Extended Calculator

```java
import java.util.Scanner;

public class EnhancedCalculator {

    static Scanner sc = new Scanner(System.in);

    public static void main(String[] args) {

        while (true) {
            System.out.println("\n===== ENHANCED CONSOLE CALCULATOR =====");
            System.out.println("1. Basic Arithmetic");
            System.out.println("2. Scientific Calculations");
            System.out.println("3. Unit Conversions");
            System.out.println("4. Exit");
            System.out.print("Choose an option: ");

            int choice = sc.nextInt();

            switch (choice) {
                case 1:
                    basicArithmetic();
                    break;
                case 2:
                    scientificCalc();
                    break;
                case 3:
                    unitConversion();
                    break;
                case 4:
                    System.out.println("Thank you for using Calculator!");
                    System.exit(0);
                default:
                    System.out.println("Invalid choice!");
            }
        }
    }

    static void basicArithmetic() {
        System.out.println("\n--- Basic Arithmetic ---");
        System.out.println("1. Addition");
        System.out.println("2. Subtraction");
        System.out.println("3. Multiplication");
        System.out.println("4. Division");
        System.out.print("Choose operation: ");

        int op = sc.nextInt();

        System.out.print("Enter first number: ");
        double a = sc.nextDouble();
        System.out.print("Enter second number: ");
        double b = sc.nextDouble();

```

```
53          switch (op) {
54              case 1:
55                  System.out.println("Result = " + (a + b));
56                  break;
57              case 2:
58                  System.out.println("Result = " + (a - b));
59                  break;
60              case 3:
61                  System.out.println("Result = " + (a * b));
62                  break;
63              case 4:
64                  if (b == 0) {
65                      System.out.println("Error: Division by zero!");
66                  } else {
67                      System.out.println("Result = " + (a / b));
68                  }
69                  break;
70              default:
71                  System.out.println("Invalid operation!");
72          }
73      }
74
75      static void scientificCalc() {
76          System.out.println("\n--- Scientific Calculations ---");
77          System.out.println("1. Square Root");
78          System.out.println("2. Power");
79          System.out.print("Choose option: ");
80
81          int ch = sc.nextInt();
82
83          switch (ch) {
84              case 1:
85                  System.out.print("Enter number: ");
86                  double num = sc.nextDouble();
87                  if (num < 0) {
88                      System.out.println("Error: Negative number!");
89                  } else {
90                      System.out.println("Square Root = " + Math.sqrt(num));
91                  }
92                  break;
93
94              case 2:
95                  System.out.print("Enter base: ");
96                  double base = sc.nextDouble();
97                  System.out.print("Enter exponent: ");
98                  double exp = sc.nextDouble();
99                  System.out.println("Result = " + Math.pow(base, exp));
100                 break;
101
102             default:
103                 System.out.println("Invalid option!");
104         }
105     }
106
107     static void unitConversion() {
```

```
        System.out.println("\n--- Unit Conversions ---");
        System.out.println("1. Temperature");
        System.out.println("2. Currency");
        System.out.print("Choose option: ");

        int ch = sc.nextInt();

        switch (ch) {
            case 1:
                temperatureConversion();
                break;
            case 2:
                currencyConversion();
                break;
            default:
                System.out.println("Invalid choice!");
        }
    }

    static void temperatureConversion() {
        System.out.println("\nTemperature Conversion");
        System.out.println("1. Celsius to Fahrenheit");
        System.out.println("2. Fahrenheit to Celsius");
        System.out.print("Choose: ");

        int t = sc.nextInt();
        System.out.print("Enter value: ");
        double temp = sc.nextDouble();

        if (t == 1) {
            System.out.println("Fahrenheit = " + ((temp * 9 / 5) + 32));
        } else if (t == 2) {
            System.out.println("Celsius = " + ((temp - 32) * 5 / 9));
        } else {
            System.out.println("Invalid option!");
        }
    }

    static void currencyConversion() {
        System.out.println("\nCurrency Conversion (Fixed Rates)");
        System.out.println("1. INR to USD");
        System.out.println("2. USD to INR");
        System.out.print("Choose: ");

        int c = sc.nextInt();
        System.out.print("Enter amount: ");
        double amount = sc.nextDouble();

        double rate = 83.0;

        if (c == 1) {
            System.out.println("USD = " + (amount / rate));
        } else if (c == 2) {
            System.out.println("INR = " + (amount * rate));
        } else {
```

```
163                 System.out.println("Invalid option!");
164             }
165         }
166     }
```