➢ Object Oriented Programming

➢ Lab 3

Task – 1:

Create a Python class called Rectangle with the following attributes:

1. **width (float):** representing the width of the rectangle.
2. **height (float):** representing the height of the rectangle.

Implement the following methods for the Rectangle class:

1. **__init__(self, width, height):** Constructor method to initialize the attributes of the rectangle object.
2. **__str__(self):** Method to return a string representation of the rectangle object in the format "Rectangle: [width] x [height]".
3. **area(self):** Method to calculate and return the area of the rectangle (width * height).
4. **perimeter(self):** Method to calculate and return the perimeter of the rectangle (2 * (width + height)).

Create an instance of the Rectangle class, initialize its attributes with user input for width and height, and perform the following operations:

1. Display the rectangle details using the __str__ method.
2. Calculate and display the area of the rectangle using the area method.
3. Calculate and display the perimeter of the rectangle using the perimeter method.

```python
class Rectangle:
    """
    Represents a rectangle with width and height attributes.
    """

    def __init__(self, width, height):
        """
        Initializes a Rectangle object.

        Args:
            width: The width of the rectangle.
            height: The height of the rectangle.
        """
        self.width = width
        self.height = height

    def __str__(self):
        """
        Returns a string representation of the rectangle.

        Returns:
            A string in the format "Rectangle: [width] x [height]".
        """
        return f"Rectangle: {self.width} x {self.height}"

    def area(self):
        """
        Calculates the area of the rectangle.

        Returns:
            The area of the rectangle (width * height).
        """
        return self.width * self.height

    def perimeter(self):
        """
        Calculates the perimeter of the rectangle.

        Returns:
            The perimeter of the rectangle (2 * (width + height)).
        """
        return 2 * (self.width + self.height)

width = float(input("Enter the width of the rectangle: "))
height = float(input("Enter the height of the rectangle: "))
my_rectangle = Rectangle(width, height)
print(my_rectangle)
area = my_rectangle.area()
print(f"Area: {area}")
perimeter = my_rectangle.perimeter()
print(f"Perimeter: {perimeter}")
```

```
Enter the width of the rectangle: 77
Enter the height of the rectangle: 44
Rectangle: 77.0 x 44.0
Area: 3388.0
Perimeter: 242.0
```