

Assignment 3

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

Run test for expression(5,6)

Output:30

```
In [2]: product = lambda num1,num2:num1*num2
sum      = product (5,6)
print(sum)
```

30

2. Write a function to get the area of a circle from the radius.

Hint: remember to import the right module for being able to calculate the area of the circle.

Run test for function(10)

Output:314.1592653589793

```
In [13]: import math

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

# Test the function
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

```
In [8]: def calculator(num1,num2,operation):
# This function add two numbers
if operation == 'a':
    return num1+num2
# This function subtracts two numbers
if operation == 's':
    return num1-num2
# This function multiply two numbers
if operation == 'm':
    return num1*num2
# This function divide two numbers
if operation == 'd':
    if num2 == 0:
        return "Error: Cannot divide"
    else:
        return num1/num2
#Use " 'a' for addition, 's' for subtract, 'm' for multiply or 'd' for division"
# Test the calculator function
Output = calculator(2,5,'d')
print (Output)
```

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

```
In [14]: class Rectangle:
def __init__(self, length, width):
    self.length = length
    self.width = width

def area(self):
```

```
        return self.length * self.width

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

50

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

Shape objects can be constructed by name and length has an area function which returns 0

Square subclass has an `in` function which takes a length and name as argument and has an area method and a describe method which 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

```
In [12]: 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 * self.length

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

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

The area is: 25

This is a: square

In []:

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