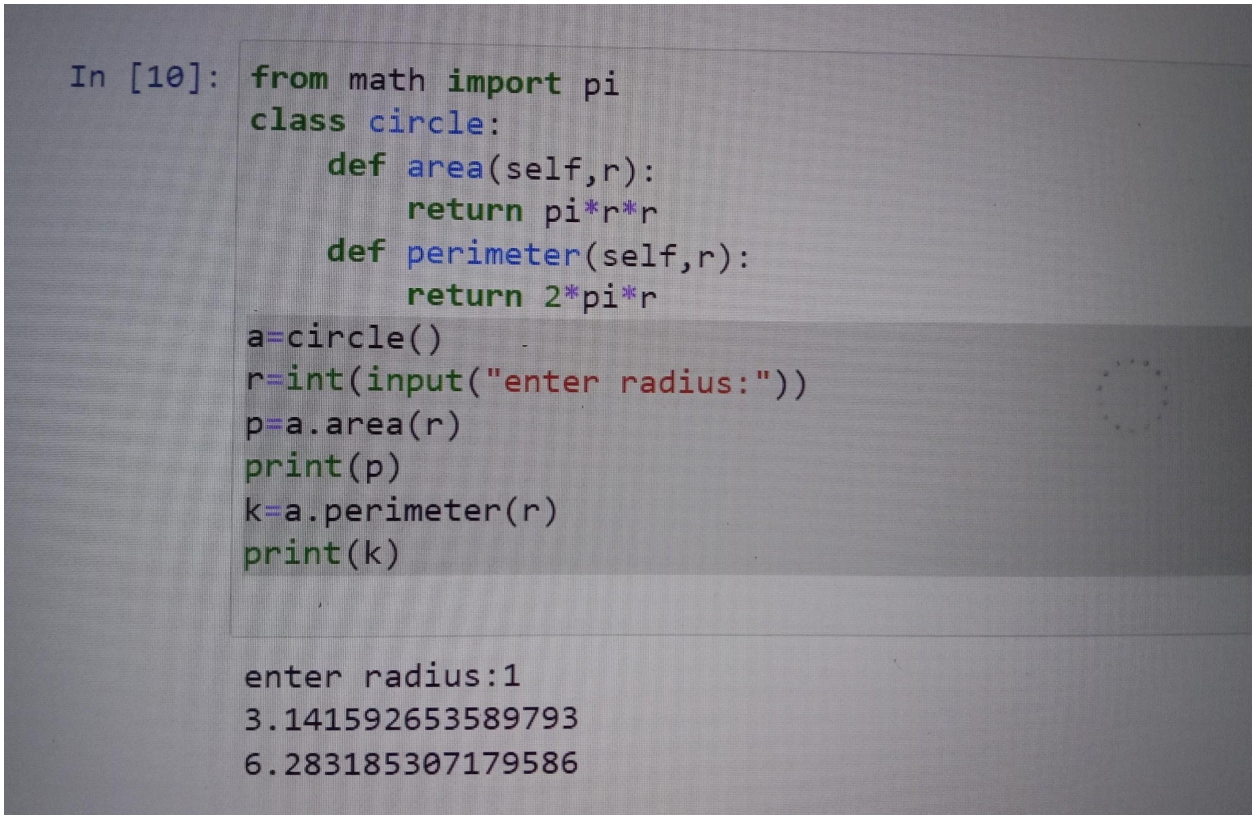
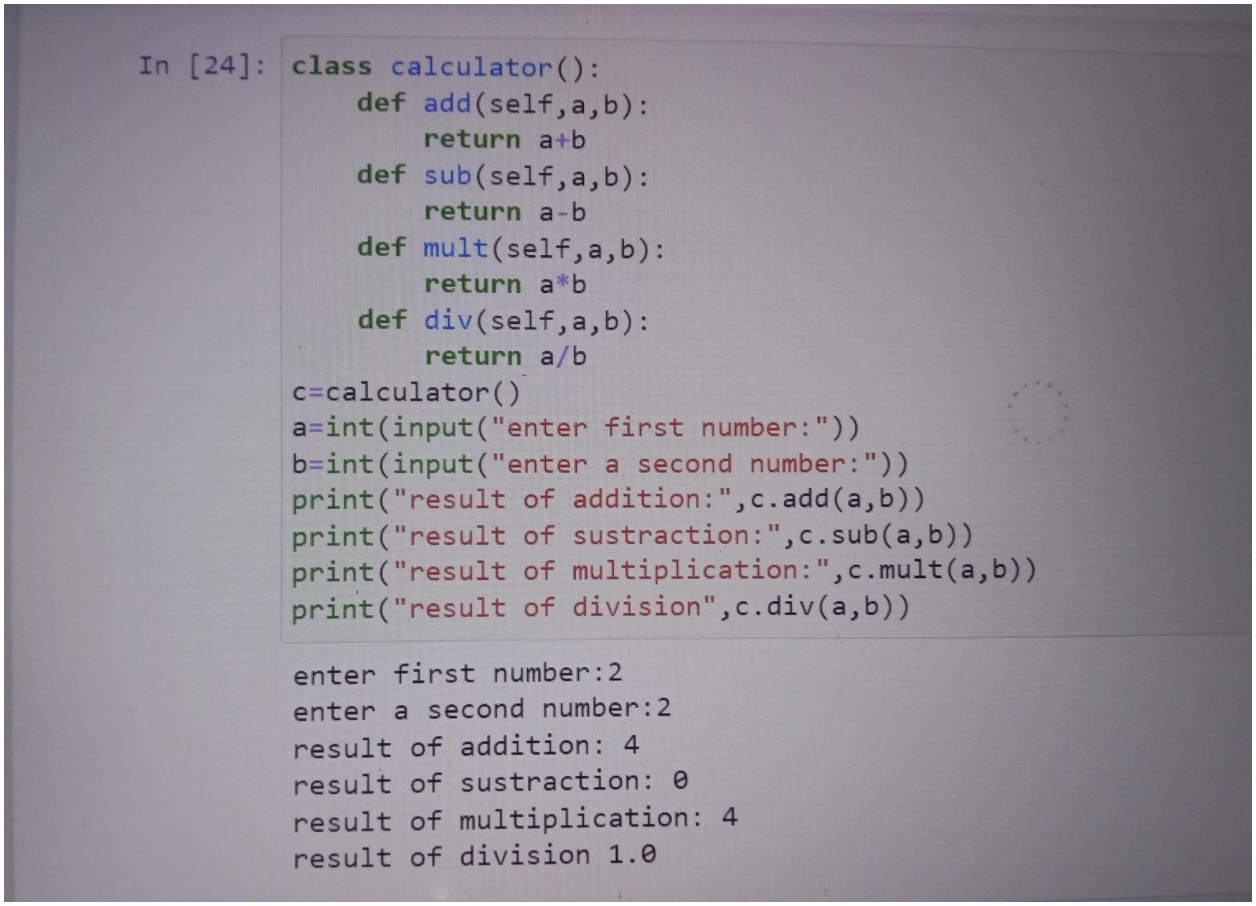
1. Write a Python program to create a class representing a Circle. Include methods to calculate its area and perimeter.



```
In [10]: from math import pi
         class circle:
             def area(self,r):
                 return pi*r*r
             def perimeter(self,r):
                 return 2*pi*r
         a=circle()
         r=int(input("enter radius:"))
         p=a.area(r)
         print(p)
         k=a.perimeter(r)
         print(k)

         enter radius:1
         3.141592653589793
         6.283185307179586
```

