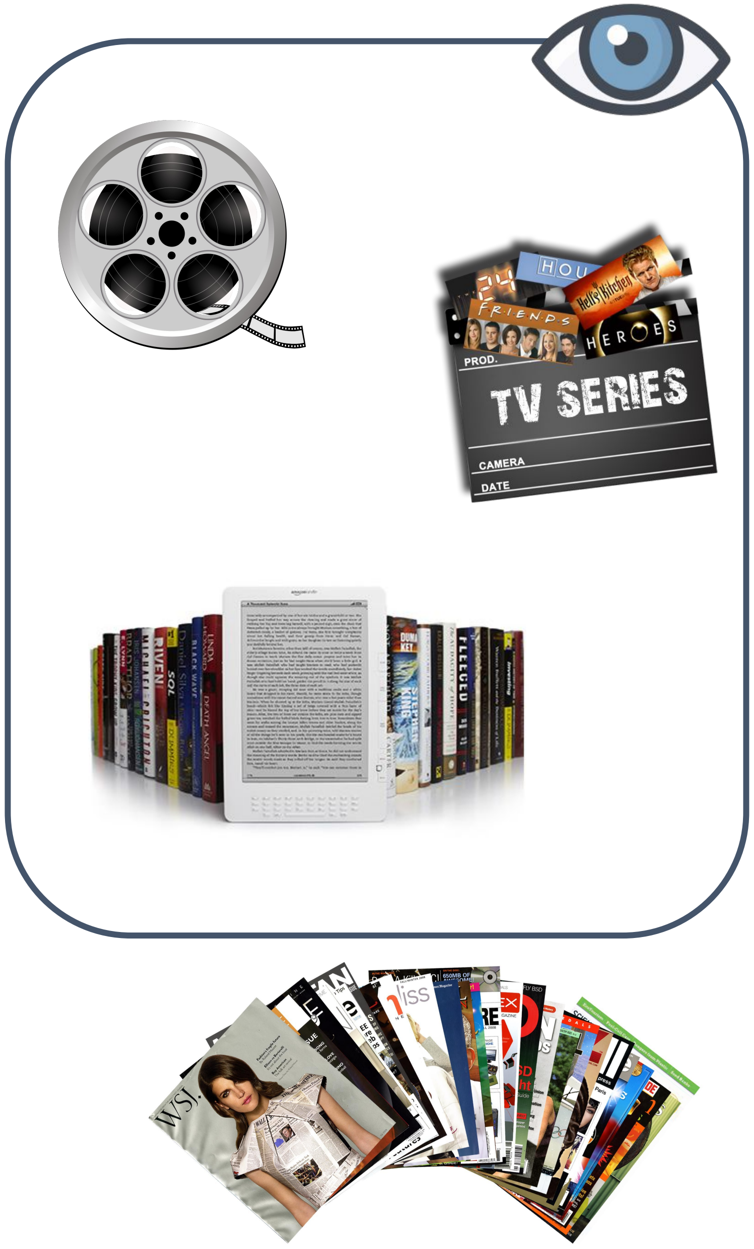
Curso Avanzado
JAVA SE

Presentación

AmazonViewer

AmazonViewer

AmazonViewer



Clases Avanzadas

Clases Avanzadas

CLASES ABSTRACTAS

Polimorfismo

Herencia Clases

Métodos sobreescritos

Muchas formas

Polimorfismo

Implementación **Interfaces**

Métodos sobreescritos

Muchas formas

¡Genial!

Interfaces

A veces no necesitamos
implementar todos los métodos

Herencia

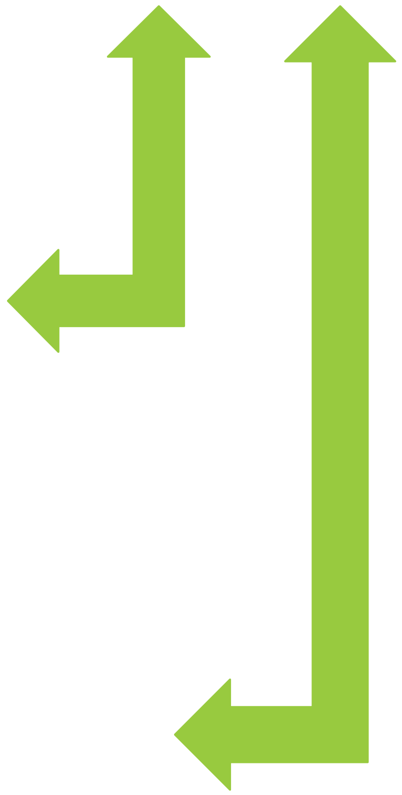
Las clases podrían <u>no</u> necesitar **heredar la implementación** de un método

Herencia

A veces no necesitamos crear **instancias de una clase padre**, porque es muy genérica

Clase Abstracta

- Intefaz
- Herencia



Clase Abstracta

No implementaremos todos los métodos

No crearemos instancias

```
public abstract class Figura {

    abstract void dibujate();

}
```

CLASES ABSTRACTAS

```java
public abstract class Figura {

    abstract void dibujate();

}
```

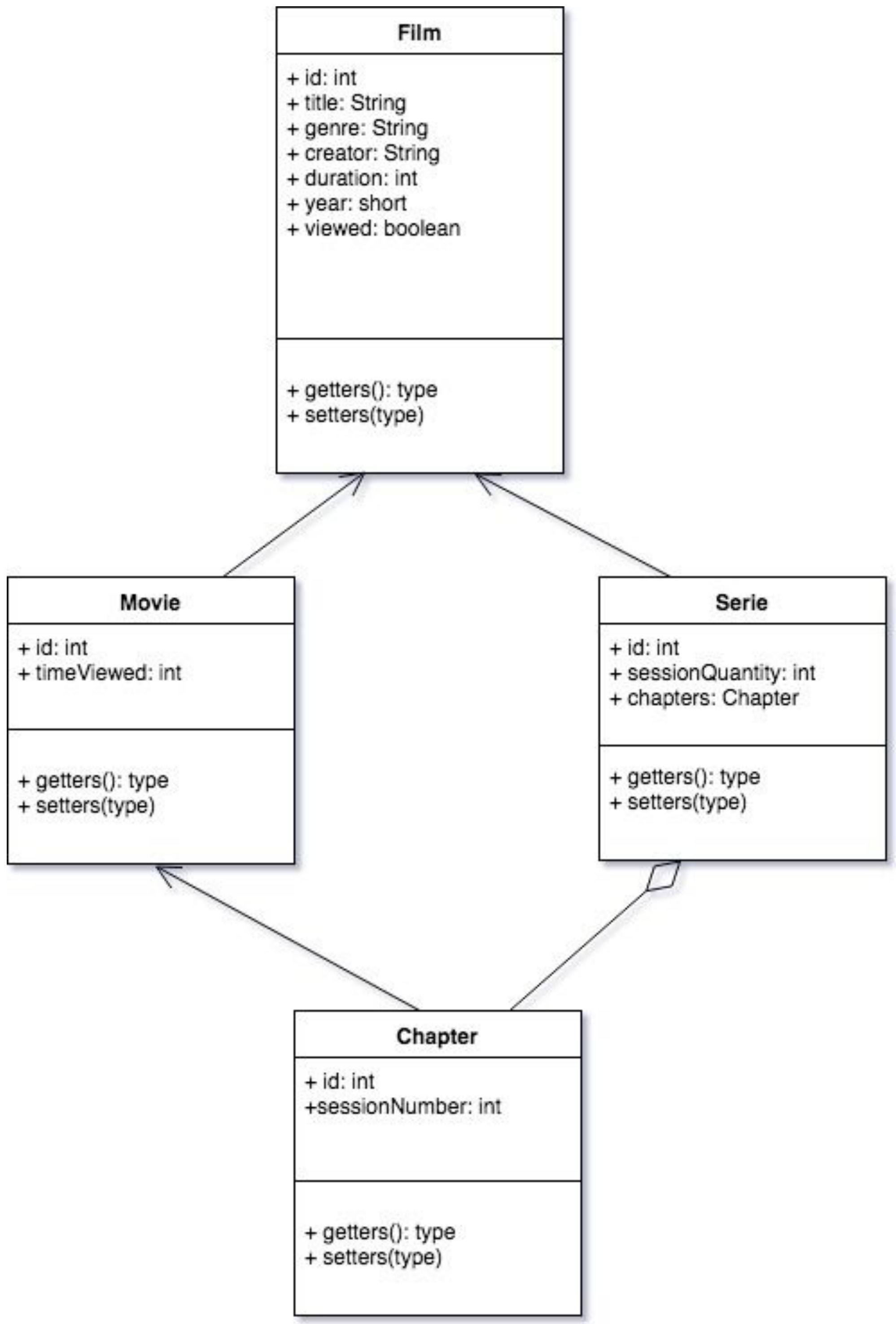
CLASES ABSTRACTAS

```
class Triangulo extends Figura {

    abstract void dibujate();

}
```

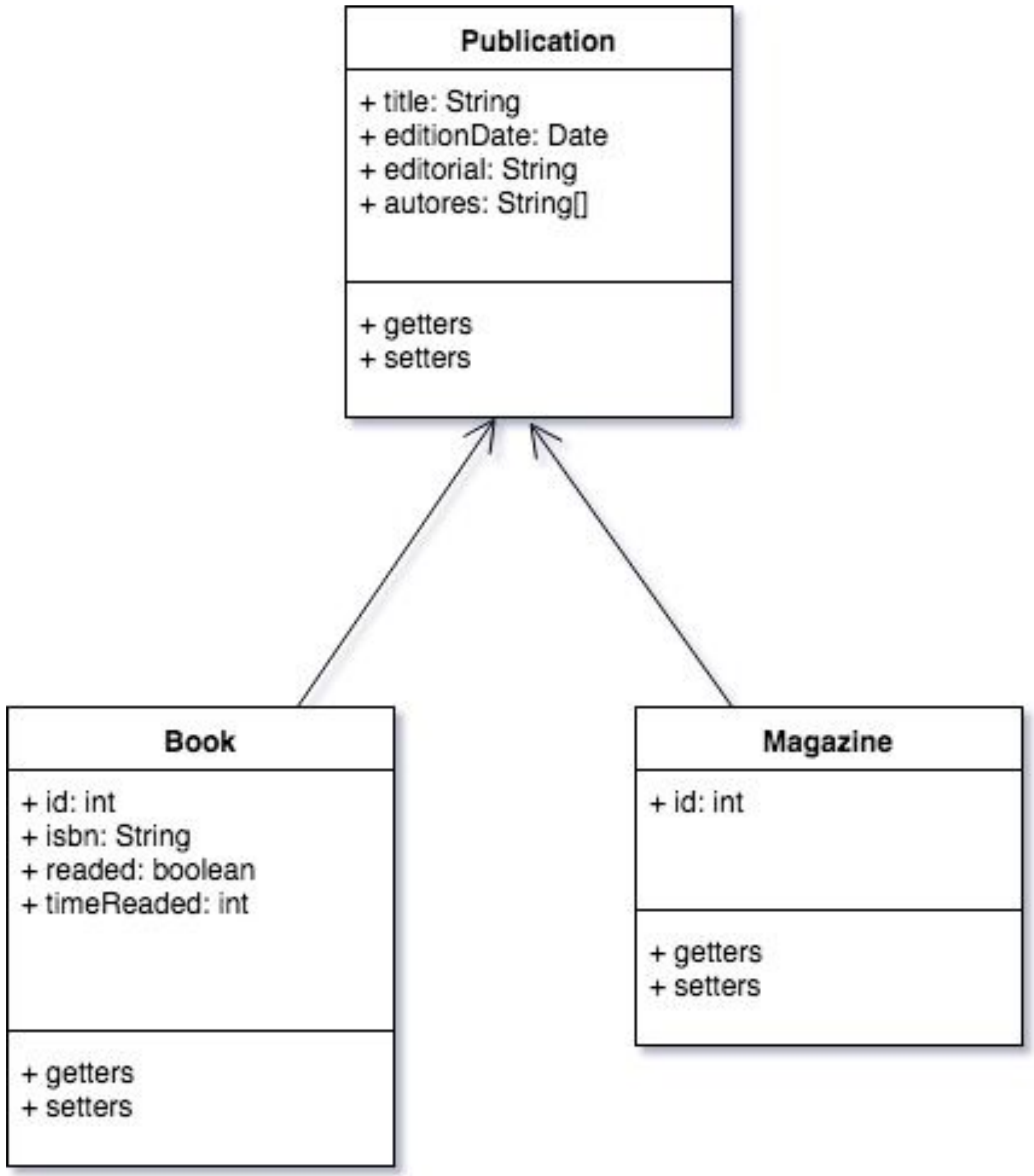
CLASES ABSTRACTAS

Nuestro proyecto

view()


Film
+ id: int
+ title: String
+ genre: String
+ creator: String
+ duration: int
+ year: short
+ viewed: boolean
+ getters(): type
+ setters(type)
Movie
+ id: int
+ timeViewed: int
+ getters(): type
+ setters(type)
Serie
+ id: int
+ sessionQuantity: int
+ chapters: Chapter
+ getters(): type
+ setters(type)
Chapter
+ id: int
+sessionNumber: int
+ getters(): type
+ setters(type)

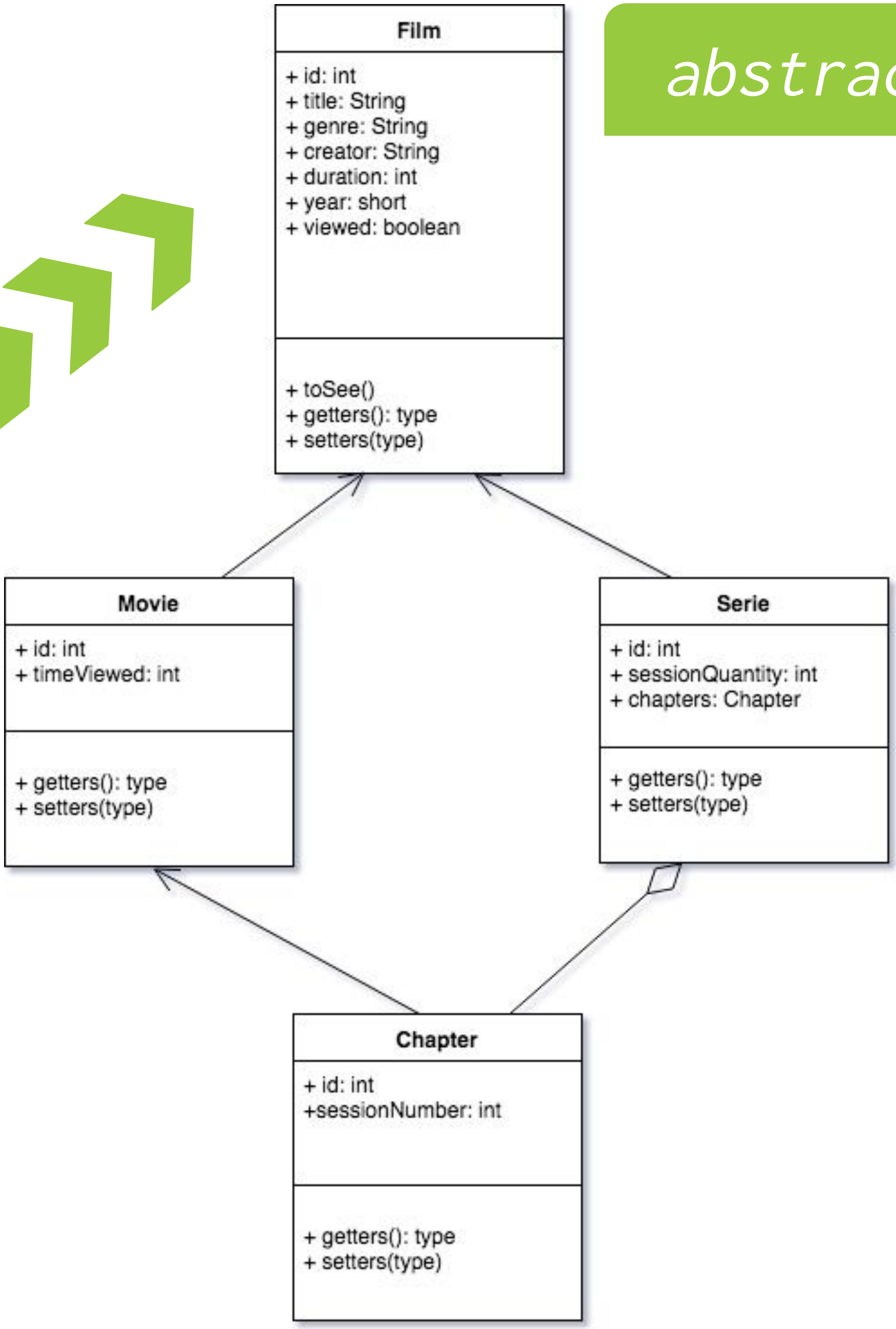
view()



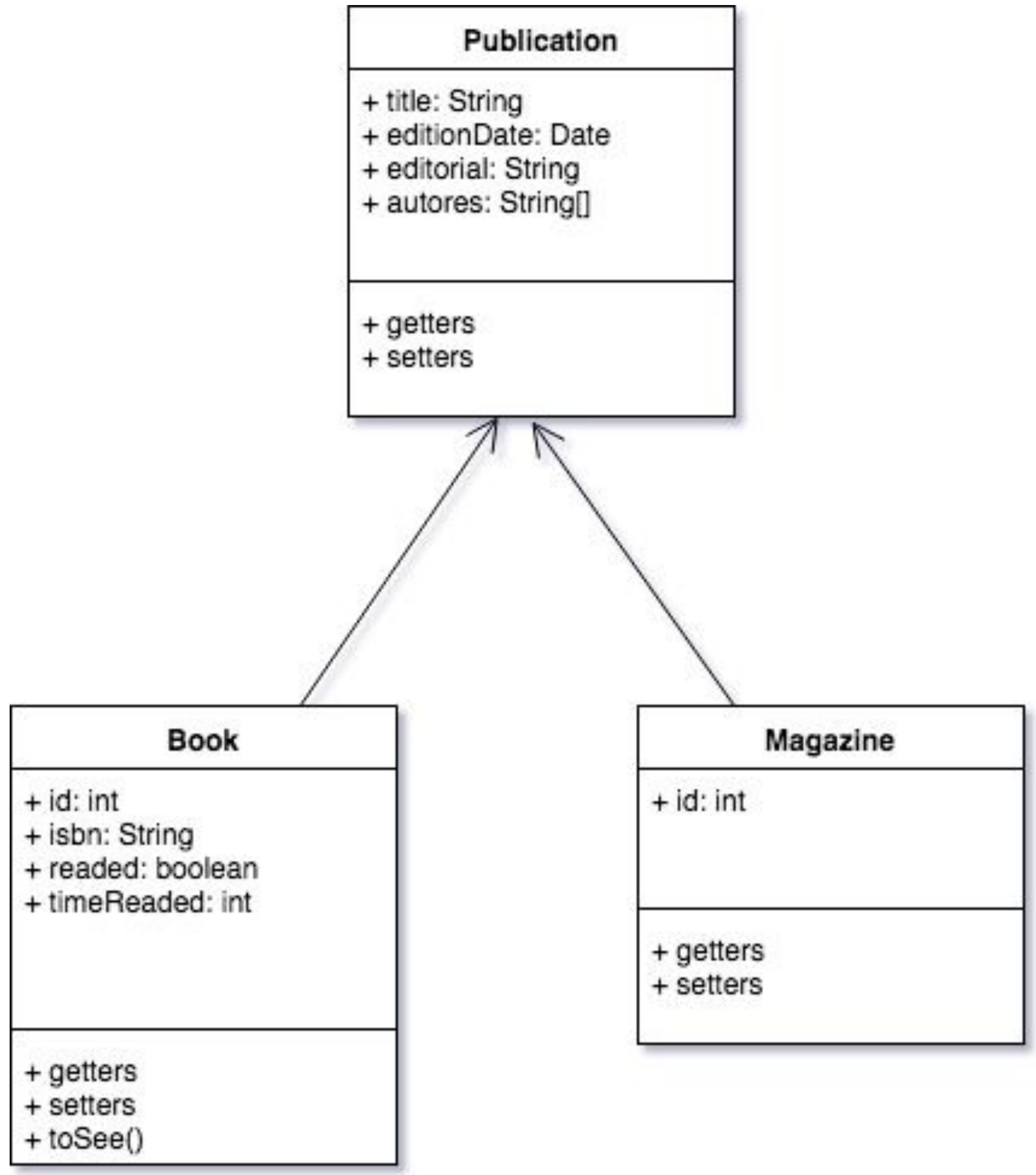
Publication
+ title: String
+ editionDate: Date
+ editorial: String
+ autores: String[]
+ getters
+ setters
Book
+ id: int
+ isbn: String
+ readed: boolean
+ timeReaded: int
+ getters
+ setters
Magazine
+ id: int
+ getters
+ setters

view()

abstract



view()



Publication
+ title: String
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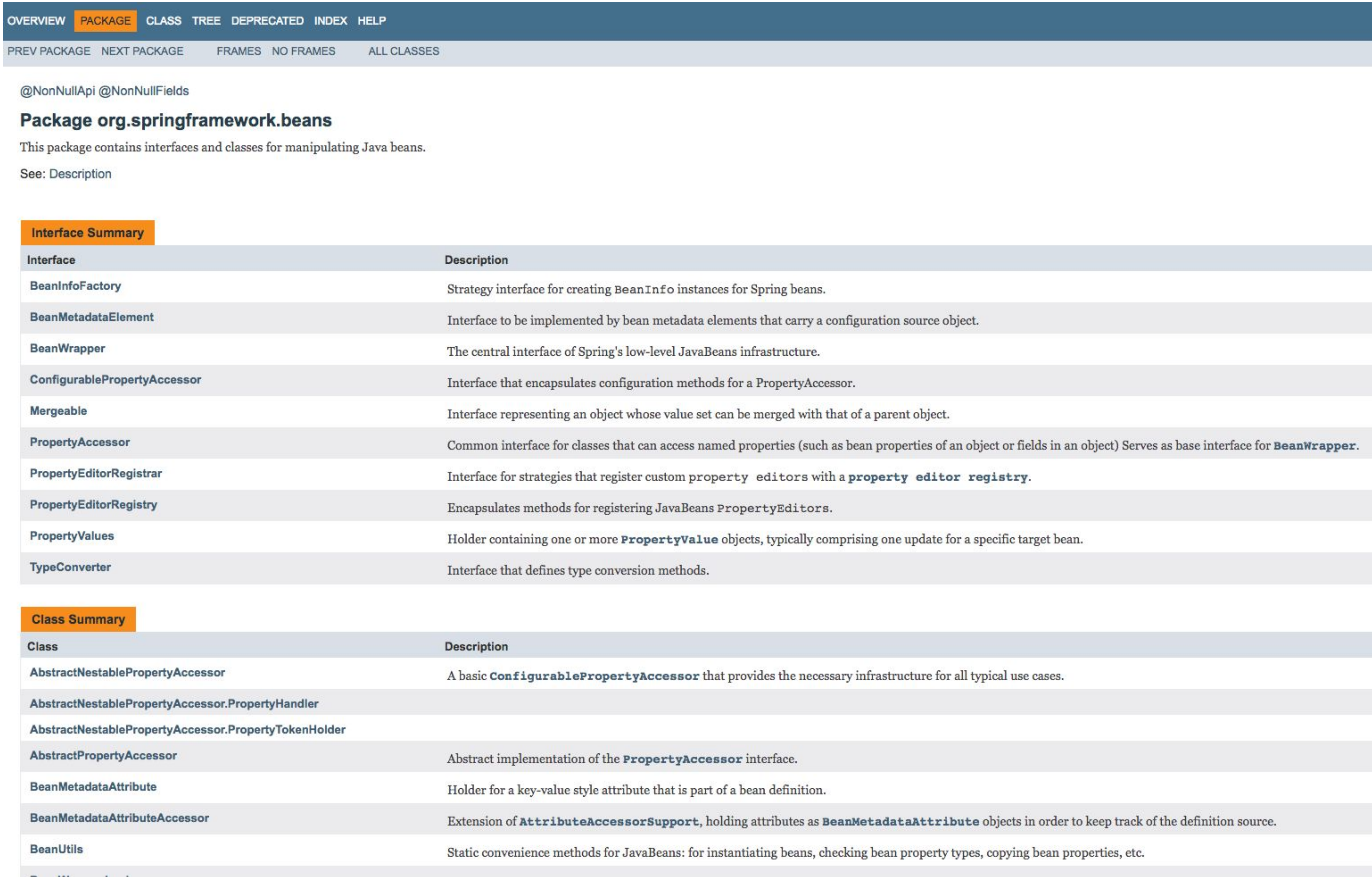
+ getters
+ setters
Book
+ id: int
+ isbn: String
+ readed: boolean
+ timeReaded: int
+ getters
+ setters
+ toSee()
Magazine
+ id: int
+ getters
+ setters

