Assignment 3

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1 Assignment 3

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Question 01

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

Run test for expression(5,6)

Output:30

[68]:
```
product = lambda x,y: x * y
print(product(5,6)) # test for expression
```

```
30
```

Question 02

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

[71]:
```
import math # importing right module

# calculate the area of the circle
def circle_area(radius):
    return math.pi * radius ** 2

print(circle_area(10))
```

```
314.1592653589793
```

Question 03

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

[74]:
```
def calculator(num_1, num_2, operation):
    if operation == 'a': # Addition
        return num_1 + num_2
    elif operation == 's': # Subtraction
        return num_1 - num_2
    elif operation == 'm': # Multiplication
        return num_1 * num_2
    elif operation == 'd': # Division
        if num_2 != 0:
            return num_1 / num_2
        else:
            return "Error: Division by zero"
    else:
        return "Error: Invalid operation"

print(calculator(2, 5, 'd'))
```

```
0.4
```

Question 04

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

[77]:
```
class Rectangle:

# Construct connection between length and width
    def __init__(self, length, width):
        self.length = length
        self.width = width

# Construct relationship for area
```

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

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

```
50
```

Question 05

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

[10]:
```
# Define class and subclass
class Shape:
    def __init__(self, name, length):
        self.name = name
        self.length = length

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

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

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

s = Square("Square", 5)

print(f"The area is: {s.area()}") # Printing area value
```

```
print(s.describe()) # Printing the shape
```

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