assignment-3

September 18, 2024

1 Assignment 3

1.1 2024/09/18

1.1.1 *Minaya Chanmini Gunawardhana*

1.2 Qustion 1

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

1.2.2 Run test for expression(5,6)

1.2.3 Output: 30

[228]:
```
x= lambda num1,num2: num1*num2 # num1 num2 multiply
result= x(5,6)
print(result)
```

```
30
```

1.3 Question 2

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

1.3.2 Hint: remember to import the right modul for being able to calculte the area of the circle.

1.3.3 Run test for function(10)

1.3.4 Output: 314.1592653589793

[231]:
```
import math # Import a math module

def area_of_circle(radius):
    return math.pi * radius ** 2 # Pie*r^2 formula

result = area_of_circle(10)
print(result)
```

```
314.1592653589793
```

1.4 Question 3

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

1.4.2 Hint: solve by writing a function that takes as argument two numbers and the operation and

1.4.3 returns the desired output.

1.4.4 Run test for function(2,5,'d')

1.4.5 Output: 0.4

[234]:
```
def calculator(num1,num2, operation):

    if operation == 'a': # Addition of num1,num2
        return num1 + num2
    elif operation == 's' : # Substraction of num1,num2
        return num1 - num2
    elif operation == 'm': # Multiply of num1,num2
        return num1 * num2
    elif operation == 'd': # Devision of num1,num2
        if num2 != 0:
            return num1 / num2
        else:

            return "Error: cant'devide by zero"
    else:
        return " Error: Invalid operation"

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

```
0.4
```

1.5 Question 4

1.5.1 4. Define a class named Rectangle which can be constructed by a length and width.

1.5.2 The Rectangle class has a method which can compute the area.

1.5.3 Run test for r = Rectangle(5,10)

1.5.4 r.area()

1.5.5 Output: 50

[237]:
```
class Rectangle: # Creating object

    def __init__(self,width,length): # Properties of rectangle
        self.width = width
```

```
        self.length = length

    def area(self):
        return self.width * self.length # * fpr multiplying

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

```
50
```

1.6 Question 5

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

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

1.6.3 Square subclass has an init function which take a length and name as argument and has an

1.6.4 area method and a describe method what prints the name of the Shape.

1.6.5 Print the area from Square class.

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

1.6.7 print(s.area())

1.6.8 print(s.describe())

1.6.9 Output: The area is:

1.6.10 25

1.6.11 This is a: square

[240]:
```
class Shape: # Creating object
    def __init__(self, name):
        self.name = name

    def area(self):
        return 0 # Shape doesn't have an area

class Square(Shape):
    def __init__(self, name, length): # Initialising the object's attributes␣
 ↪with value
        super().__init__(name)
        self.length = length

    def area(self):
        return self.length ** 2 # Square of length
```

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


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

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

[ ]: