



Exception Handling - Types



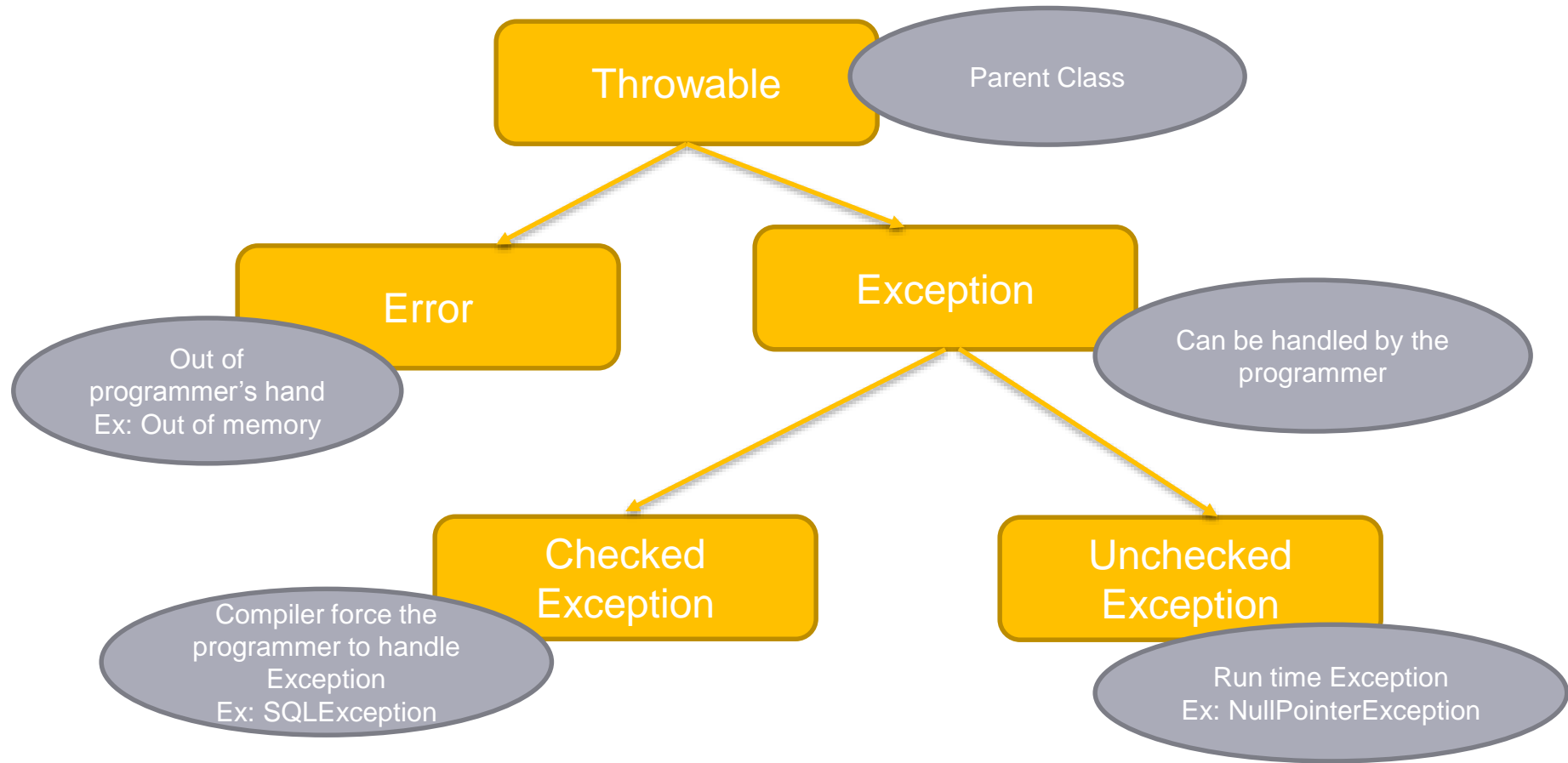
Agenda

1 Types of exception

Types of Exception

