

ASSIGNMENT - 3 (JAVA LAB) RISHU RAJ – 22BCS13474

- 1. AIM:** Write a Java program to calculate the square root of a number entered by the user. Use try-catch to handle invalid inputs (e.g., negative numbers or non-numeric values).

Input Example:

Enter a number: -16

Output Example:

Error: Cannot calculate the square root of a negative number.


2. Implementation/Code:

```
import java.util.Scanner;
```

```
public class SquareRootCalculator {  
    public static void main(String[] args) {  
        Scanner scanner = new Scanner(System.in);  
  
        try {  
            // Prompt user for input  
            System.out.print("Enter a number: ");  
            double number = scanner.nextDouble();  
  
            // Check for negative numbers  
            if (number < 0) {  
                throw new IllegalArgumentException("Error: Cannot calculate the square root  
of a negative number.");  
            }  
  
            // Calculate square root  
            double result = Math.sqrt(number);  
            System.out.println("Square root: " + result);  
        } catch (IllegalArgumentException e) {  
            System.out.println(e.getMessage()); // Handle negative numbers  
        } catch (Exception e) {
```


```
        System.out.println("Error: Invalid input. Please enter a numeric value.");  
    } finally {  
        scanner.close(); // Close scanner  
    }  
}  
}
```

3. Output:



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SquareRootCalculator.java

```
9      System.out.print("Enter a number: ");  
10     double number = scanner.nextDouble();  
11  
12     // Check for negative numbers  
13     if (number < 0) {  
14         throw new IllegalArgumentException("Error: Cannot calculate the  
15         square root of a negative number.");  
16     }  
17  
18     // Calculate square root  
19     double result = Math.sqrt(number);  
20     System.out.println("Square root: " + result);  
21  
22     } catch (IllegalArgumentException e) {  
23         System.out.println(e.getMessage()); // Handle negative numbers  
24     } catch (Exception e) {  
25         System.out.println("Error: Invalid input. Please enter a numeric  
26         value.");  
27     } finally {  
28         scanner.close(); // Close scanner  
29     }  
30 }
```

Output

```
Enter a number: -8  
ERROR!  
Error: Cannot calculate the square root of a negative number.  
  
=== Code Execution Successful ===
```



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