Lab10

W.A.C Fernando (26545)

1.

```
import java.util.Scanner;

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

        try {
            System.out.print("Enter the numerator: ");
            int numerator = scanner.nextInt();

            System.out.print("Enter the denominator: ");
            int denominator = scanner.nextInt();

            // Perform division
            double result = divide(numerator, denominator);
            System.out.println("Result of division: " + result);

        } catch (ArithmeticException ex) {
            System.out.println("Error: Cannot divide by zero. Please enter a non-
zero denominator.");
        } catch (Exception ex) {
            System.out.println("Error: Invalid input. Please enter valid integers.");
        } finally {
            scanner.close();
        }
    }

    // Method to perform division
    private static double divide(int numerator, int denominator) {
        if (denominator == 0) {
            throw new ArithmeticException("Division by zero is not allowed.");
        }
        return (double) numerator / denominator;
    }
}
```

2,

```
import java.util.Scanner;

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

        try {
            int[] numbers = { 10, 20, 30, 40, 50 };
```

	System.out.print("Enter the index you want to access: ");
	int index = scanner.nextInt();
	
	// Access the element at the given index
	int result = numbers[index];
	System.out.println("Value at index " + index + ": " + result);
	
	} catch (ArrayIndexOutOfBoundsException ex) {
	System.out.println("Error: Invalid index. Please enter a valid index within the array range.");
	} catch (Exception ex) {
	System.out.println("Error: Invalid input. Please enter a valid integer index.");
	} finally {
	scanner.close();
	}
	}
	}

3.	import java.io.File;
	import java.io.FileNotFoundException;
	import java.util.Scanner;
	
	public class FileReadWithExceptionHandling {
	public static void main(String[] args) {
	Scanner scanner = new Scanner(System.in);
	
	try {
	System.out.print("Enter the file path: ");
	String filePath = scanner.nextLine();
	
	// Attempt to read the file
	File file = new File(filePath);
	Scanner fileScanner = new Scanner(file);
	
	// Read and print each line of the file
	while (fileScanner.hasNextLine()) {
	String line = fileScanner.nextLine();
	System.out.println(line);
	}
	
	fileScanner.close();
	
	} catch (FileNotFoundException ex) {
	System.out.println("Error: File not found. Please enter a valid file path.");
	} catch (Exception ex) {
	System.out.println("Error: An unexpected error occurred while reading the file.");

	} finally {
	scanner.close();
	}
	}
	}