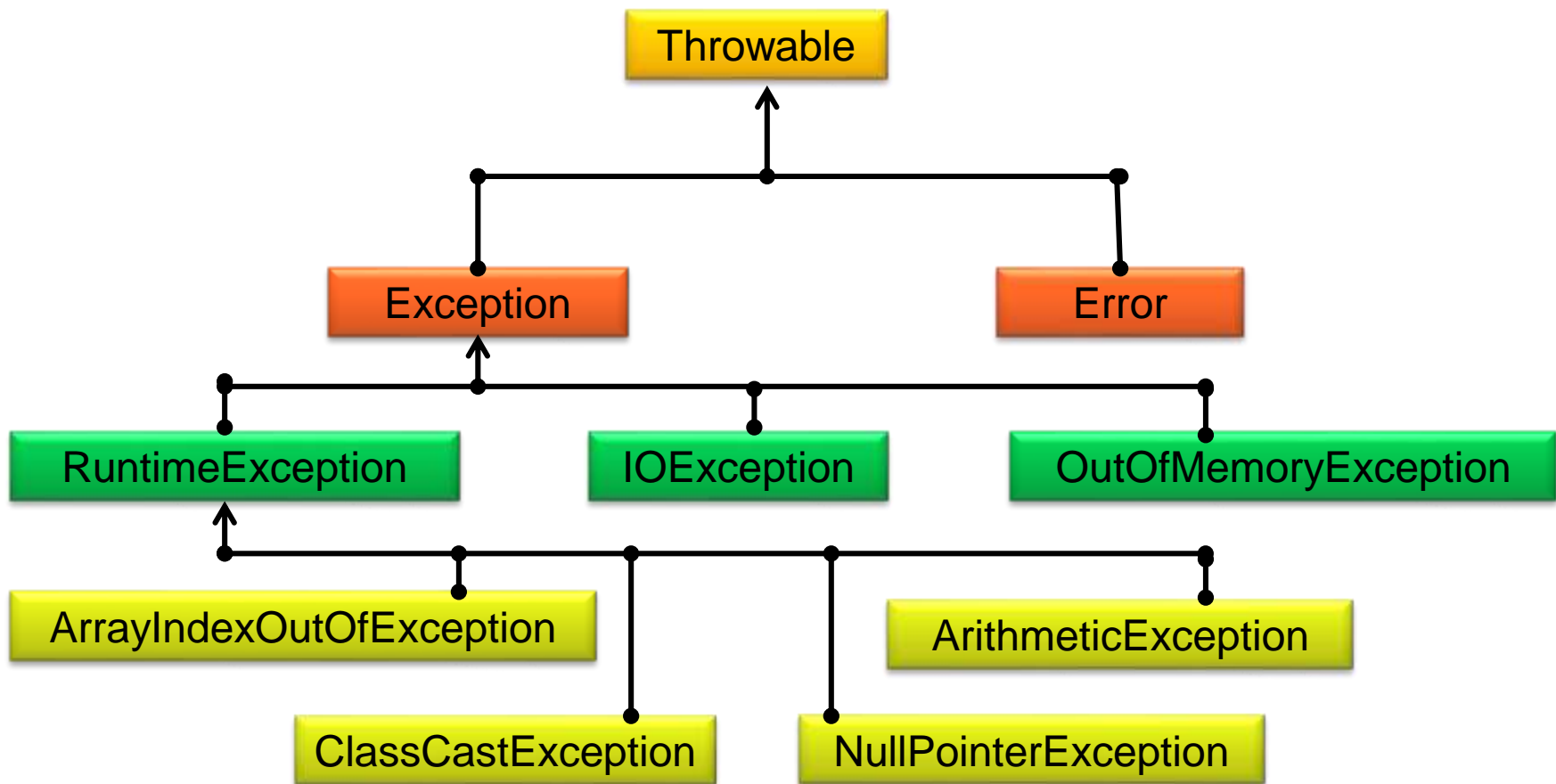


Exception in a Nutshell

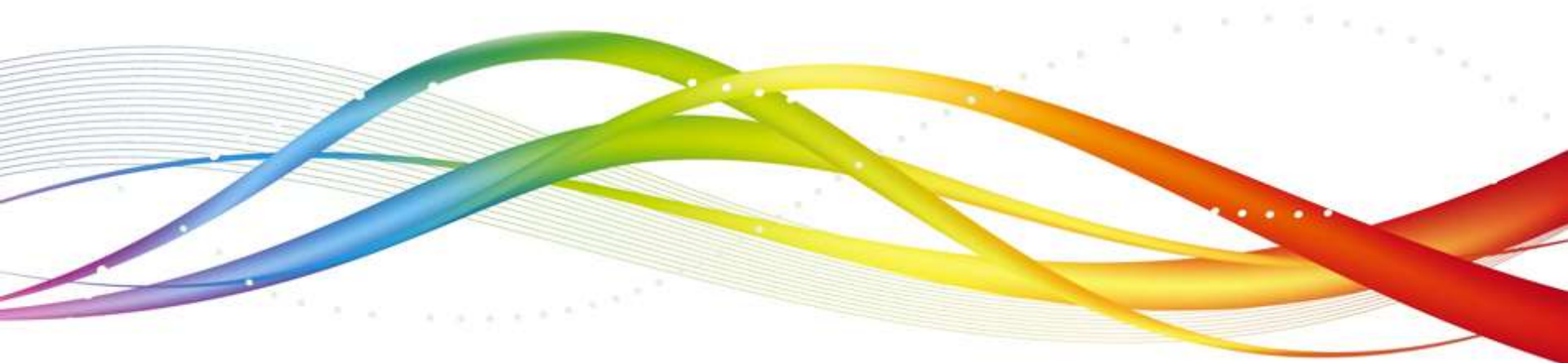


Exception Types

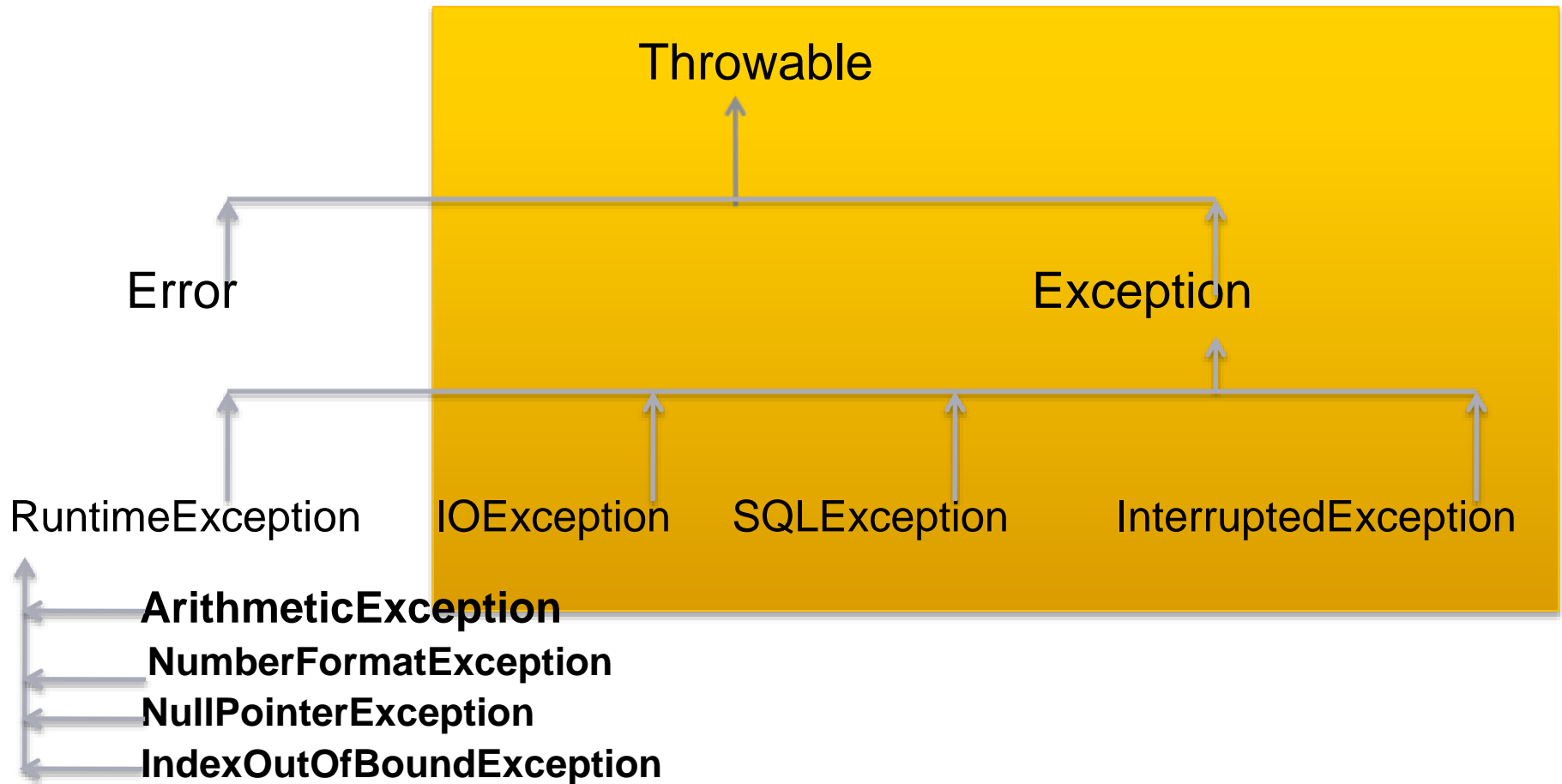
Exceptions are implemented in Java through a number of classes. The exception hierarchy is as follows:



