TASK 5

Exercise 1:

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

In [24]:
```
import math

class Circle:

    def __init__(self, radius):
        self.radius = radius

    def area(self):
        print("Area is",math.pi * (self.radius ** 2))

    def perimeter(self):
        print("Perimeter is",2 * math.pi * self.radius)
c = Circle(3)
c.area()
c.perimeter()
```

```
Area is 28.274333882308138
Perimeter is 18.84955592153876
```

Exercise 2:

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

In [28]:
```
class Calculator:

    def __init__(self, num1, num2):
        self.a = num1
        self.b = num2

    def addition(self):
        return self.a + self.b

    def subtraction(self):
        return self.a - self.b

    def multiplication(self):
        return self.a * self.b

    def division(self):
        return self.a / self.b

cal1 = Calculator(4,2)

print("Addition:", cal1.addition())
print("Subtraction:", cal1.subtraction())
print("Multiplication:", cal1.multiplication())
print("Division:", cal1.division())
```

```
Addition: 6
Subtraction: 2
Multiplication: 8
Division: 2.0
```

Exercise 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 [39]:
```
import math

class Shape:
    def __init__(self):
        pass

    def area(self):
        pass

    def perimeter(self):
        pass
```

```
class Circle(Shape):

    def __init__(self,radius):
        self.radius = radius

    def area(self):
        return math.pi * self.radius ** 2

    def perimeter(self):
        return 2 * math.pi * self.radius

class Triangle(Shape):
    def __init__(self, height, breadth, side1, side2, side3):
        self.height = height
        self.breadth = breadth
        self.side1 = side1
        self.side2 = side2
        self.side3 = side3

    def area(self):
        return 0.5 * self.breadth * self.height

    def perimeter(self):
        return self.side1 + self.side2 + self.side3
```

```
class Square(Shape):

    def __init__(self, side):
        self.side = side

    def area(self):
        return self.side ** 2

    def perimeter(self):
        return 4 * self.side

cir = Circle(2,)
tri = Triangle(2,2,2,2,2)
squ = Square(2)

print("area of circle is", cir.area())
print("perimeter of circle is", cir.perimeter())
print("area of triangle is", tri.area())
print("perimeter is triangle is", tri.perimeter())
print("area of square is", squ.area())
print("perimeter of square is", squ.perimeter())
```

```
area of circle is 12.566370614359172
perimeter of circle is 12.566370614359172
area of triangle is 2.0
perimeter is triangle is 6
area of square is 4
perimeter of square is 8
```