

Untitled-3

```
1 import java.util.Scanner;
2 import java.lang.Math;
3
4 public class ScientificCalculator {
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7         String operation;
8
9         while (true) {
10             System.out.println("\nScientific Calculator");
11             System.out.println("Available operations:");
12             System.out.println("1. Addition (+)");
13             System.out.println("2. Subtraction (-)");
14             System.out.println("3. Multiplication (*)");
15             System.out.println("4. Division (/)");
16             System.out.println("5. Square Root (sqrt)");
17             System.out.println("6. Power (^)");
18             System.out.println("7. Sine (sin)");
19             System.out.println("8. Cosine (cos)");
20             System.out.println("9. Tangent (tan)");
21             System.out.println("10. Exit");
22             System.out.print("Enter operation: ");
23             operation = scanner.nextLine().toLowerCase();
24
25             if (operation.equals("10")) {
26                 System.out.println("Exiting...");
27                 break;
28             }
29
30             double result;
31             double num1, num2;
32             switch (operation) {
33                 case "+":
34                     case "addition":
35                         System.out.print("Enter first number: ");
36                         num1 = scanner.nextDouble();
37                         System.out.print("Enter second number: ");
38                         num2 = scanner.nextDouble();
39                         result = num1 + num2;
40                         System.out.println("Result: " + result);
41                         break;
42
43                 case "-":
44                     case "subtraction":
45                         System.out.print("Enter first number: ");
46                         num1 = scanner.nextDouble();
47                         System.out.print("Enter second number: ");
48                         num2 = scanner.nextDouble();
```

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49         result = num1 - num2;
50         System.out.println("Result: " + result);
51         break;
52
53     case "*":
54     case "multiplication":
55         System.out.print("Enter first number: ");
56         num1 = scanner.nextDouble();
57         System.out.print("Enter second number: ");
58         num2 = scanner.nextDouble();
59         result = num1 * num2;
60         System.out.println("Result: " + result);
61         break;
62
63     case "/":
64     case "division":
65         System.out.print("Enter first number: ");
66         num1 = scanner.nextDouble();
67         System.out.print("Enter second number: ");
68         num2 = scanner.nextDouble();
69         if (num2 != 0) {
70             result = num1 / num2;
71             System.out.println("Result: " + result);
72         } else {
73             System.out.println("Error: Division by zero.");
74         }
75         break;
76
77     case "sqrt":
78         System.out.print("Enter number: ");
79         num1 = scanner.nextDouble();
80         result = Math.sqrt(num1);
81         System.out.println("Result: " + result);
82         break;
83
84     case "^":
85     case "power":
86         System.out.print("Enter base: ");
87         num1 = scanner.nextDouble();
88         System.out.print("Enter exponent: ");
89         num2 = scanner.nextDouble();
90         result = Math.pow(num1, num2);
91         System.out.println("Result: " + result);
92         break;
93
94     case "sin":
95         System.out.print("Enter angle in degrees: ");
96         num1 = scanner.nextDouble();
97         result = Math.sin(Math.toRadians(num1));
98         System.out.println("Result: " + result);
```

```
99         break;
100
101     case "cos":
102         System.out.print("Enter angle in degrees: ");
103         num1 = scanner.nextDouble();
104         result = Math.cos(Math.toRadians(num1));
105         System.out.println("Result: " + result);
106         break;
107
108     case "tan":
109         System.out.print("Enter angle in degrees: ");
110         num1 = scanner.nextDouble();
111         result = Math.tan(Math.toRadians(num1));
112         System.out.println("Result: " + result);
113         break;
114
115     default:
116         System.out.println("Invalid operation. Please try again.");
117         break;
118     }
119     scanner.nextLine(); // Consume newline
120 }
121
122 scanner.close();
123 }
124 }
125
```