Checked and Unchecked Exceptions



Checked Exceptions



Checked Exception (Contd.).

- A checked exception is an exception that usually happens due to user error or it is an error situation that cannot be foreseen by the programmer
- A checked exception must be handled using a try or catch or at least declared to be thrown using throws clause. Non compliance of this rule results in a compilation error

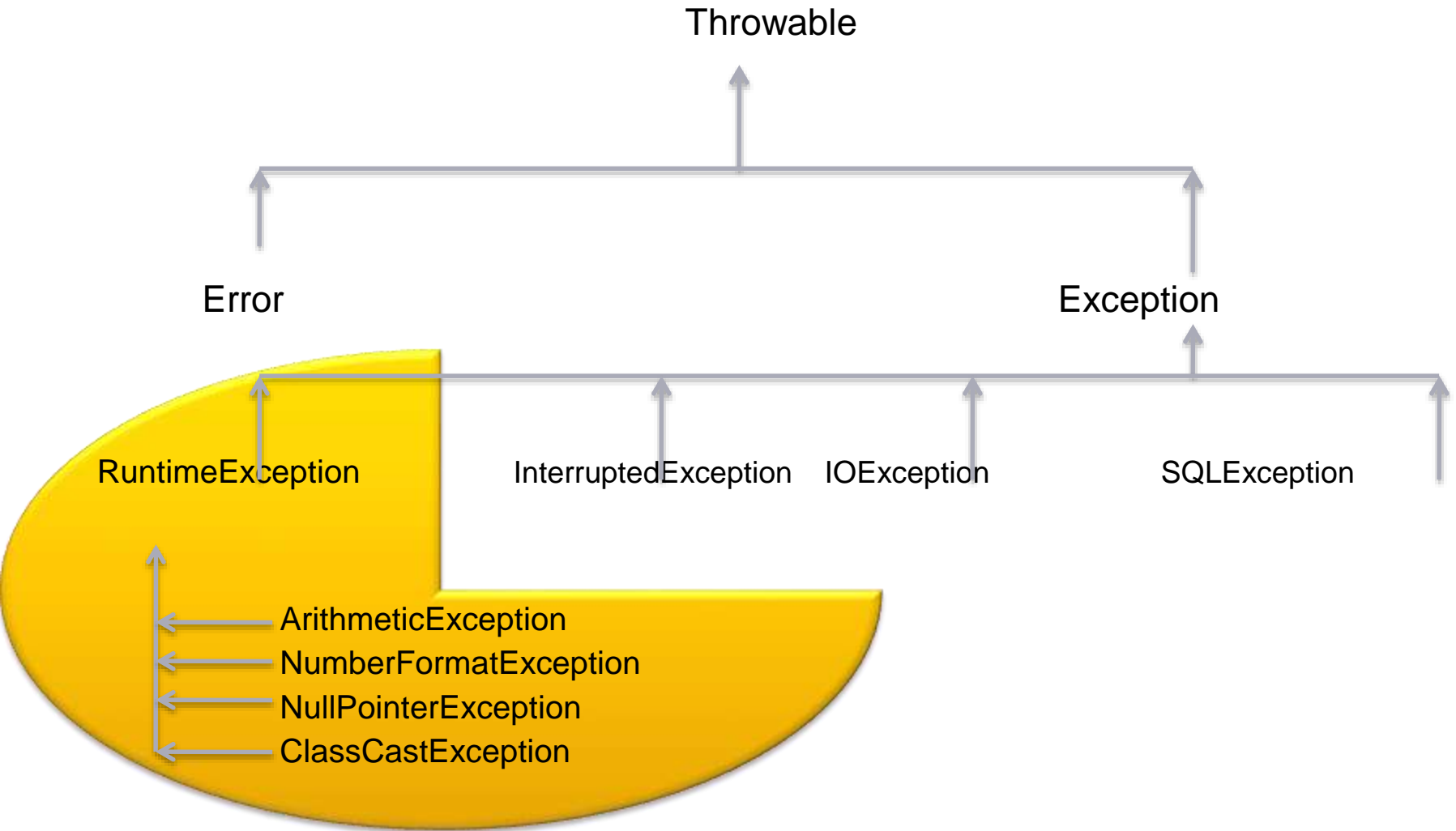
Ex: FileNotFoundException

If you try to open a file using

```
FileInputStream fx = new FileInputStream("A1.txt");
```

- During execution, the system will throw a FileNotFoundException, if the file A1.txt is not located, which may be beyond the control of a programmer

Unchecked Exception



Unchecked Exceptions (Contd.).

- An unchecked exception is an exception, which could have been avoided by the programmer
- The class `RuntimeException` and all its subclasses are categorized as Unchecked Exceptions
- If there is any chance of an unchecked exception occurring in the code, it is ignored during compilation

Error

- Error is not considered as an Exception
- Errors are problems that arise beyond the control of the programmer or the user
- A programmer can rarely do anything about an Error that occurs during the execution of a program
- This is the precise reason Errors are typically ignored in the code
- Errors are also ignored by the compiler
- Ex : Stack Overflow