2. Write a Python program to create a calculator class. Include methods for basic arithmetic operations.



```
In [24]: class calculator():
             def add(self,a,b):
                 return a+b
             def sub(self,a,b):
                 return a-b
             def mult(self,a,b):
                 return a*b
             def div(self,a,b):
                 return a/b
         c=calculator()
         a=int(input("enter first number:"))
         b=int(input("enter a second number:"))
         print("result of addition:",c.add(a,b))
         print("result of sustraction:",c.sub(a,b))
         print("result of multiplication:",c.mult(a,b))
         print("result of division",c.div(a,b))

         enter first number:2
         enter a second number:2
         result of addition: 4
         result of sustraction: 0
         result of multiplication: 4
         result of division 1.0
```

3. Write a Python program to create a class that represents a shape. Include methods to calculate its area and perimeter. Implement subclasses for different shapes like circle, triangle, and square.

In [4]:

```
import math
class shape():
    def area(self):
        pass
    def perimeter(self):
        pass
class circle(shape):
    def area(self,r):
        return math.pi*r*r
    def perimeter(self,r):
        return 2*math.pi*r
class triangle(shape):
    def area(self,b,h):
        return 0.5*b*h
    def perimeter(self,a,b,c):
        return a+b+c
class square(shape):
    def area(self,x,y):
        return x*y
    def perimeter(self,x,y):
        return 2*x*y
c=circle()
r=int(input("enter radius:"))
print(c.area(r))
print(c.perimeter(r))
t=triangle()
```

```
print(c.perimeter(r))
t=triangle()
b=int(input("base of the triangle:"))
h=int(input("heiht from base:"))
a=int(input("1st side of triangle:"))
c=int(input("3rd side of the triangle"))
print(t.area(b,h))
print(t.perimeter(a,b,c))
s=square()
x=int(input("one side of the square:"))
y=int(input("other side of the square:"))
print(s.area(x,y))
print(s.perimeter(x,y))
```

```
enter radius:1
3.141592653589793
6.283185307179586
base of the triangle:2
heiht from base:2
1st side of triangle:4
3rd side of the triangle4
2.0
10
one side of the square:3
other side of the square:5
15
30
```