module1 programs

In [1]:
```python
#program to print 1st 10 numbers
for i in range(10):
    print(i)
```
```
0
1
2
3
4
5
6
7
8
9
```

In [3]:
```python
#program to add 2 numbers
def add(x,y):
    sum=x+y
    return sum
x=int(input("enter 1st number:"))
y=int(input("enter 2nd number:"))
res=add(x,y)
print("sum of",x,"and",y,'is:',res)
```
```
enter 1st number:4
enter 2nd number:2
sum of 4 and 2 is: 6
```

In [4]:
```python
#program to determine the age for vote
age=int(input("enter your age:"))
if age>=18:
    print("eligible for voting:")
else:
    print("not eligible for voting:")
    n=18-age
    print("the remaing years left to be eligible is:",n)
```
```
enter your age:20
eligible for voting:
```

In [5]:
```python
#Program to find the area of circle
print("Program to find the area of circle")
num = int(input("Enter radius: "))
result = num*num*3.14
print("Area of circle is: ",result)
```
```
Program to find the area of circle
Enter radius: 6
Area of circle is:  113.04
```

In [8]:
```python
#Program to find the area of triangle using herons formula
print("Program to find the area of triangle using herons formula")
import math
# Three sides of the triangle is a, b and c:
a = float(input('Enter first side: '))
b = float(input('Enter second side: '))
c = float(input('Enter third side: '))

# calculate the semi-perimeter
s = (a + b + c) / 2

# calculate the area
area = (math.sqrt(s*(s-a)*(s-b)*(s-c)))
print('The area of the triangle is:',area)
```
```
Program to find the area of triangle using herons formula
Enter first side: 6
Enter second side: 8
Enter third side: 9
The area of the triangle is: 23.525252389719434
```

In [9]:
```python
#program to find best average marks

print("enter 3 tests marks:")
num1=int(input("enter 1st test marks:"))
num2=int(input("enter 2nd test marks:"))
num3=int(input("enter 3rd test marks:"))

avg1=(num1+num2)/ 2
print("average of num1 and num2=:",avg1)
avg2=(num1+num3)/ 2
print("average of num1 and num3=:",avg2)
avg3=(num2+num3)/ 2
print("average of num2 and num3=:",avg3)

print("average marks is:",max(avg1,avg2,avg3))
```
```
enter 3 tests marks:
enter 1st test marks:2
enter 2nd test marks:4
enter 3rd test marks:5
average of num1 and num2=: 3.0
average of num1 and num3=: 3.5
average of num2 and num3=: 4.5
average marks is: 4.5
```

In [10]:
```python
#count down numbers
n=int(input("enter a num:"))
while n>=0: #number greater than and =0 is printed
    print(n)
    n=n-1
print("over")
```
```
enter a num:5
5
4
3
2
1
0
over
```

In [11]:
```python
#program to calculate the distance between 2 points
print("program to calculate the distance between 2 points")
import math
x1=float(input("Enter x1:"))
y1=float(input("Enter y1:"))
x2=float(input("Enter x2:"))
y2=float(input("Enter y2:"))
c1=(x2-x1)
c2=(y2-y1)
print("Distance is:",(math.sqrt((c1**2)+(c2**2))))
```
```
program to calculate the distance between 2 points
Enter x1:4
Enter y1:2
Enter x2:6
Enter y2:4
Distance is: 2.8284271247461903
```

In [13]:
```python
#if else
i=int(input("enter a number:"))
if i<=10:
    print("con true")
else:
    print("con false")
```
```
enter a number:4
con true
```

In [14]:
```python
#Program to find the largest of 3 numbers
print("Program to find the largest of 3 numbers")
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))
num3 = float(input("Enter third number: "))

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)
```
```
Program to find the largest of 3 numbers
Enter first number: 10
Enter second number: 9
Enter third number: 6
The largest number is 10.0
```

In [15]:
```python
#program to find wether the year is leap year or not
y=int(input("enter a year:"))
if(y%4==0 and y%100!=0 or y%400==0):
    print("the year is leap year:")
else:
    print("the year is not a leap year:")
```
```
enter a year:2020
the year is leap year:
```

In [16]:
```python
#program to see in which qudrant it lies
print("enter the 2 points:")
x=int(input("enter the 1st point:"))
y=int(input("enter the 2nd point:"))

if(x>0 and y>0):
    print("lies in 1st qudrant:")
elif(x<0 and y>0):
     print("lies in 2nd qudrant:")
elif(x<0 and y<0):
     print("lies in 3rd qudrant:")
elif(x>0 and y<0):
     print("lies in 4th qudrant:")
elif(x==0 and y==0):
     print("lies in origin:")
```
```
enter the 2 points:
enter the 1st point:2
enter the 2nd point:4
lies in 1st qudrant:
```

In [17]:
```python
def common_data(list1, list2):
     result = False
     for x in list1:
         for y in list2:
             if x == y:
                 result = True
                 return result
print(common_data([1,2,3,4,5], [5,6,7,8,9]))
print(common_data([1,2,3,4,5], [6,7,8,9]))
```
```
True
None
```

In [18]:
```python
#program to check wether the number is +ve, -ve or 0
n=int(input("enter the number:"))
if(n>0):
    print("n is positive:")
elif(n<0):
    print("n is negative:")
else:
    print("n is 0:")
```
```
enter the number:4
n is positive:
```

In [19]:
```python
#program to find a reverse of a number
n=int(input("enter a number:"))
rev=0
while(n>0):
    dig=n%10
    rev=rev*10+dig
    n=n//10
print("reverse of the number:",rev)
```
```
enter a number:456
reverse of the number: 654
```

In [20]:
```python
#program to claculate the roots of quadratic equations

#quadratic equation = ax^2+bx^2+c=0

#if discriminant > 0 then it is distinct
#root1=-b+square root of b^2-4ac/2a
#root2=-b-square root of b^2-4ac/2a

#if discriminant=0 equal and real roots
#root1=root2=-b/a

#if discriminant<0 complex roots
#root1=-b/2a+i(sqrt of -(b^2-4ac)/2a))
#root2=-b/2a-i(sqrt of -(b^2-4ac)/2a))

import math
a=int(input("enter a value of a quadratic equation:"))
b=int(input("enter a value of a quadratic equation:"))
c=int(input("enter a value of a quadratic equation:"))

discriminant=(b*b)-(4*a*c)

if(discriminant>0):
    root1=(-b+math.sqrt(discriminant)/(2*a))
    root2=(-b-math.sqrt(discriminant)/(2*a))
    print("two distinct real roots exists: root1=%.2f and root2=%.2f" %(root1,root2))
elif(discriminant==0):
    root1=root2=-b/(2*a)
    print("two equal and real roots exists: root1=%.2f and root2=%.2f" %(root1,root2))
elif(discriminant<0):
    root1=root2=-b/(2*a)
    imaginary = math.sqrt(-discriminant)/(2*a)
```
```
enter a value of a quadratic equation:4
enter a value of a quadratic equation:6
enter a value of a quadratic equation:2
two distinct real roots exists: root1=-5.75 and root2=-6.25
```

In [21]:
```python
#program to simulate a simple calculator

def add(x,y):
    return x+y

def subtract(x,y):
    return x-y

def mulitply(x,y):
    return x*y

def divide(x,y):
    return x/y

print("select operation")
print("1 add")
print("2 sub")
print("3 mul")
print("4 div")

while True:
    choice = input("Enter choice(1/2/3/4): ")

    # Check if choice is one of the four options
    if choice in ('1', '2', '3', '4'):
        num1 = int(input("Enter first number: "))
        num2 = int(input("Enter second number: "))

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

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

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

        elif choice == '4':
            print(num1, "/", num2, "=", divide(num1, num2))
        break
    else:
        print("Invalid Input")


#otherwise:
        # if choice == '1':
         #   num0=num1+num2
         #   print(num1, "+", num2, "=",num0)

        #elif choice == '2':
         #   num0=num1-num2
         #   print(num1, "-", num2, "=",num0)

        #elif choice == '3':
         #   num0=num1*num2
         #   print(num1, "*", num2, "=", num0)

       # elif choice == '4':
        #    num0=num1/num2
        #    print(num1, "/", num2, "=", num0)
```
```
select operation
1 add
2 sub
3 mul
4 div
Enter choice(1/2/3/4): 2
Enter first number: 4
Enter second number: 7
4 - 7 = -3
```

In [22]:
```python
#program to calculate sum and average of 1st 10 numbers
sum=0
for i in range(10):
    sum=sum+i
    avg=sum/10
print("sum",sum)
print("avg",avg)
```
```
sum 45
avg 4.5
```

In [24]:
```python
#program to calculate the digits of a number
num=int(input("enter a number"))
sum=0
while num!=0:
    digit=num%10  #extracts unit place digit of num
    num=num//10    #obtains other place digit except unit place of num
    sum=sum+digit
print("sum of the digits",sum)
```
```
enter a number234
sum of the digits 9
```

In [26]:
```python
#Program to add 2 integers

num1,num2=input("enter two num").split()
num1=int(num1)
num2=int(num2)
res=num1+num2
p=num1-num2
r=num1*num2
e=num1/num2
s=num1%num2
ress=num1//num2
print("sum of num1 and num2 =",res)
print("sum of num1 and num2 =",p)
print("sum of num1 and num2 =",r)
print("sum of num1 and num2 =",e)
print("sum of num1 and num2 =",s)
print("sum of num1 and num2 =",ress)
```
```
enter two num2 4
sum of num1 and num2 = 6
sum of num1 and num2 = -2
sum of num1 and num2 = 8
sum of num1 and num2 = 0.5
sum of num1 and num2 = 2
sum of num1 and num2 = 0
```

In [27]:
```python
#program to find the type of triangle
print("enter 3 sides of a triangle:")
x=int(input("enter the 1st side of the traiangle:"))
y=int(input("enter the 2nd side of the traiangle:"))
z=int(input("enter the 3rd side of the traiangle:"))

if x==y==z:
    print("it is an equilateral triangle:")
elif x==y or x==z or y==z:
    print("it is an isosceles triangle:")
else:
    print("it is a scalene triangle:")
```
```
enter 3 sides of a triangle:
enter the 1st side of the traiangle:4
enter the 2nd side of the traiangle:2
enter the 3rd side of the traiangle:6
it is a scalene triangle:
```

In [30]:
```python
#program to check wether the character entered is vowel or not
n=input("enter a character:")

if(n=="a" or n=="A"  or n=="e"  or n=="E" or n=="i"  or n=="I"
   or n=="o"  or n=="O" or n=="u"  or n=="U"):
    print("it is a vowel:")
else:
    print("it's a consonant:")
```
```
enter a character:e
it is a vowel:
```

In [1]:
```python
#program to print the digit at one's place of number
print("program to print the digit at one's place:")
x=int(input("enter a number"))
y=x%10
print("the digit at one's place =",y)
```
```
program to print the digit at one's place:
enter a number236
the digit at one's place = 6
```

In [2]:
```python
#program to convert fahernheit into celisus
fahernheit=float(input("enter the temperature:"))
celsius=(fahernheit-32)*5/9
print("temperature in celsius=",celsius)
```
```
enter the temperature:99
temperature in celsius= 37.22222222222222
```

In [3]:
```python
#program to compute the expression to 2^2n+1
n=int(input("enetr the number"))
e=2**(2*n)+1
print("result=",e)
```
```
enetr the number4
result= 257
```

In [5]:
```python
#Program to find whether a 3-digit number is armstrong number or not.
num = int(input("Enter a number: "))
org,sum=num,0
while num > 0:
    digit = num % 10
    sum += digit ** 3
    num //= 10
#end of while
if org == sum:
    print(org,"is an Armstrong number")
else:
    print(org,"is not an Armstrong number")
#end
```
```
Enter a number: 153
153 is an Armstrong number
```

In [8]:
```python
#program to read "n" numbers from the user and computes the sum of numbers that are divisble by 3
n=int(input("enter the range of numbers u want to enter:"))
sum=0
for i in range(1,n+1):
    x=int(input("enter a number:"))
    if x%3!=0:
        continue
    else:
        sum+=x
```
```
enter the range of numbers u want to enter:3
enter a number:6
enter a number:9
enter a number:1
sum= 15
```

In [10]:
```python
#Write a Program that keeps reading numbers from the user and terminates when it computes sum
#of 5 odd numbers
sum=0

count=0

while True:

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

    if x%2==0:

        continue

    else:

        sum+=x

        count+=1

        if count==5:

            break
```
```
Enter a number:5
Enter a number:2
Enter a number:3
Enter a number:4
Enter a number:5
Enter a number:6
Enter a number:2
Enter a number:2
Enter a number:3
Enter a number:3
Sum=  19
```

