter number of rows :"))
for i in range(0, num_row):
    for j in range(0, i+1):
        print("# ", end='')
    print()
```

**Output :**

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog13.py"
Enter number of rows :7
#
# #
# # #
# # # #
# # # # #
# # # # # #
# # # # # # #
abhi-0086@AP:~/PythonPrograms$
```

# Program – 14

**Object** – Write a program to display Fibonacci sequence upto nth term.

**Code :**

```
n1, n2 = 0, 1
num_terms = int(input("Enter number of terms required :"))
count = 1
if num_terms <= 0:
   print("Please enter a positive number!")
elif num_terms == 1:
   print("Fibonacci series upto",num_terms,"terms :")
   print(n1)
else:
   print("Fibonacci series upto",num_terms,"terms :")
   while count <= num_terms:
      if count == num_terms:
         print(n1)
      else:
         print(n1,end=', ')
      temp = n1 + n2
      n1 = n2
      n2 = temp
      count += 1
```

**Output :**

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog14.py"
Enter number of terms required :-1
Please enter a positive number!
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog14.py"
Enter number of terms required :1
Fibonacci series upto 1 terms :
0
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog14.py"
Enter number of terms required :7
Fibonacci series upto 7 terms :
0, 1, 1, 2, 3, 5, 8
abhi-0086@AP:~/PythonPrograms$
```

# Program – 15

**Object** – Write a program to convert decimal into other number system.

**Code :**

```
decimal_num = int(input("Enter a decimal number: "))
# Converting decimal to binary
binary_num = bin(decimal_num)
# Converting decimal to octal
octal_num = oct(decimal_num)
# Converting decimal to hexadecimal
hexadecimal_num = hex(decimal_num)

print("The decimal number", decimal_num, "in binary is:", binary_num)
print("The decimal number", decimal_num, "in octal is:", octal_num)
print("The decimal number", decimal_num, "in hexadecimal is:",
hexadecimal_num)
```

**Output :**

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog15.py"
Enter a decimal number: 10
The decimal number 10 in binary is: 0b1010
The decimal number 10 in octal is: 0o12
The decimal number 10 in hexadecimal is: 0xa
abhi-0086@AP:~/PythonPrograms$
```

# Program – 16

**Object** – Write a program to display calendar of given month and year.

**Code :**

```
import calendar
year = int(input("Enter year : "))
month = int(input("Enter the month : "))
print(calendar.month(year, month))
```

**Output :**

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog16.py"
Enter year : 2023
Enter the month : 2
   February 2023
Mo Tu We Th Fr Sa Su
       1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28

abhi-0086@AP:~/PythonPrograms$
```

# Program – 17

**Object** – Write a program to add two matrices using nested loop.

**Code :**

```
matrix1 = [[1,2,3],[4,5,6],[7,8,9]]
matrix2 = [[1,0,0],[0,1,0],[0,0,1]]

result = [[0,0,0],[0,0,0],[0,0,0]]

for i in range (len(matrix1)):
    for j in range (len(matrix1[0])):
        result[i][j] = matrix1[i][j] + matrix2[i][j]

for k in result:
    print(k)
```

**Output :**

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog17.py"
[2, 2, 3]
[4, 6, 6]
[7, 8, 10]
abhi-0086@AP:~/PythonPrograms$
```

# Program – 18

**Object** – Write a program to check armstring number in a certain interval.

**Code :**

```
#function to check if number is armstrong or not
def isArmstrong(num):
    order = len(str(num))
    sum = 0
    temp = num
    while(temp > 0):
        digit = temp % 10
        sum += digit ** order
        temp //= 10
    if(num == sum):
        return True
    else:
        return False

a = int(input("Enter the lower limit of the interval: "))
b = int(input("Enter the upper limit of the interval: "))
print("Armstrong number between",a,"and",b,"are : ")
for i in range(a, b+1):
    if(isArmstrong(i)):
        print(i)
```

**Output :**

```
abhi-0086@AP:~/PythonPrograms$ python -u "/home/abhi-0086/PythonPrograms/prog18.py"
Enter the lower limit of the interval: 100
Enter the upper limit of the interval: 2000
Armstrong number between 100 and 2000 are :
153
370
371
407
1634
abhi-0086@AP:~/PythonPrograms$
```

# Program – 19

**Object** – Write a program to find if number is positive or negative using if-else ladder.

**Code :**

```
num = float(input("Enter number to check : "))
if num > 0:
    print(num,"is positive number")
elif num == 0:
    print("You have entered zero")
else:
    print(num,"is negative number")
```

