

## Problem Statement 1:

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### 1. Program Demonstrating IOException with Keywords (try, catch, finally, throw,

```
throws) import java.io.*; public class IOExceptionExample {  
    public static void main(String[] args) {  
String fileName = "nonexistent.txt";  
        try {  
            // Attempt to read a non-existent file  
readFile(fileName);  
        } catch (IOException e) {  
            System.out.println("Exception caught: " + e.getMessage());  
        } finally {  
            System.out.println("Execution reached the finally block.");  
        }  
    }  
    // Method that throws IOException    public static void  
readFile(String fileName) throws IOException {    if (!new  
File(fileName).exists()) {        throw new IOException("File not  
found: " + fileName);  
    }  
    BufferedReader reader = new BufferedReader(new  
FileReader(fileName));    System.out.println("File content: " +  
reader.readLine());    reader.close();  
    }  
}
```

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## 2. Handling Exceptions

### a. Checked Exceptions

Checked exceptions are exceptions that are checked at compile-time (e.g.,

IOException). import java.io.\*; public class CheckedExceptionExample { public static

void main(String[] args) {

try {

    // Attempt to open a file that doesn't exist

    BufferedReader reader = new BufferedReader(new

    FileReader("file.txt"));        System.out.println(reader.readLine());

    reader.close();

    } catch (IOException e) {

        System.out.println("Checked Exception caught: " + e.getMessage());

    }

}

}

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### b. Unchecked Exceptions

Unchecked exceptions are exceptions that occur at runtime (e.g., ArithmeticException).

public class UncheckedExceptionExample {

public static void main(String[] args) {

try {

    // Example of an ArithmeticException

    int result = 10 / 0;

    System.out.println("Result: " + result);

    } catch (ArithmeticException e) {

        System.out.println("Unchecked Exception caught: " + e.getMessage());

    }

try {

    // Example of a NullPointerException

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```
String str = null;

System.out.println(str.length());
} catch (NullPointerException e) {
    System.out.println("Unchecked Exception caught: " + e.getMessage());
}
}
}
```