Example – StackOverflowError

```
public class Tester {  
  
    public static void recursivePrint(int num) {  
        System.out.println("Number: " + num);  
  
        if(num == 0)  
            return;  
        else  
            recursivePrint(++num);  
    }  
  
    public static void main(String[] args) {  
        Tester.recursivePrint(1);  
    }  
}
```

Exception in thread "main" java.lang.StackOverflowError

Activity

Listed below are some of the built in exception classes. List them in the table below as per their classification, whether they are checked exceptions or unchecked exceptions :

- 1) NullPointerException
- 2) ClassNotFoundException
- 3) IOException
- 4) InterruptedException
- 5) ArrayIndexOutOfBoundsException
- 6) NumberFormatException
- 7) ClassCastException
- 8) SQLException
- 9) IllegalAccessException
- 10) NegativeArraySizeException

Checked Exceptions	Unchecked Exceptions

Activity

Match each situation in the list -1 with an item in the list-2.

List 1:

- a. `int[] A;`
`A[0] = 0;`
- b. The JVM starts running your program, but the JVM can't find the required Java classes.
- c. A program is reading a stream and not yet reached the end of stream marker.
- d. `FileNotFoundException`

List 2:

- 1__ `ClassNotFoundException`
- 2__ checked exception
- 3__ compile time error
- 4__ no exception

Summary

In this session, you were able to :

- Learn about types of exceptions



Thank You

