Untitled4

September 17, 2024

1 Assignment 3

1.1 September 17, 2024

1.1.1 Mae Florence Quinto Loayon

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

Run test for expression (5,6)

Output: 30

[179]:
```
# Define the lambda expression
product = lambda x, y: x * y

# Test the lambda expression with the numbers 5 and 6
result = product(5, 6)
result
```

[179]:
```
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

[181]:
```
import math
def area_of_circle(radius):
    return math.pi * radius ** 2

# Test the Mae with a radius of 10
test_radius = 10
area = area_of_circle(test_radius)
area
```

[181]:
```
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

[183]:
```
def simple_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 "Error: Division by zero"
    else:
        return "Error: Invalid operation"

# Test the Mae with the input (2, 5, 'd')
test_num1 = 2
test_num2 = 5
test_operation = 'd'
result = simple_calculator(test_num1, test_num2, test_operation)
result
```

[183]: 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

[185]:
```
class Rectangle:
    def __init__(self, length, width):
        self.length = length
        self.width = width

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

# Test the Rectangle class
r = Rectangle(5, 10)
```

```
r.area()
```

[185]: 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

[187]:
```
class Shape:
    def __init__(self, name):
        self.name = name

    def area(self):
        return 0

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

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

    def describe(self):
        return f"This is a: {self.name}"

# Test the Square class
s = Square('square', 5)
print("The area is:")
print(s.area())
print(s.describe())
```

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

[ ]: