Exceptions: Introduction

1. Exceptions: Introduction
2. Exception: Types

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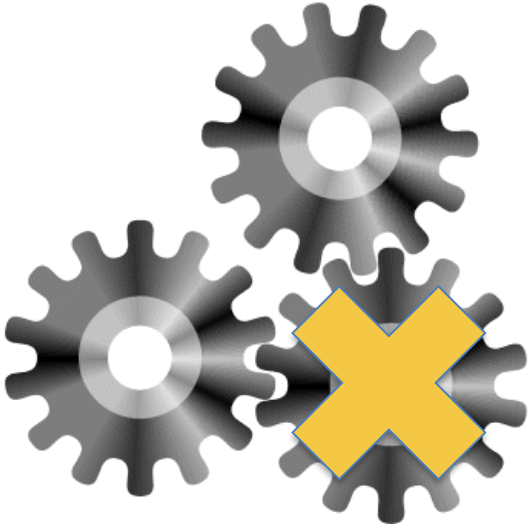
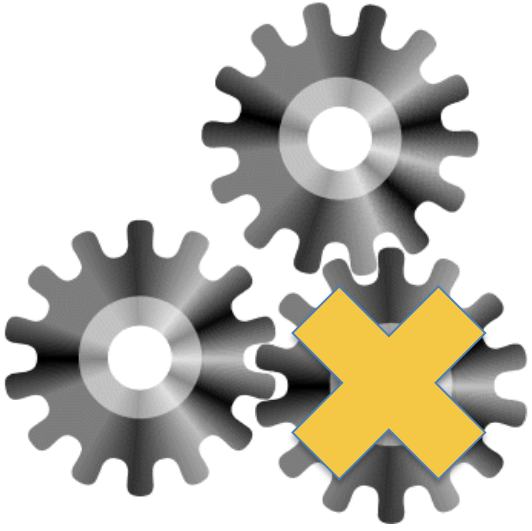
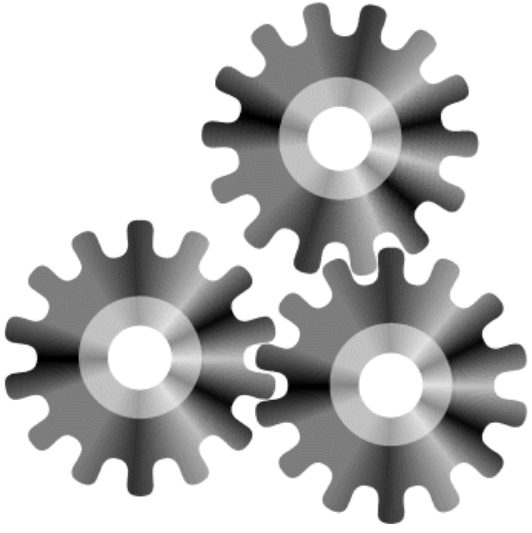
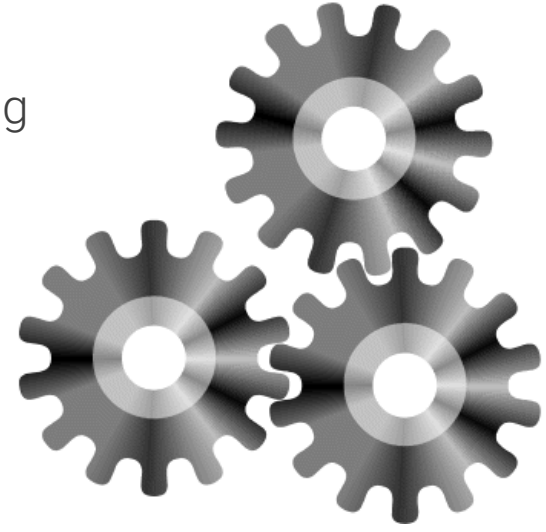






Something is going wrong

`throw`



Do something to keep the application working.

`catch`

Error vs Exception

Error	Exception
Irrecoverable situation	Recoverable situation
Related to environment	Related to application
There is no programable fix	May be anticipated and should be handled

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`OutOfMemoryError`

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`OutOfMemoryError`	`ArrayIndexOutOfBoundException`

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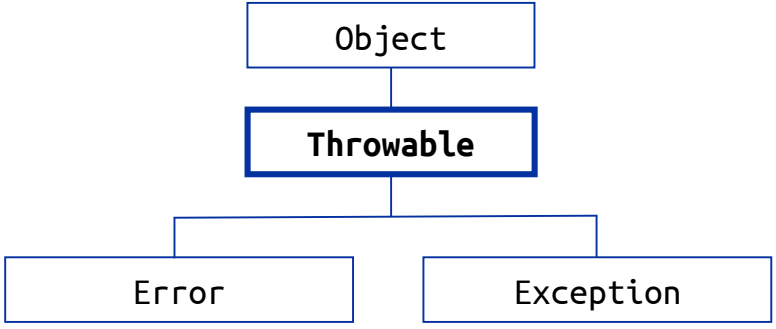
`OutOfMemoryError`	`ArrayIndexOutOfBoundException`
`class Error`	`class Exception`

Class Throwable



Error and Exception classes inherit from Throwable superclass

Class Throwable

Constructors

Modifier	Constructor and Description
	`Throwable()` Constructs a new throwable with `null` as its detail message.
	`Throwable(String message)` Constructs a new throwable with the specified detail message.
	`Throwable(String message, Throwable cause)` Constructs a new throwable with the specified detail message and cause.
`protected`	`Throwable(String message, Throwable cause, boolean enableSuppression, boolean writableStackTrace)` Constructs a new throwable with the specified detail message, cause, **suppression** enabled or disabled, and writable stack trace enabled or disabled.
	`Throwable(Throwable cause)` Constructs a new throwable with the specified cause and a detail message of `(cause==null ? null : cause.toString())` (which typically contains the class and detail message of `cause`).

https://docs.oracle.com/javase/7/docs/api/java/lang/Throwable.html

Class Throwable

Methods

Modifier and Type	Method and Description
`void`	**`addSuppressed(Throwable exception)`** Appends the specified exception to the exceptions that were suppressed in order to deliver this exception.
`Throwable`	**`fillInStackTrace()`** Fills in the execution stack trace.
`Throwable`	**`getCause()`** Returns the cause of this throwable or `null` if the cause is nonexistent or unknown.
`String`	**`getLocalizedMessage()`** Creates a localized description of this throwable.
`String`	**`getMessage()`** Returns the detail message string of this throwable.
`StackTraceElement[]`	**`getStackTrace()`** Provides programmatic access to the stack trace information printed by **`printStackTrace()`**.
`Throwable[]`	**`getSuppressed()`** Returns an array containing all of the exceptions that were suppressed, typically by the `try`-with-resources statement, in order to deliver this exception.
`Throwable`	**`initCause(Throwable cause)`** Initializes the *cause* of this throwable to the specified value.
`void`	**`printStackTrace()`** Prints this throwable and its backtrace to the standard error stream.
`void`	**`printStackTrace(PrintStream s)`** Prints this throwable and its backtrace to the specified print stream.
`void`	**`printStackTrace(PrintWriter s)`** Prints this throwable and its backtrace to the specified print writer.
`void`	**`setStackTrace(StackTraceElement[] stackTrace)`** Sets the stack trace elements that will be returned by **`getStackTrace()`** and printed by **`printStackTrace()`** and related methods.
`String`	**`toString()`** Returns a short description of this throwable.

Class Throwable

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void	**printStackTrace**(**PrintStream** s) Prints this throwable and its backtrace to the specified print stream.
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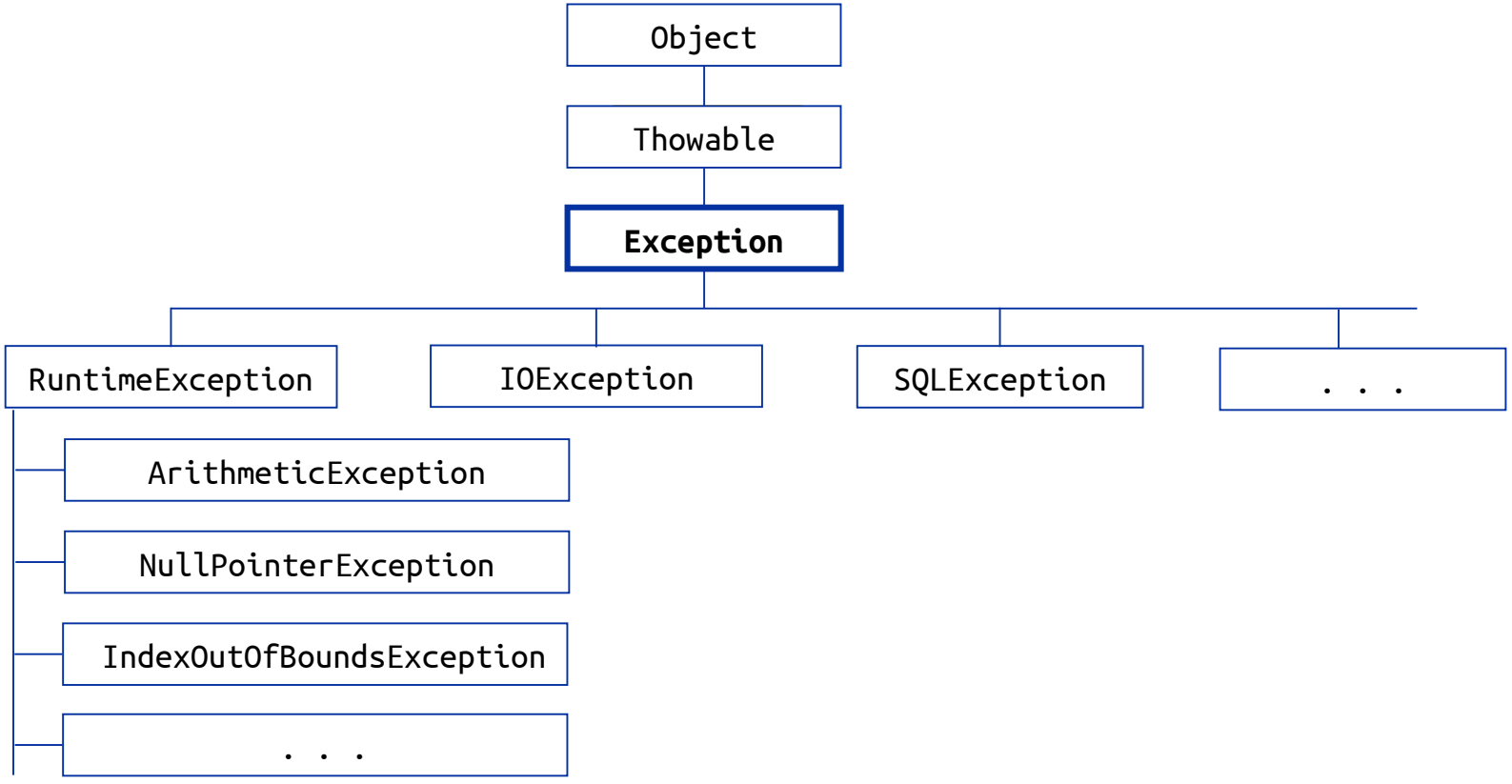
