OOP – Lab #4

Aim: Getting Familiar with **Functions** in Python

Topics:

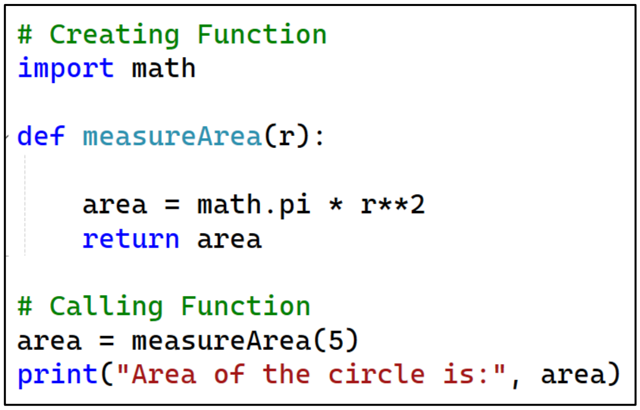
1. **User-Defined Functions**
2. Creating and Calling **Functions**
3. **Functions** with Multiple **Return** Values

Lab Questions –

Q1 – Write Python code for the following:

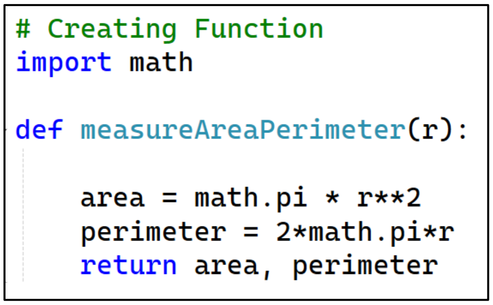
A. Create a function that takes in the radius of a circle and calculates and returns the area of the circle.

B. Call the function by passing **radius = 5** to the function and print the result.



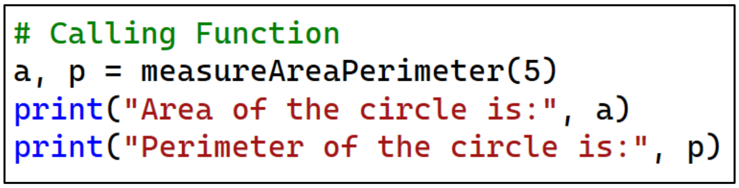
```
# Creating Function
import math

def measureArea(r):

    area = math.pi * r**2
    return area

# Calling Function
area = measureArea(5)
print("Area of the circle is:", area)
```

Q2 – Change the previous code to a function that **returns two values**: the area of the circle and the perimeter of the circle.

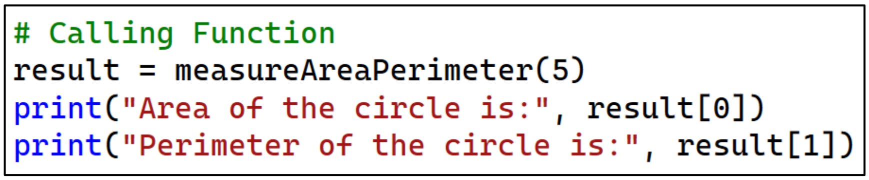


```
# Creating Function
import math

def measureAreaPerimeter(r):

    area = math.pi * r**2
    perimeter = 2*math.pi*r
    return area, perimeter
```

Note – You can call the function and store its return values in any of the following ways.



```
# Calling Function
a, p = measureAreaPerimeter(5)
print("Area of the circle is:", a)
print("Perimeter of the circle is:", p)
```