JavaDoc

Javadoc

Generar **documentación** en **HTML** desde el código Java.

Spring



OVERVIEW PACKAGE CLASS TREE DEPRECATED INDEX HELP
PREV PACKAGE NEXT PACKAGE FRAMES NO FRAMES ALL CLASSES

@NonNullApi @NonNullFields

Package org.springframework.beans

This package contains interfaces and classes for manipulating Java beans.

See: Description

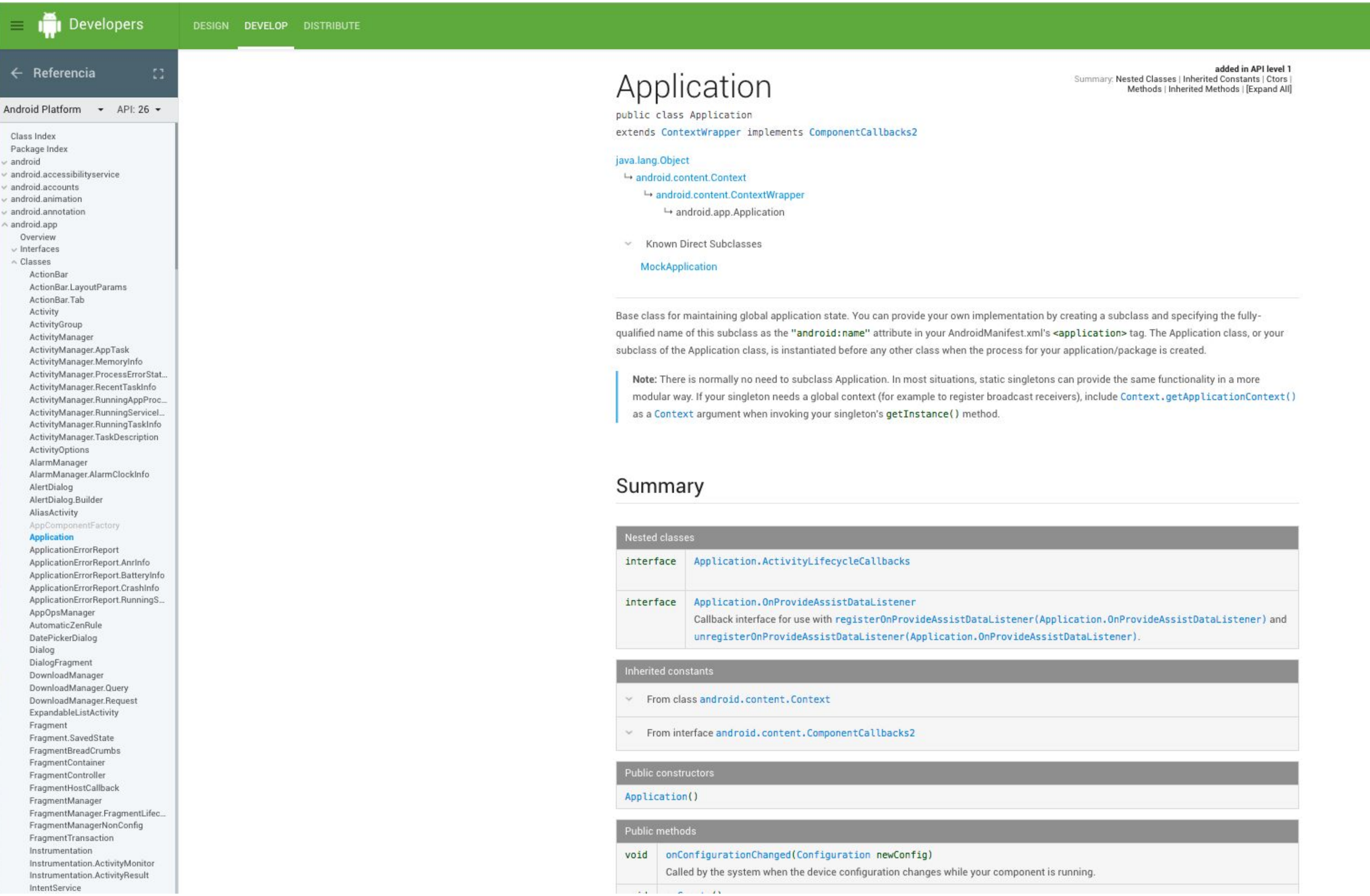
Interface Summary

Interface	Description
BeanInfoFactory	Strategy interface for creating `BeanInfo` instances for Spring beans.
BeanMetadataElement	Interface to be implemented by bean metadata elements that carry a configuration source object.
BeanWrapper	The central interface of Spring's low-level JavaBeans infrastructure.
ConfigurablePropertyAccessor	Interface that encapsulates configuration methods for a PropertyAccessor.
Mergeable	Interface representing an object whose value set can be merged with that of a parent object.
PropertyAccessor	Common interface for classes that can access named properties (such as bean properties of an object or fields in an object) Serves as base interface for `BeanWrapper`.
PropertyEditorRegistrar	Interface for strategies that register custom `property editors` with a `property editor registry`.
PropertyEditorRegistry	Encapsulates methods for registering JavaBeans `PropertyEditors`.
PropertyValues	Holder containing one or more `PropertyValue` objects, typically comprising one update for a specific target bean.
