**Experiment No : 8**

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**Code: Write a Python class named Polygon with two methods: sides and display\_sides. Inherit a class Triangle from Polygon and calculate the area of a triangle.**

import math

class Polygon:

    def \_\_init\_\_(self, num\_sides):

        """Initializes a polygon with a given number of sides."""

        self.num\_sides = num\_sides

        self.sides = [0] \* num\_sides  # Initialize list to store side lengths

    def input\_sides(self):

        """Takes input for all sides of the polygon."""

        self.sides = [float(input(f"Enter length of side {i+1}: ")) for i in range(self.num\_sides)]

    def display\_sides(self):

        """Displays the sides of the polygon."""

        print("Sides of the polygon:", self.sides)

class Triangle(Polygon):

    def \_\_init\_\_(self):

        """Initializes a triangle (inherits from Polygon with 3 sides)."""

        super().\_\_init\_\_(3)  # A triangle has 3 sides

    def compute\_area(self):

        """Computes the area of the triangle using Heron's formula."""

        a, b, c = self.sides  # Extract side lengths

        s = (a + b + c) / 2  # Semi-perimeter

        area = math.sqrt(s \* (s - a) \* (s - b) \* (s - c))  # Heron's formula

        return area

# Create a Triangle object

triangle = Triangle()

# Input and display the sides

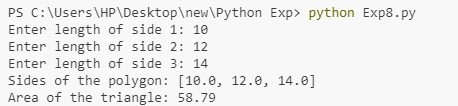
triangle.input\_sides()

triangle.display\_sides()

# Compute and display the area

print(f"Area of the triangle: {triangle.compute\_area():.2f}")

**Output:**

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