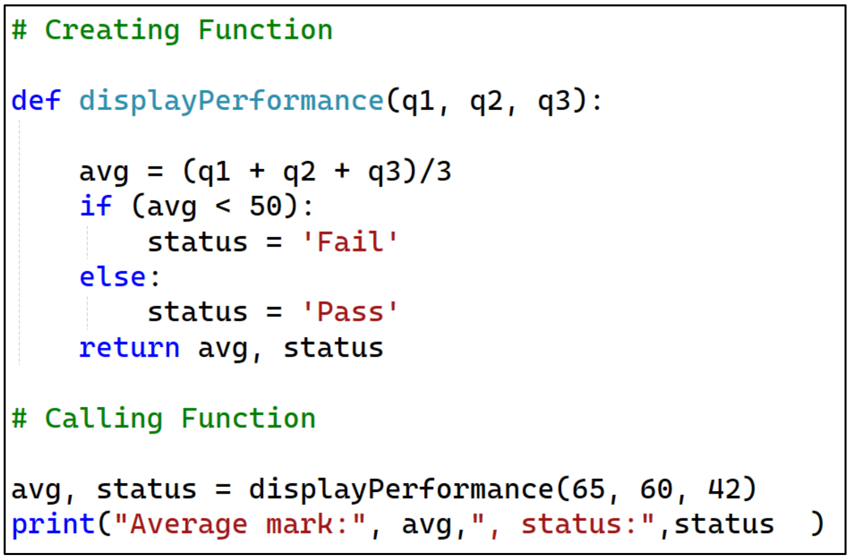
```
# Calling Function
result = measureAreaPerimeter(5)
print("Area of the circle is:", result[0])
print("Perimeter of the circle is:", result[1])
```

Q3 – Write Python code for the following:

A. Create a function that takes in three quiz marks of a student. Then calculates the average of marks, and returns two values: the **average mark**, and **"Fail"** if the average is less than 50 or **"Pass"** if the average is greater than or equal to 50.

B. Call the function by passing the following quiz marks to the function.

65 60 42

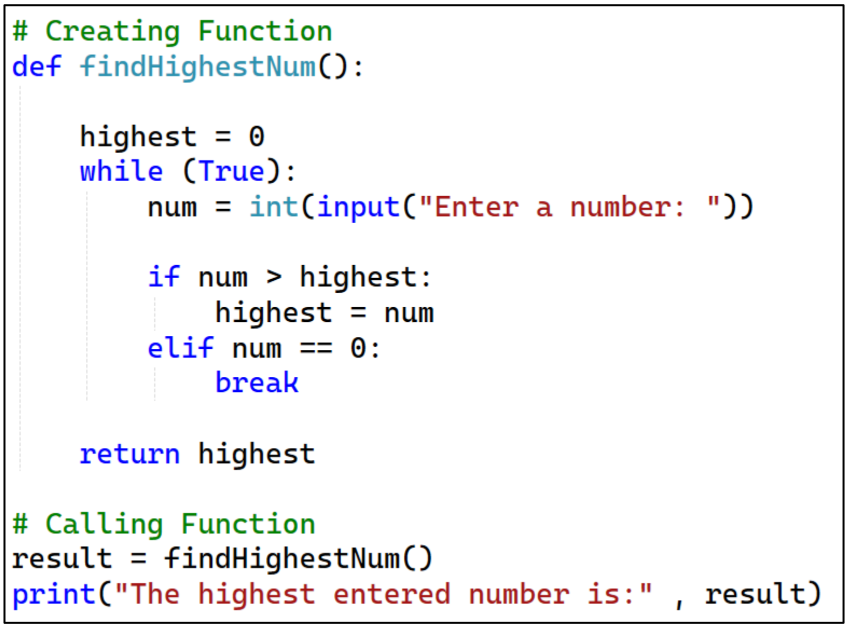


```
# Creating Function

def displayPerformance(q1, q2, q3):

    avg = (q1 + q2 + q3)/3
    if (avg < 50):
        status = 'Fail'
    else:
        status = 'Pass'
    return avg, status

# Calling Function

avg, status = displayPerformance(65, 60, 42)
print("Average mark:", avg,", status:",status  )
```

Students' Task (Using Function and while Loop)

Create a function that **returns the highest number entered by the user**.

- The user is allowed to enter numbers (positive or negative) one at a time.
- The user **enters 0 to stop** entering more numbers.



```python
# Creating Function
def findHighestNum():

    highest = 0
    while (True):
        num = int(input("Enter a number: "))

        if num > highest:
            highest = num
        elif num == 0:
            break

    return highest

# Calling Function
result = findHighestNum()
print("The highest entered number is:" , result)
```