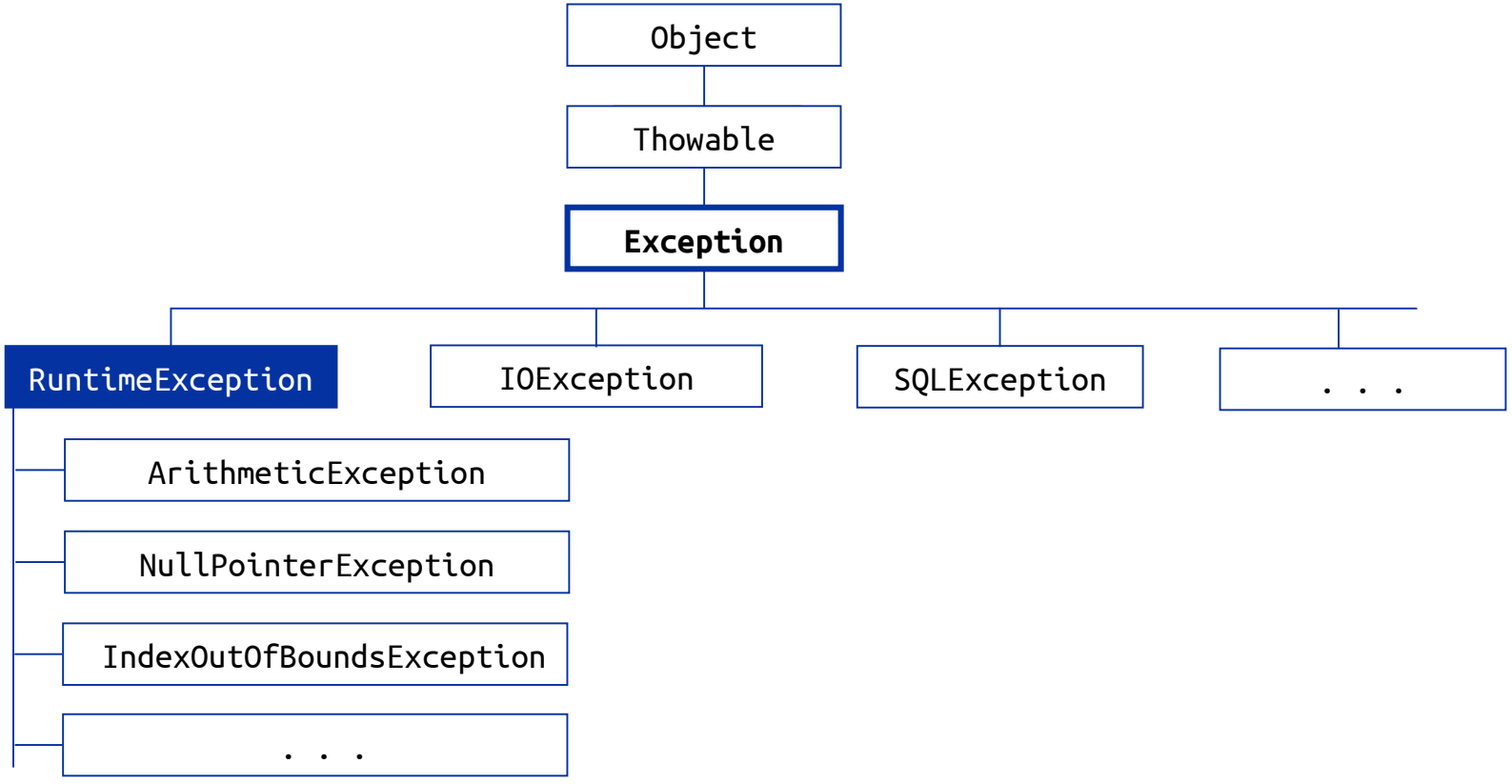
void	**setStackTrace**(**StackTraceElement**[] stackTrace) Sets the stack trace elements that will be returned by **getStackTrace()** and printed by **printStackTrace()** and related methods.
String	**toString**() Returns a short description of this throwable.

Exceptions: Types

2. Exceptions: Types



2. Exceptions: Types



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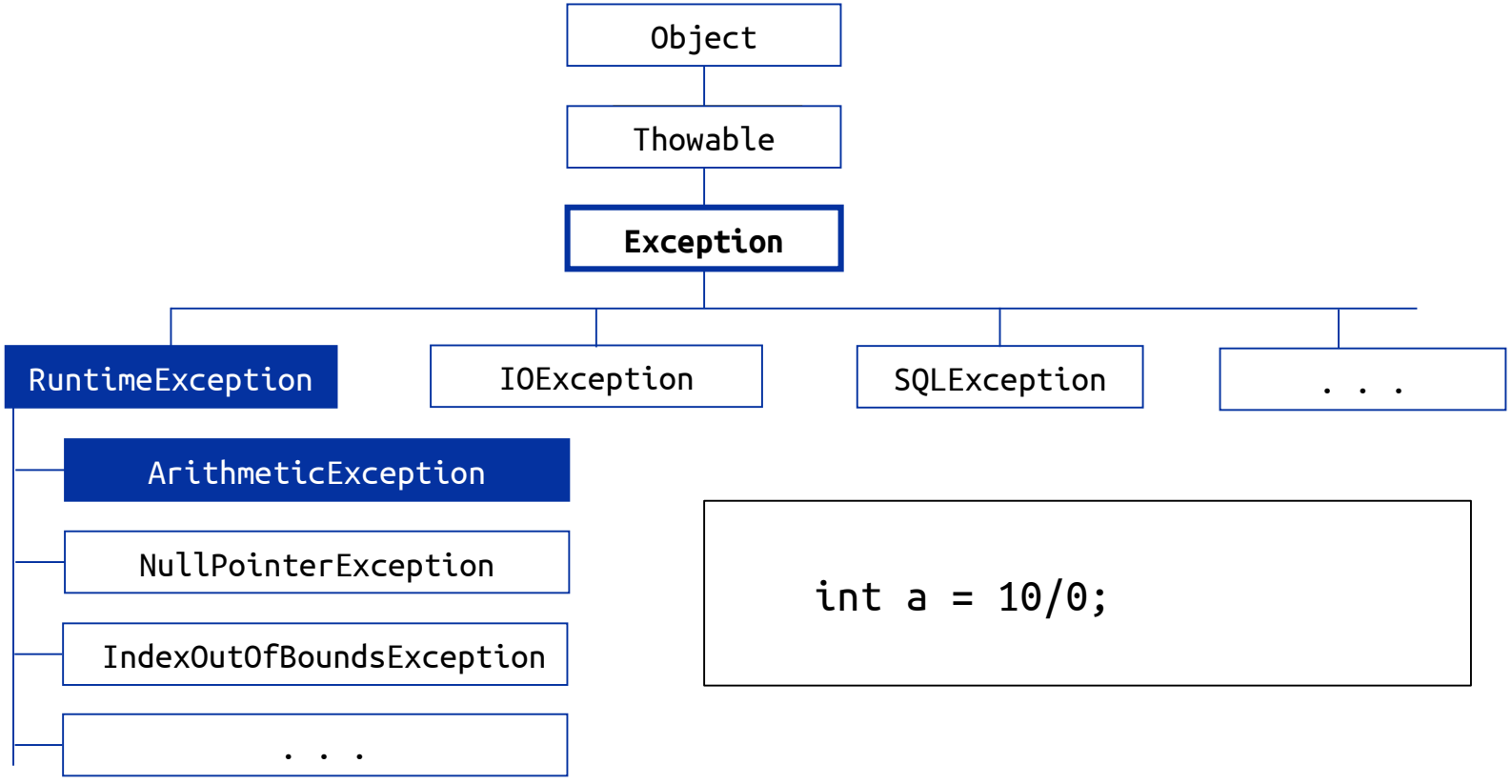


```
int a = 10/0;
```

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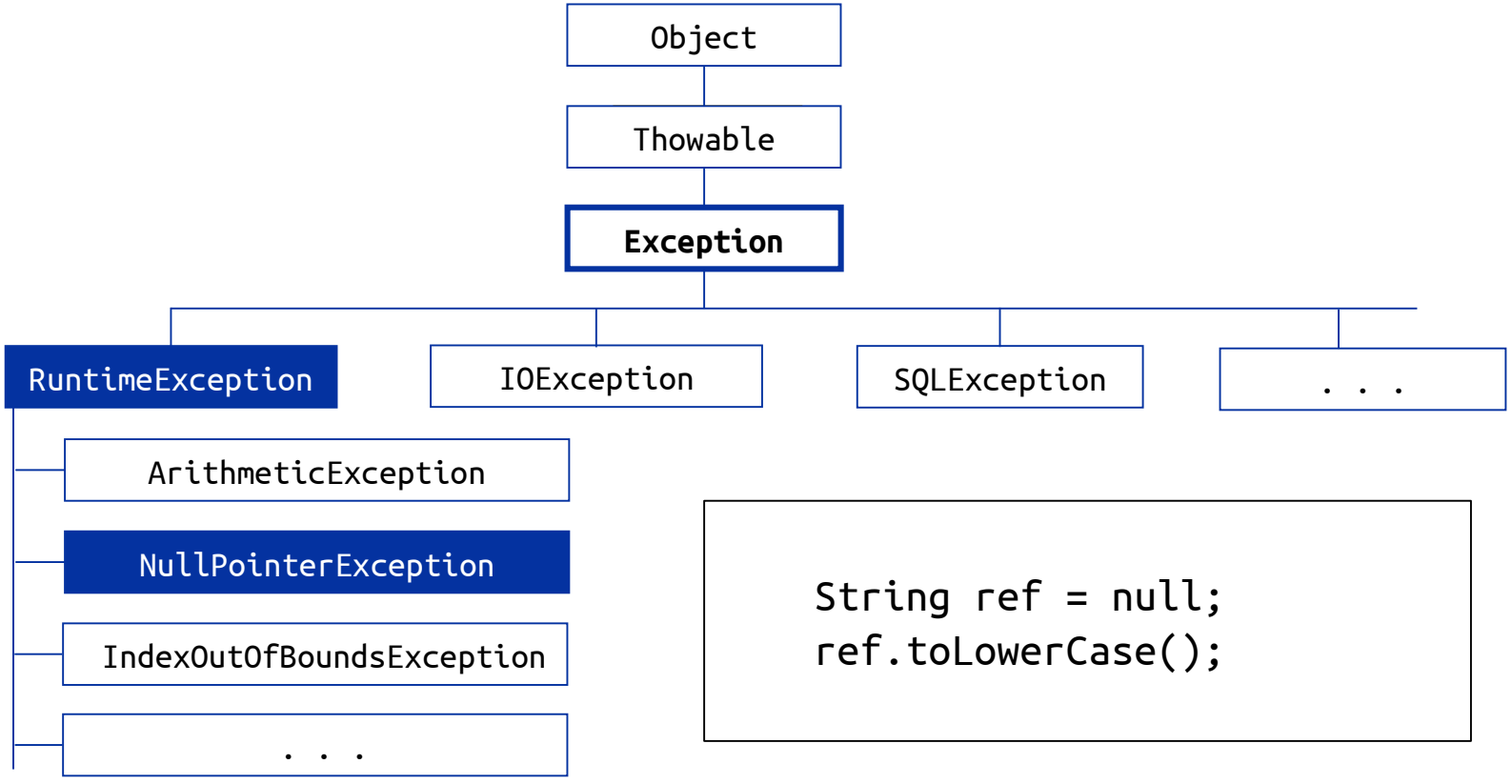
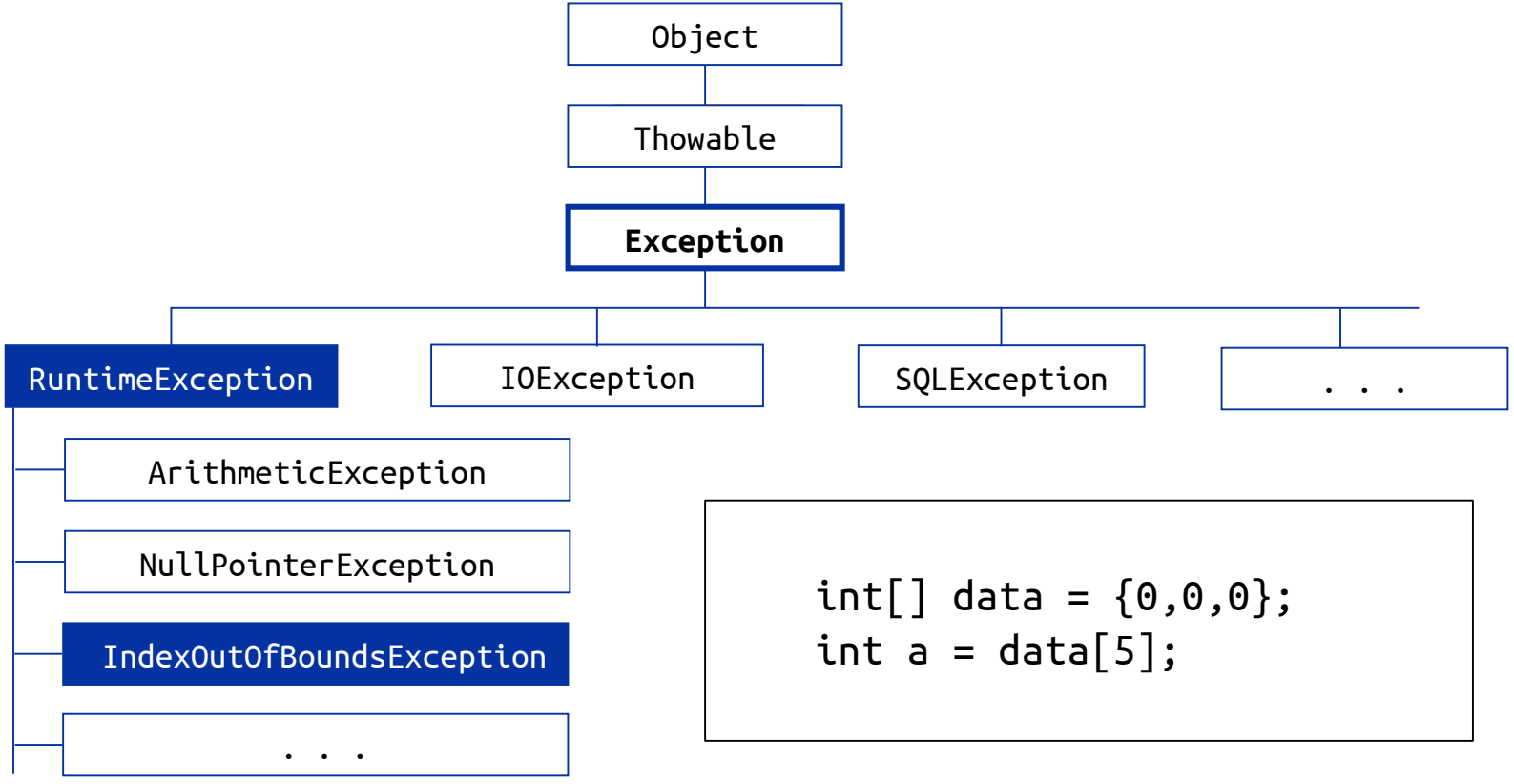


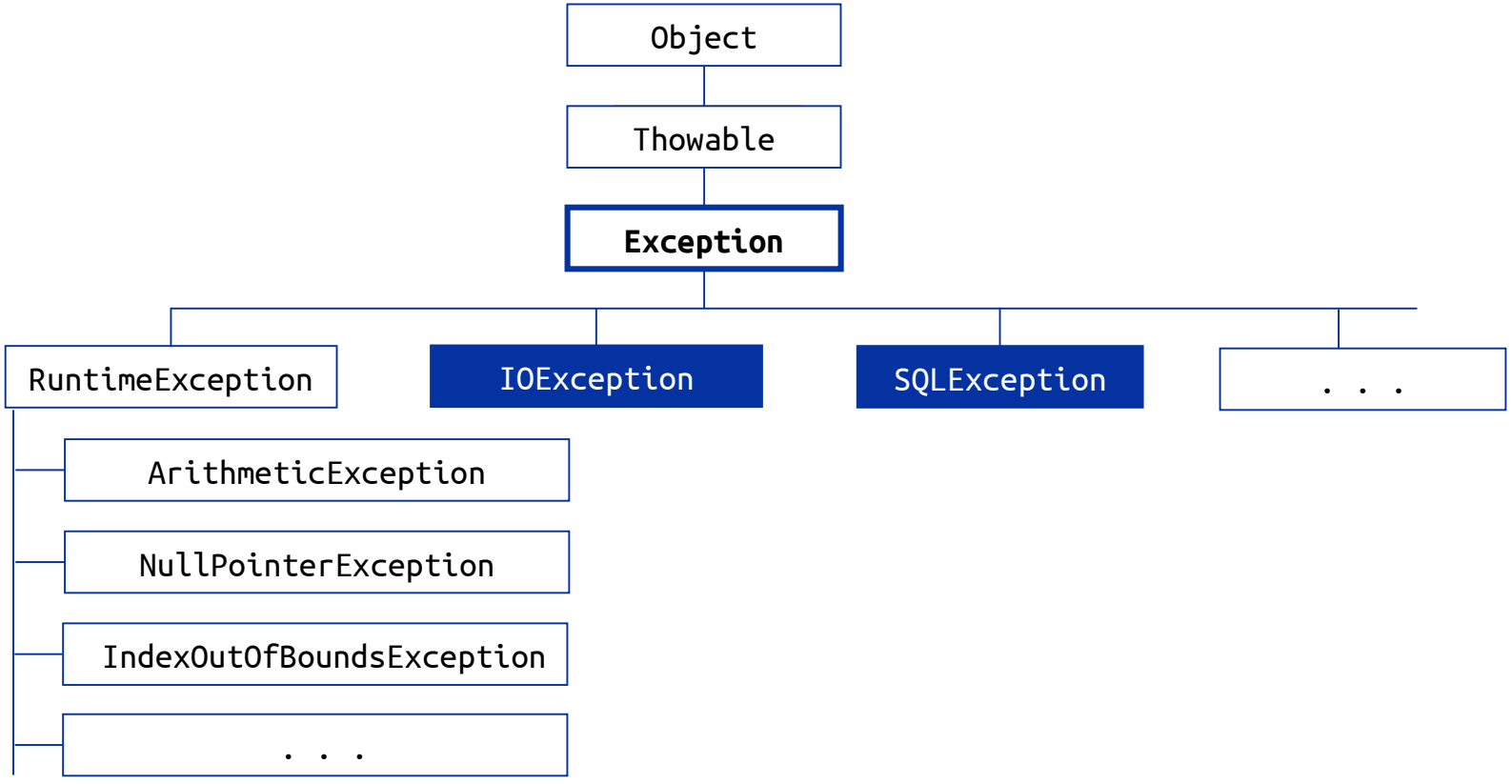

```
String ref = null;
ref.toLowerCase();
```

