

EXPERIMENT-4

Demonstrating Exception Handling in Java

Write a Java program to demonstrate exception handling. The program should take two integers as input and perform division. Implement exception handling for division by zero and other potential exceptions. Display the appropriate error messages for each exception.

Aim:

To demonstrate exception handling techniques in Java by using a try-catch block to handle runtime errors such as division by zero.

Objective:

To understand how exception handling works in Java, specifically for handling division by zero, and ensure the program does not crash on runtime errors.

Program:

```
import java.util.Scanner;

public class ExceptionHandlingExample {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int num1, num2;

        try {
            System.out.print("Enter first number: ");
            num1 = sc.nextInt();
            System.out.print("Enter second number: ");
            num2 = sc.nextInt();

            int result = num1 / num2;
            System.out.println("Result: " + result);
        } catch (ArithmeticException e) {
            System.out.println("Error: Division by zero is not allowed.");
        } catch (Exception e) {
            System.out.println("An error occurred: " + e.getMessage());
        } finally {
            System.out.println("This block always executes.");
        }
    }
}
```

Test Cases:

Test Case 1:

- **Test Name:** Division by Zero

- **Input:** First number = 10, Second number = 0
- **Expected Result:** Error message "Division by zero is not allowed."
- **Actual Result:** Error message "Division by zero is not allowed."
- **Pass/Fail:** Pass

Test Case 2:

- **Test Name:** Valid Division
- **Input:** First number = 10, Second number = 2
- **Expected Result:** "Result: 5"
- **Actual Result:** "Result: 5"
- **Pass/Fail:** Pass

Test Case 3:

- **Test Name:** Invalid Input (Non-integer value)
- **Input:** First number = "abc", Second number = 2
- **Expected Result:** Error message "An error occurred: For input string: "abc""
- **Actual Result:** Error message "An error occurred: For input string: "abc""
- **Pass/Fail:** Pass

Conclusion:

This program demonstrates the use of exception handling in Java, specifically for handling runtime errors such as division by zero. The try-catch block ensures the program doesn't crash when an exception occurs, and the finally block executes regardless of whether an exception was thrown.