PROGRAM -3

Write a Java program to handle checked and unchecked exceptions. Also, demonstrate the usage of custom exceptions in real time scenario.

Source Code: ExceptionsDemo.java

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

// Custom Exception
class InvalidAgeException extends Exception {
    public InvalidAgeException(String message) {
        super(message);
    }
}

public class ExceptionsDemo {
    // Method to demonstrate custom exception
    public static void register(String name, int age) throws InvalidAgeException {
        if (age < 18) {
            throw new InvalidAgeException("User must be at least 18 years old.");
        } else {
            System.out.println("Registration successful for user: " + name);
        }
    }

    public static void main(String[] args) {
        //Handling Checked Exception
        try {
            File file = new File("myfile.txt");
            // This line can throw FileNotFoundException
            FileReader fr = new FileReader(file);
        } catch (FileNotFoundException e) {
            System.out.println("File not found: " + e.getMessage());
        }
```

```java
        //Handling Unchecked Exception
        try {
            int[] arr = {1, 2, 3};
            // Accessing an out-of-bound index
            System.out.println(arr[6]);
        } catch (ArrayIndexOutOfBoundsException e) {
            System.out.println("Array index out of bounds: " + e.getMessage());
        }
        // Finally block to perform cleanup operations
        finally {
            System.out.println("Cleanup operations can be performed here.");
        }
        // Demonstrate custom exception handling
        System.out.println("Demonstrating Custom Exception:");
        try {
            // Invalid age for registration
            register("Madhu", 17);
        } catch (InvalidAgeException e) {
            System.out.println("Custom Exception Caught: " + e.getMessage());
        }
    }
}
```