2. Exceptions: Types




```
int[] data = {0,0,0};
int a = data[5];
```

2. Exceptions: Types



Implicit vs Explicit

Implicit	Explicit
RunTimeExceptions	Not RunTimeExceptions
May/Should be controlled	Must be controlled
Can't be worked around in run time	May be worked around in run time

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Implicit Exception

Example

```
Public class Main {
    public static void main (string[]){
        String filename=null;
        if (filename.contains("aaaa")){
            //TODO code application
        }else{
            //TODO code application
        }
    }
```

Implicit Exception

Example

```
Public class Main {
    public static void main (string[]){
        String filename=null;
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        }
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```

java.lang.NullPointerException

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`NullPointerException`

unchecked

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`NullPointerException`

unchecked

Explicit Exception

Example

```
Public class Main {
    public static void main (string[]){
        //TODO code application
        String filename="employees.dat";
        FileReader fr = new FileReader(filename);
    }
}
```

Explicit Exception

Example

```
Public class Main {
    public static void main (string[]){
        //TODO code application
        String filename="employees.dat";
        FileReader fr = new FileReader(filename);
    }
}
```

unreported exception FileNotFoundException must be caught or declared to be thorwn

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May/Should be controlled	Must be controlled
Can't be worked around in run time	May be worked around in run time
`NullPointerException`	`FileNotFoundException`
unchecked	checked

“El hombre que ha cometido un error y no lo corrige comete otro error mayor.“

Confucio Filósofo chino