



# Exception Handling - Types

# Agenda

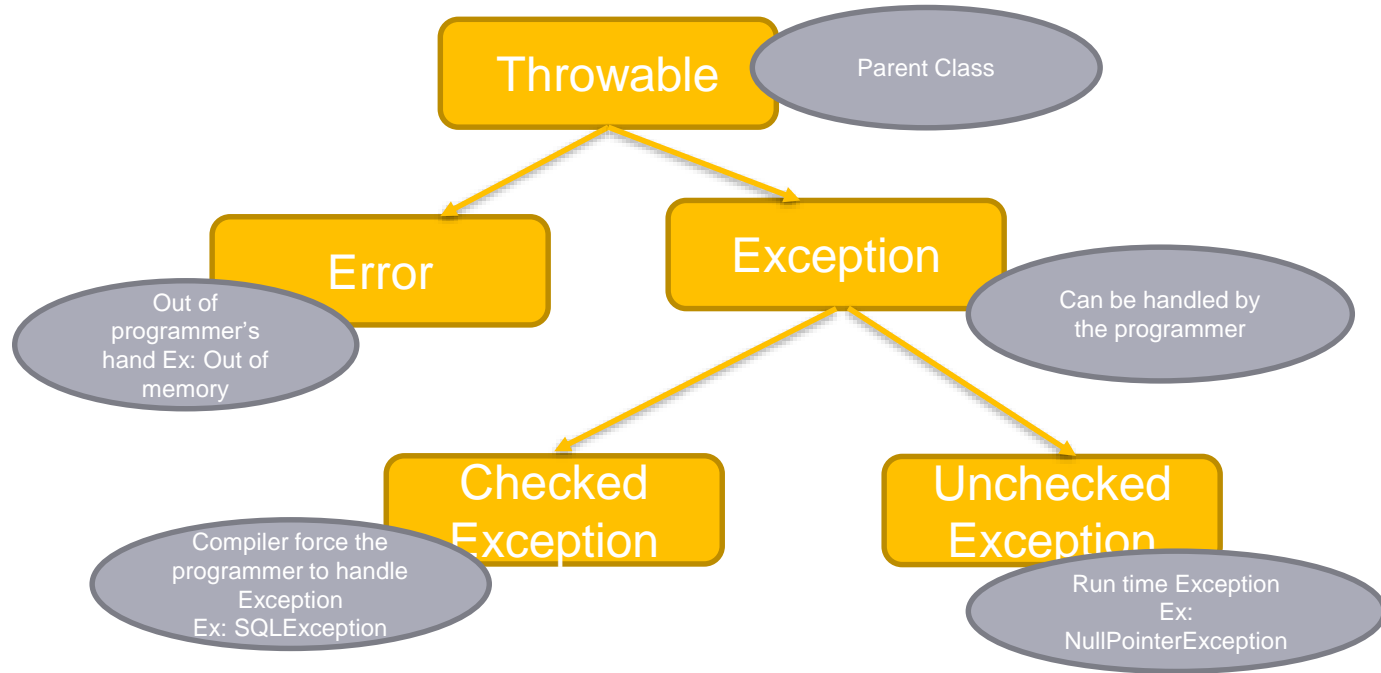
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## **Types of exception**

# Types of Exception

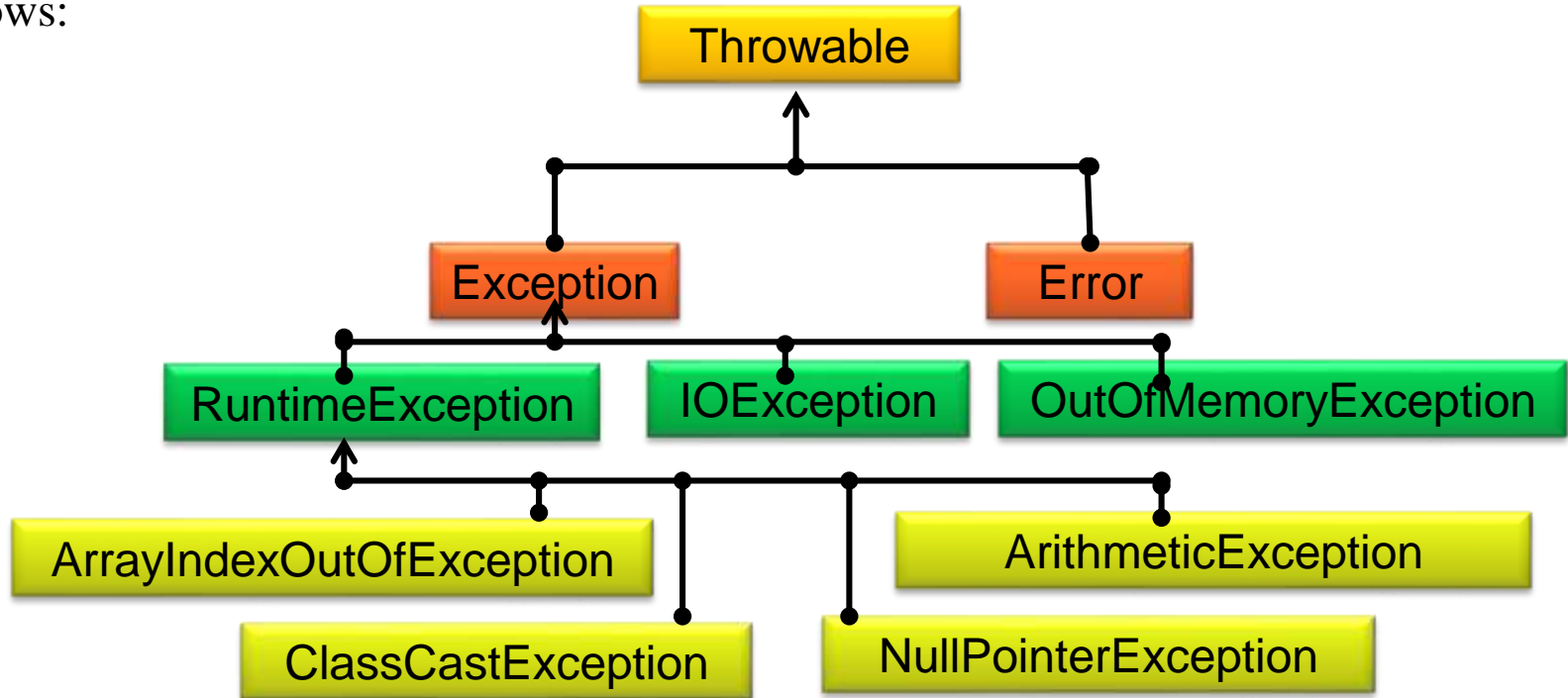


# Exception in a Nutshell



# Exception Types

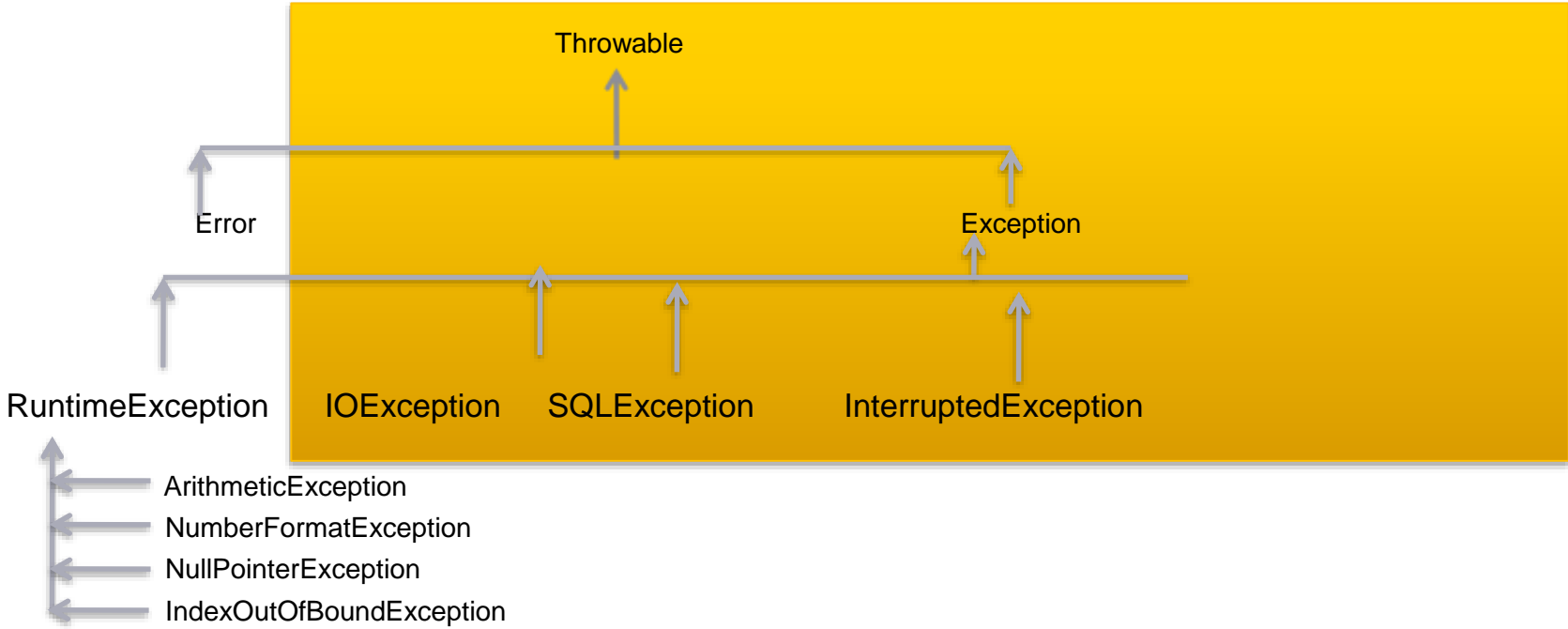
Exceptions are implemented in Java through a number of classes. The exception hierarchy is as follows:



