Assignment 3

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1 Assignment 3

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1.0.2 Date : 15.02.2025

1. Write a lambda expression to get the product of two numbers.

   Run test for expression(5,6)
   Output: 30

[2]:
```
product = lambda x, y: x*y
product(5, 6)
```

[2]: 30

2. Write a function to get the area of a circle from the radius. Hint: remember to import the right modul for being able to calculte the area of the circle.

   Run test for function(10) Output: 314.1592653589793

[3]:
```
import math

def circle_area(radius):
    return math.pi * radius ** 2

print(circle_area(10))
```

```
314.1592653589793
```

3. Build a simple calculator which can: add, subtract, multiply, divide.

   Hint: solve by writing a function that takes as argument two numbers and the operation and returns the desired output.

   Run test for function(2,5,'d')
   Output: 0.4

[6]:
```
def calculator(num1, num2, operation):
    if operation == 'a': # addition
        return num1 + num2
```

```
    elif operation == 's': # subtraction
        return num1 - num2
    elif operation == 'm': # multiplication
        return num1 * num2
    elif operation == 'd': #division
        if num2 != 0:
            return num1 / num2
        else:
            return "Cannot divide by zero"
    else:
        return "Invalid operation"

# Running the test
result = calculator(2,5, 'd')
result
```

[6]: 0.4

4. Define a class named Rectangle which can be constructed by a length and width. The Rectangle class has a method which can compute the area.

   ```
   Run test for r = Rectangle(5,10)
                r.area()
   Output: 50
   ```

[7]:
```
class Rectangle:
    def __init__(self, length, width):
      self.length = length
      self.width = width

    def area(self):
        return self.length * self.width

r= Rectangle(5, 10)
area = r.area()
area
```

[7]: 50

5. Define a class named Shape and its subclass Square.

   Shape objects can be consrtucted by name and length has an area function wich return 0

   Square subclass has an init function which take a length and name as argument and has an area method and a describe method what prints the name of the Shape.

   Print the area from Square class.

   ```
   Run test for: s = Square('square',5)
   ```

```
print(s.area())
print(s.describe())
```

```
Output: The area is:
        25
   This is a: square
```

[15]:
```
# Defining the Shape class and subclass Square
class Shape:
    def __init__(self, name, length):
        self.name = name
        self.length = length
    def are(self):
        return 0

class Square(Shape):
    def __init__(self, name, length):
        super().__init__(name, length)

    def area(self):
        print("The area is:")
        return self.length ** 2
    def describe(self):
        return f"This is a: {self.name}"
s = Square('square', 5)
print(s.area())
print(s.describe())
```

```
The area is:
25
This is a: square
```

[ ]: