

Assignment3 (1)

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Assignment 3

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Exercise 01

Write a lambda expression to get the product of two numbers. Run test for expression(5,6) Output: 30

```
[13]: # get the product of two numbers from lambda

numbers = lambda a, b: a*b
# check the lambda function
answer = numbers(5 , 6 )
print("Output", answer )
```

Output 30

Exercise 02

*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.*

```
[15]: # importing the math module
import math
# function to get the area of a circle from the radius.
def area_of_circle(radius):
    return math.pi * (radius ** 2)
# check the funtion
answer = area_of_circle(10)
print("output", answer)
```

output 314.1592653589793

Exercise 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')*

```
[34]: # Simple calculator function
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 "Division by zero is not allowed."
    else:
        return "Invalid operation. Use 'a' for add, 's' for subtract, 'm' for multiply, 'd' for divide."

# Test the function with (2, 5, 'd')
result = calculator(2, 5, 'd')
print("Output:", result)
```

Output: 0.4

Exercise 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.

```
[36]: # Rectangle class
class Rectangle:
    # Constructor that length and width
    def __init__(self, length, width):
        self.length = length
        self.width = width

    # the area of the rectangle
    def area(self):
        return self.length * self.width

# compute the area
r = Rectangle(5, 10)
result = r.area()
print("Output:", result)
```

Output: 50

Exercise 05

Define a class named *Shape* and its subclass *Square*. *Shape* objects can be constructed by name and length has an area function which 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

```
[44]: # Define a class named Shape
class Shape:
    def __init__(self, name, length):
        self.name = name
        self.length = length

    # Area method for shape
    def area(self):
        return 0

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

    # Area method for square
    def area(self):
        return self.length ** 2

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

# Test the Square class
s = Square('square', 5)
print("The area is:")
print("\t",s.area())
print(s.describe())
```

The area is:

25

This is a: square