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// Functionality to Calculate the Area for Different Geometric Dimensions for Mathematics Project.

import java.util.Scanner;
public class GeometryCalculator {
	public static double calculateSquareArea(double sideLength) {
		return sideLength * sideLength;
	}
	public static double calculateRectangleArea(double length, double width) {
		return length * width;
	}
	public static double calculateTriangleArea(double base, double height) {
		return 0.5 * base * height;
	}
	public static double calculateCircleArea(double radius) {
		return Math.PI * radius * radius;
	}
	public static void main(String[] args) {
		Scanner scanner = new Scanner(System.in);
		System.out.println("Select a geometric shape:");
		System.out.println("1. Square");
		System.out.println("2. Rectangle");
		System.out.println("3. Triangle");
		System.out.println("4. Circle");
		int choice = scanner.nextInt();
		switch (choice) {
			case 1:
				System.out.print("Enter the side length of the square: ");
				double squareSide = scanner.nextDouble();
				System.out.println("The area of the square is: " +
calculateSquareArea(squareSide));
				break;
			case 2:
				System.out.print("Enter the length of the rectangle: ");
				double rectangleLength = scanner.nextDouble();
				System.out.print("Enter the width of the rectangle: ");
				double rectangleWidth = scanner.nextDouble();
				System.out.println("The area of the rectangle is: " +
calculateRectangleArea(rectangleLength, rectangleWidth));
				break;
			case 3:
				System.out.print("Enter the base of the triangle: ");
				double triangleBase = scanner.nextDouble();
				System.out.print("Enter the height of the triangle: ");
				double triangleHeight = scanner.nextDouble();
				System.out.println("The area of the triangle is: " +
calculateTriangleArea(triangleBase, triangleHeight));
				break;
			case 4:
				System.out.print("Enter the radius of the circle: ");
				double circleRadius = scanner.nextDouble();
				System.out.println("The area of the circle is: " +
calculateCircleArea(circleRadius));
				break;
			default:
				System.out.println("Invalid choice. Please enter a number between 1 and
4.");
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            }
        }
    }
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