```
import java.io.File;
import java.io.FileReader;
import java.io.IOException;

public class CheckedException {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		 try {
		File file = new File("non_existent_file.txt");
		FileReader  fileReader = new FileReader(file);
	    } catch (IOException e) {
		System.out.println("File not found or cannot be opened.");
	    }
	}

}
```

```
public class Unchecked {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		try {
```

```
            int a = 10;
        int b = 0;
        int result = a / b; // This will cause an ArithmeticException
        System.out.println("Result: " + result);
            }
            catch (Exception e) {
                    e.printStackTrace();

                    System.out.println("hello");
            }

            System.out.println("hhhhhh");
    }

}
```

```
public class Error {
        public static void recursiveMethod() {
            recursiveMethod(); // This will cause a StackOverflowError
          }
        public static void main(String[] args) {
                // TODO Auto-generated method stub
                recursiveMethod();
        }
```

```
}
```

```
import java.util.Scanner;

public class HandleException {

        public static void withException() {


            Scanner scanner = new Scanner(System.in);
        int[] numbers = {10, 20, 30, 40, 50}; // Sample array with 5 elements (indices 0 to
4)
        boolean validInput = false;

        while (!validInput) {
          try {
            // Asking user for array index
            System.out.print("Enter an index to access the array (0 to 4): ");
            int index = scanner.nextInt();

            // Asking user for divisor
            System.out.print("Enter a divisor (number to divide by): ");
            int divisor = scanner.nextInt();

            // Accessing the array at the given index
            int value = numbers[index];
```

```
                System.out.println("Value at index " + index + ": " + value);

                // Dividing the value by the divisor
                int result = value / divisor;
                System.out.println("Result of division: " + result);

                // If no exception occurs, set validInput to true to exit the loop
                validInput = true;

            } catch (ArrayIndexOutOfBoundsException e) {
                System.out.println("Error: Array index is out of bounds! Please enter an index between 0 and 4.");
            } catch (ArithmeticException e) {
                System.out.println("Error: Cannot divide by zero! Please enter a non-zero divisor.");
            }
        }

        // Close the scanner
        scanner.close();
        System.out.println("Program has finished executing.");


    }

    public static void withNoException() {
```

```
        Scanner scanner = new Scanner(System.in);
    int[] numbers = {10, 20, 30, 40, 50}; // Sample array with 5 elements (indices 0 to
4)
    boolean validInput = false;

    while (!validInput) {
        // Asking user for array index
        System.out.print("Enter an index to access the array (0 to 4): ");
        int index = scanner.nextInt();

        // Asking user for divisor
        System.out.print("Enter a divisor (number to divide by): ");
        int divisor = scanner.nextInt();

        // Accessing the array at the given index
        int value = numbers[index];
        System.out.println("Value at index " + index + ": " + value);

        // Dividing the value by the divisor
        int result = value / divisor;
        System.out.println("Result of division: " + result);

        // If no exception occurs, set validInput to true to exit the loop
        validInput = true;
```

```
            }

            System.out.println("Program has finished executing.");

        }

        public static void main(String[] args) {

        //      withNoException();
                withException();
                    }
}
```

```
import java.util.Scanner;

public class FinallyExample {

public static void withFinally() {
        Scanner scanner = new Scanner(System.in);
    int[] numbers = {10, 20, 30, 40, 50}; // Sample array with 5 elements (indices 0 to 4)
    boolean validInput = false;
    int counter=0;
    while (!validInput) {
      try {
        // Asking user for array index
```

```
            System.out.print("Enter an index to access the array (0 to 4): ");
            int index = scanner.nextInt();

            // Asking user for divisor
            System.out.print("Enter a divisor (number to divide by): ");
            int divisor = scanner.nextInt();

            // Accessing the array at the given index
            int value = numbers[index];
            System.out.println("Value at index " + index + ": " + value);

            // Dividing the value by the divisor
            int result = value / divisor;
            System.out.println("Result of division: " + result);

            // If no exception occurs, set validInput to true to exit the loop
            validInput = true;


        } catch (ArrayIndexOutOfBoundsException e) {
            System.out.println("Error: Array index is out of bounds! Please enter an index between 0 and 4.");
        } catch (ArithmeticException e) {
            System.out.println("Error: Cannot divide by zero! Please enter a non-zero divisor.");
        }
```

```
        finally{
            counter++;

          if (counter >=3) {
            validInput=true;
            System.out.println("You have no more tries");
          }
          else {
            System.out.println("You have "+(3-counter)+" tries");

          }

        }

    }

    System.out.println("Program has finished executing.");



}

        public static void main(String[] args) {
                // TODO Auto-generated method stub
                withFinally();
```

```
        }

}
```

```
import java.util.Scanner;

public class ThrowExample {



        // Method that throws exceptions based on invalid input


    // Method that throws exceptions based on invalid input
    public static void getArrayValueAndDivide() throws
ArrayIndexOutOfBoundsException, ArithmeticException {
        Scanner scanner = new Scanner(System.in);
        int[] numbers = {10, 20, 30, 40, 50}; // Sample array with 5 elements (indices 0 to 4)

        // Asking user for array index
        System.out.print("Enter an index to access the array (0 to 4): ");
        int index = scanner.nextInt();

        // Asking user for divisor
        System.out.print("Enter a divisor (number to divide by): ");
        int divisor = scanner.nextInt();

        // Check for out-of-bounds index and division by zero
```

```
        if (index < 0 || index >= numbers.length) {
          throw new ArrayIndexOutOfBoundsException("Index " + index + " is out of bounds.
Please enter an index between 0 and " + (numbers.length - 1));
        }
        if (divisor == 0) {
          throw new ArithmeticException("Cannot divide by zero. Please enter a non-zero
divisor.");
        }

        // Return the result of dividing the value at the specified index by the divisor
        System.out.print( numbers[index] / divisor);
      }

        public static void main(String[] args) {
                // TODO Auto-generated method stub
                getArrayValueAndDivide() ;
        }

}
```