**-Lab Week 5-**

**Problem 1: Circle Calculator**

Write a Python program that calculates the area and circumference of a circle. The program should do the following:

* Define a function calculate\_area(radius) that calculates and returns the area of a circle given its radius.
* Define a function calculate\_circumference(radius) that calculates and returns the circumference of a circle given its radius.
* In the main() function:
  + Prompt the user to enter the radius of the circle.
  + Call both the calculate\_area() and calculate\_circumference() functions.
  + Display the calculated area and circumference.

**Example:**

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Description automatically generated**

Paste your code below:

from math import pi

def calculate\_area(radius):

return radius \*\* 2 \* pi

def calculate\_circumference(radius):

return radius \* 2 \* pi

def main():

r = float(input("Enter the radius of the circle: "))

print()

print(f"The area of the circle is: {calculate\_area(r):.2f}")

print(f"The circumference of the circle is: {calculate\_circumference(r):.2f}")

if \_\_name\_\_ == '\_\_main\_\_':

main()

Paste the screenshot of your output below:

Enter the radius of the circle: 7

The area of the circle is: 153.94

The circumference of the circle is: 43.98

**sProblem 2: Calculate square**

Write a Python program with two functions:

1. **square\_number(num):**
   * Takes one integer as input.
   * Returns the square of that integer.
2. **main():**
   * Prompts the user to enter a number.
   * Calls the square\_number(num) function.
   * Displays the result to the user.

Make sure to call the main() function to run the program.

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Description automatically generated**

Paste your code below:

def square\_number(num: int) -> int:

return num \*\* 2

def main():

n = int(input("Enter a number to square: "))

print(f"The square of {n} is {square\_number(n)}")

if \_\_name\_\_ == '\_\_main\_\_':

main()

Paste the screenshot of your output below:

Enter a number to square: 5

The square of 5 is 25

**Problem 3: Rectangle Area and Perimeter Calculator**

Write a Python program that contains two functions: one to calculate the area and one to calculate the perimeter of a rectangle. The program should do the following:

* Define a function calculate\_area(length, width) that takes the length and width of a rectangle as input and returns the area.
* Define a function calculate\_perimeter(length, width) that takes the length and width as input and returns the perimeter.
* Define a main() function that:
  + Prompts the user to enter the length and width of a rectangle.
  + Calls both calculate\_area() and calculate\_perimeter() to calculate and display the area and perimeter.

Finally, call the main() function to run the program.

**Example:**

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Description automatically generated

Paste your code below:

def calculate\_area(length, width):

return length \* width

def calculate\_perimeter(length, width):

return (length + width) \* 2

def main():

l = float(input("Enter the length of the rectangle: "))

w = float(input("Enter the width of the rectangle: "))

print()

print(f"The area of the rectangle is: {calculate\_area(l, w)}")

print(f"The perimeter of the rectangle is: {calculate\_perimeter(l, w)}")

if \_\_name\_\_ == '\_\_main\_\_':

main()

Paste the screenshot of your output below:

Enter the length of the rectangle: 10

Enter the width of the rectangle: 5

The area of the rectangle is: 50.0

The perimeter of the rectangle is: 30.0