Scientific Calculator - Java Code

```
import java.util.Scanner;

public class ScientificCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        while (true) {
            System.out.println("\nScientific Calculator");
            System.out.println("1. Addition (+)");
            System.out.println("2. Subtraction (-)");
            System.out.println("3. Multiplication (*)");
            System.out.println("4. Division (/)");
            System.out.println("5. Square Root (sqrt)");
            System.out.println("6. Exponentiation (^)");
            System.out.println("7. Logarithm (log)");
            System.out.println("8. Sine (sin)");
            System.out.println("9. Cosine (cos)");
            System.out.println("10. Tangent (tan)");
            System.out.println("11. Exit");

            System.out.print("Choose an operation (1-11): ");
            int choice = scanner.nextInt();

            if (choice == 11) {
                System.out.println("Exiting the calculator. Goodbye!");
                break;
            }

            double num1, num2, result = 0;

            switch (choice) {
                case 1:
                    System.out.print("Enter first number: ");
                    num1 = scanner.nextDouble();
                    System.out.print("Enter second number: ");
                    num2 = scanner.nextDouble();
                    result = num1 + num2;
                    break;

                case 2:
                    System.out.print("Enter first number: ");
                    num1 = scanner.nextDouble();
                    System.out.print("Enter second number: ");
                    num2 = scanner.nextDouble();
                    result = num1 - num2;
                    break;

                case 3:
                    System.out.print("Enter first number: ");
                    num1 = scanner.nextDouble();
                    System.out.print("Enter second number: ");
                    num2 = scanner.nextDouble();
                    result = num1 * num2;
                    break;

                case 4:
                    System.out.print("Enter first number: ");
                    num1 = scanner.nextDouble();
                    System.out.print("Enter second number: ");
                    num2 = scanner.nextDouble();
                    if (num2 == 0) {
                        System.out.println("Error! Division by zero.");
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                    continue;
                }
                result = num1 / num2;
                break;

            case 5:
                System.out.print("Enter a number: ");
                num1 = scanner.nextDouble();
                if (num1 < 0) {
                    System.out.println("Error! Square root of a negative number is not real.");
                    continue;
                }
                result = Math.sqrt(num1);
                break;

            case 6:
                System.out.print("Enter base number: ");
                num1 = scanner.nextDouble();
                System.out.print("Enter exponent: ");
                num2 = scanner.nextDouble();
                result = Math.pow(num1, num2);
                break;

            case 7:
                System.out.print("Enter a number: ");
                num1 = scanner.nextDouble();
                if (num1 <= 0) {
                    System.out.println("Error! Logarithm of non-positive numbers is undefined.");
                    continue;
                }
                result = Math.log(num1);
                break;

            case 8:
                System.out.print("Enter an angle in degrees: ");
                num1 = scanner.nextDouble();
                result = Math.sin(Math.toRadians(num1));
                break;

            case 9:
                System.out.print("Enter an angle in degrees: ");
                num1 = scanner.nextDouble();
                result = Math.cos(Math.toRadians(num1));
                break;

            case 10:
                System.out.print("Enter an angle in degrees: ");
                num1 = scanner.nextDouble();
                result = Math.tan(Math.toRadians(num1));
                break;

            default:
                System.out.println("Invalid choice! Please try again.");
                continue;
        }

        System.out.println("Result: " + result);
    }

    scanner.close();
  }
}
```