In [12]:
```python
# Write a Program to calculate the sum of 10 numbers read from the user. If the user enters a
#negative number, it's not added to the result
sum=0
for i in range(1,11):
    x=int(input("enter a number:"))
    if x<0:
        continue
    else:
        sum+=x
```
```
enter a number:2
enter a number:3
enter a number:4
enter a number:5
enter a number:6
enter a number:7
enter a number:8
enter a number:-1
enter a number:2
enter a number:3
sum: 40
```

In [14]:
```python
#Program to find factorial of a number
n=int(input("Enter a number\n"))
fact,i=1,1
while i<=n:
    fact=fact*i
    i=i+1
print("Factorial of",n,"=",fact)
```
```
Enter a number
4
Factorial of 4 = 24
```

In [16]:
```python
#Program to find sum of n natural numbers.
n=int(input("enter n value"))
sum=0
for i in range(n+1):
    sum=sum+i
print("sum is ",sum)
```
```
enter n value4
sum is  10
```

In [18]:
```python
# Python Program to calculate the square root
def sqr(num):
    square=num*num
    return square
num=int(input("enter the number:"))
res=sqr(num)
print("square of",num,"is",res)
```
```
enter the number:4
square of 4 is 16
```

In [19]:
```python
#Python Program to calculate area of rectangle
def arearect(length,breadth):
    area=length*breadth
    return area
l=int(input("enter the length:"))
b=int(input("enter the breadth:"))
res=arearect(l,b)
print("area of rectangle is",res)
```
```
enter the length:4
enter the breadth:6
area of rectangle is 24
```

In [20]:
```python
#Python Program to calculate area of circle
import math
def areacir(radius):
    area=math.pi*radius*radius
    return area
num=int(input("enter the radius:"))
res=areacir(num)
print("area of circle is",res)
```
```
enter the radius:4
area of circle is 50.26548245743669
```

In [22]:
```python
#Write a function that finds whether a number is odd or even
def odd_even(n):
    if n%2==0:
        print(n,"is even")
    else:
        print(n,"is odd")
#end of function
n=int(input("Enter a number\n"))
odd_even(n)
```
```
Enter a number
4
4 is even
```

In [23]:
```python
#Write a function named solve that returns reminder and quotient of two numbers on division
def solve(a,b):
    quotient=a//b
    remainder=a%b
    return (quotient,remainder)
#end of function
a=int(input("Enter the first number: "))
b=int(input("Enter the second number: "))
q,r=solve(a,b)
print("Quotient is:",q)
```
```
Enter the first number: 10
Enter the second number: 3
Quotient is: 3
Remainder is: 1
```

In [24]:
```python
#Program to create the multiplication table (from 1 to 10) of a number
n = int(input("Input a number: "))

# use for loop to iterate 10 times
for i in range(1,11):
   print(n,'x',i,'=',n*i)
```
```
Input a number: 5
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

In [25]:
```python
#Program to check eligibility for marriage based on gender.
gen=input("enter your gender")
age=int(input("enter your age"))
if gen=='M' :
    if age>21 :
        print("eligible for marriage")
    else :
        print("not eligible for marriage")
else :
    if age>18 :
        print("eligible for marriage")
    else :
        print("not eligible for marriage")
```
```
enter your genderfemale
enter your age16
not eligible for marriage
```

In [27]:
```python
##Program that accepts a marks from user and prints FCD,FC,...
marks=int(input("Enter marks\n"))
if marks>=80 :
    print("FCD")
elif marks >= 60:
    print("FC")
elif marks >= 35:
    print("SC")
else :
    print("Fail")
```
```
Enter marks
85
FCD
```

In [28]:
```python
#Program that accepts a marks from user and prints FCD,FC,...
x=int(input("Enter a number\n"))
if x==0:
    print("Zero")
elif x>0:
    print("Positive")
else:
    print("Negative")
```
```
Enter a number
-4
Negative
```

In [29]:
```python
# Program to add two numbers using functions
def sum(a,b):
    return a+b

x=int(input("Enter a number:"))
y=int(input("Enter another number:"))
s=sum(x,y)
print("Sum of two numbers:",s)
```
```
Enter a number:2
Enter another number:4
Sum of two numbers: 6
```

In [2]:
```python
m=int(input("Enter first number\n"))
n=int(input("Enter second number\n"))
while n!=0:
    m,n=n,m%n
#end of while
gcd=m
print("GCD is",gcd)
```
```
Enter first number
2
Enter second number
3
GCD is 1
```

In [ ]: