



Exception Handling - Types

Agenda

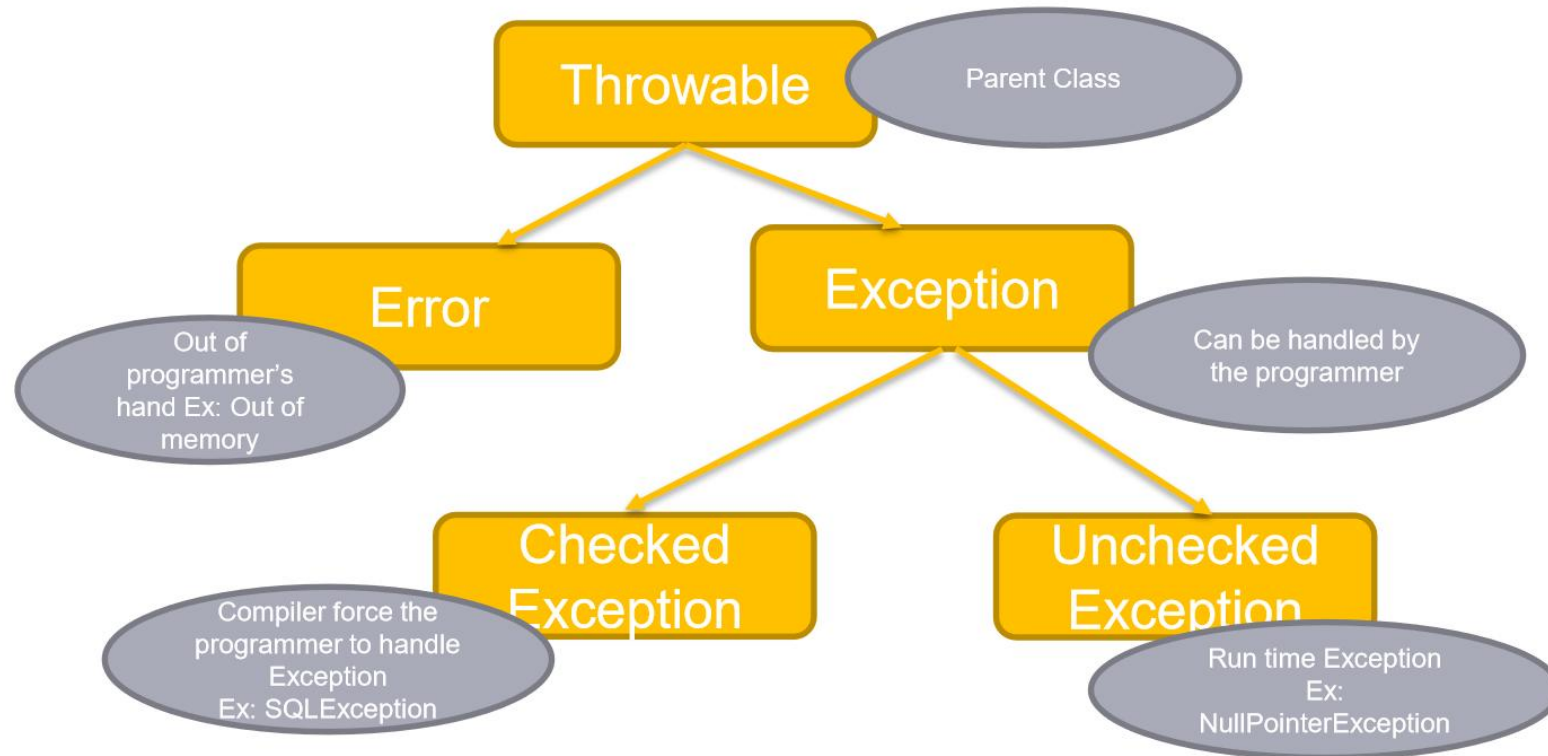
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Types of exception