# Checked and Unchecked Exceptions



# Checked 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

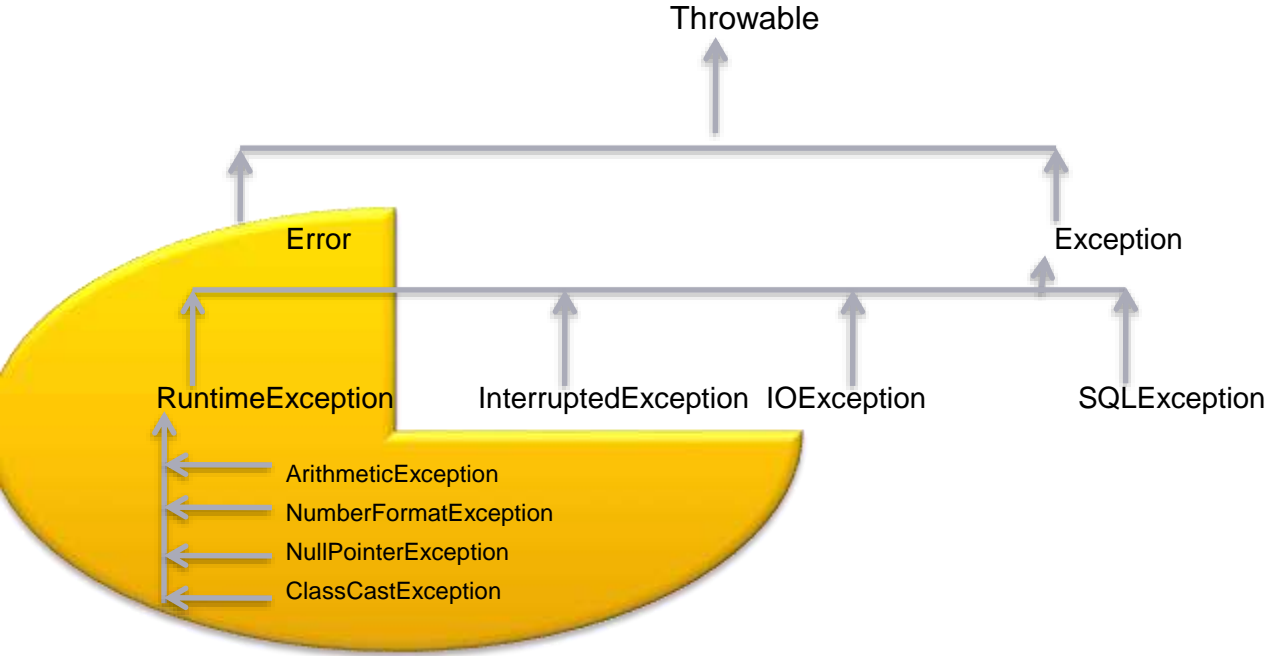
Ex: FileNotFoundException

- 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(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