**Output :**

```
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog19.py"
Enter number to check : 1
1.0 is positive number
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog19.py"
Enter number to check : 0
You have entered zero
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog19.py"
Enter number to check : -2
-2.0 is negative number
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$
```

# Program – 20

**Object** – Wriet a program to check if number is positive or negative using nested if-else.

**Code :**

```
num = float(input("Enter number to check : "))
if num >= 0:
    if num == 0:
        print("You have entered zero")
    else:
        print(num,"is a positive number")
else:
    print(num,"is negative number")
```

**Output :**

```
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog20.py"
Enter number to check : 1
1.0 is a positive number
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog20.py"
Enter number to check : 0
You have entered zero
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog20.py"
Enter number to check : -2
-2.0 is negative number
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$
```

# Program – 21

**Object** – Write a program to find factors of a number.

**Code :**

```
def factors(n):
    for i in range(1,n+1):
        if n%i == 0:
            if i != n:
                print(i, end=", ")
            else:
                print(i)

num = int(input("Enter a number : "))
print("The factors of",num,"are : ")
factors(num)
```

**Output :**

```
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog21.py"
Enter a number : 120
The factors of 120 are :
1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$
```

# Program – 22

**Object** – Write a program to make a simple calculator.

**Code :**

```
#function to add two number
def add(x, y):
    return x+y

#function to subtract two number
def subtract(x, y):
    return x-y

#function to subtract two number
def multiply(x, y):
    return x*y

#function to subtract two number
def divide(x, y):
    return x/y

print("Select the operation to be performed : ")
print("1. Addition\n2. Subtraction\n3. Multiplication\n4. Division")

while True:
    #take user input, which operation to
    choice = input("Enter your choice :")

    if choice in ('1','2','3','4'):
        num1 = int(input("Enter first number : "))
        num2 = int(input("Enter second number : "))
    else:
        print("Invalid Input!")

    if choice == '1':
        print(num1,"+",num2,"=",add(num1,num2))

    if choice == '2':
        print(num1,"-",num2,"=",subtract(num1,num2))

    if choice == '3':
        print(num1,"*",num2,"=",multiply(num1,num2))

    if choice == '4':
```

```
    print(num1,"/",num2,"=",divide(num1,num2))

#check if user want to perfrom any further calculation
next_cal = input("Want to perform any further calculation (y/n) : ")
if next_cal == 'n':
    break
```

**Output :**

```
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog22.py"
Select the operation to be performed :
1. Addition
2. Subtraction
3. Multiplication
4. Division
Enter your choice :1
Enter first number : 25
Enter second number : 24
25 + 24 = 49
Want to perform any further calculation (y/n) : y
Enter your choice :3
Enter first number : 89
Enter second number : 56
89 * 56 = 4984
Want to perform any further calculation (y/n) : n
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$
```

# Program – 23

**Object** – Write a program to find LCM of two input numbers.

**Code :**

```
def compute_lcm(x,y):
    #find the greatest number of two
    if x > y:
        max = x
    else:
        max = y

    while 1:
        if (max%x == 0) and (max%y == 0):
            lcm = max
            break
        else:
            max += 1

    return lcm

num1, num2 = map(int, input("Enter two number : ").split())
print("LCM of",num1,"and",num2,"is",compute_lcm(num1,num2))
```

**Output :**

```
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog23.py"
Enter two number : 72 120
LCM of 72 and 120 is 360
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$
```

# Program – 24

**Object** – Write a program to display power f 2 using anonymous function.

**Code :**

```
num_terms = int(input("Enter number of terms : "))

#use anonymous function
result = list(map(lambda x:2**x,range(num_terms)))

print("Total number of terms are : ")
for i in range(num_terms):
    print("2 raised to power ",i,"is",result[i] )
```

**Output :**

```
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$ python -u "/mnt/A2A25781A257593D/Practical6th/PythonPrograms/prog24.py"
Enter number of terms : 12
Total number of terms are :
2 raised to power  0 is 1
2 raised to power  1 is 2
2 raised to power  2 is 4
2 raised to power  3 is 8
2 raised to power  4 is 16
2 raised to power  5 is 32
2 raised to power  6 is 64
2 raised to power  7 is 128
2 raised to power  8 is 256
2 raised to power  9 is 512
2 raised to power  10 is 1024
2 raised to power  11 is 2048
ap-73@AP:/mnt/A2A25781A257593D/Practical6th$
```