Types of Exception

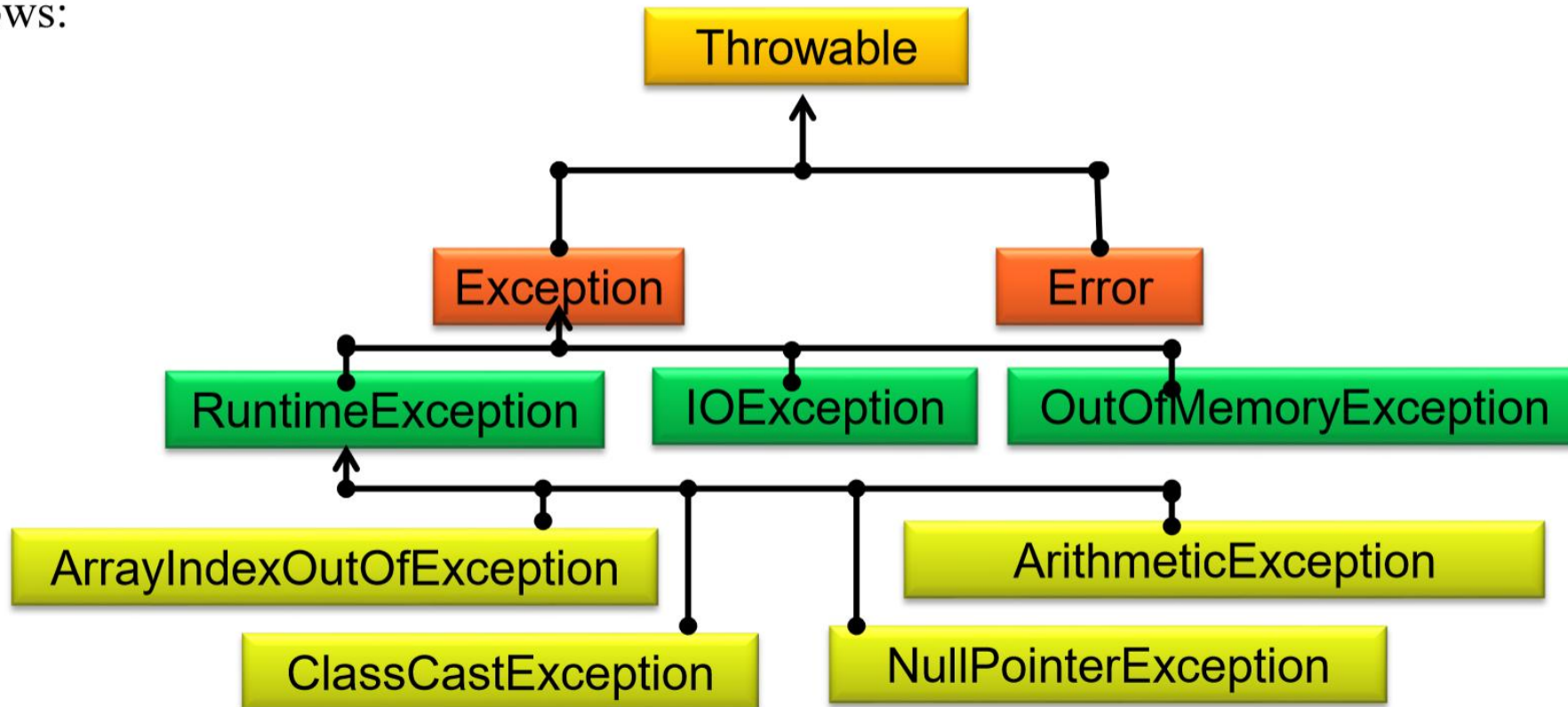


Exception in a Nutshell



Exception Types

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



Checked and Unchecked Exceptions



Checked Exception

- 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

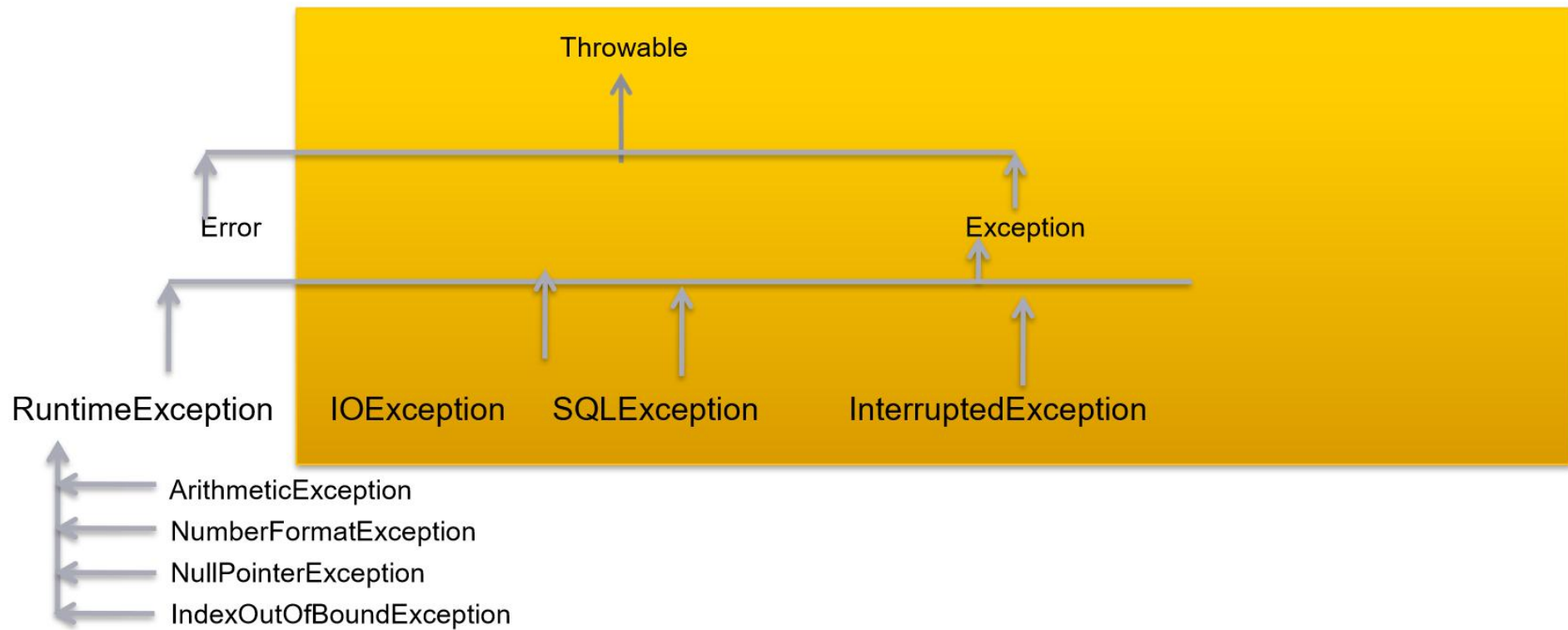
Ex: FileNotFoundException

- 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

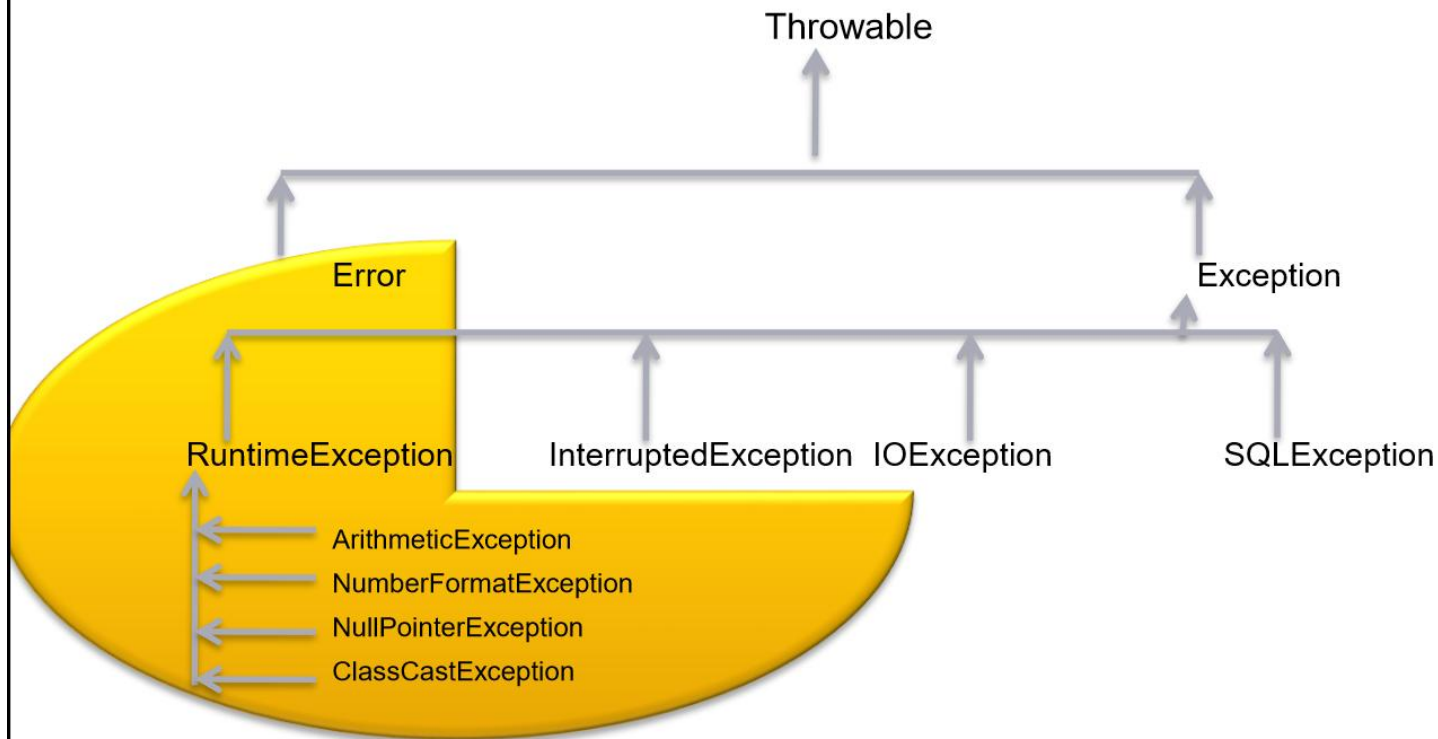
Checked Exceptions (marked in yellow color)



Unchecked Exceptions

- 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

Unchecked Exception (marked in yellow color)



Error

- 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
- Ex : Stack Overflow Error, java.lang.OutOfMemoryError

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.

Classify them

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

Which are Checked Exceptions	Which are Unchecked Exceptions

Activity(Contd.).

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