TypeConverter	Interface that defines type conversion methods.

Class Summary

Class	Description
AbstractNestablePropertyAccessor	A basic `ConfigurablePropertyAccessor` that provides the necessary infrastructure for all typical use cases.
AbstractNestablePropertyAccessor.PropertyHandler	
AbstractNestablePropertyAccessor.PropertyTokenHolder	
AbstractPropertyAccessor	Abstract implementation of the `PropertyAccessor` interface.
BeanMetadataAttribute	Holder for a key-value style attribute that is part of a bean definition.
BeanMetadataAttributeAccessor	Extension of `AttributeAccessorSupport`, holding attributes as `BeanMetadataAttribute` objects in order to keep track of the definition source.
BeanUtils	Static convenience methods for JavaBeans: for instantiating beans, checking bean property types, copying bean properties, etc.

Android



Developers DESIGN DEVELOP DISTRIBUTE

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FragmentContainer
FragmentController
FragmentHostCallback
FragmentManager
FragmentManager.FragmentLifec...
FragmentManagerNonConfig
FragmentTransaction
Instrumentation
Instrumentation.ActivityMonitor
Instrumentation.ActivityResult
IntentService

added in API level 1
Summary: Nested Classes | Inherited Constants | Ctors | Methods | Inherited Methods | [Expand All]

Application

`public class Application`
`extends ContextWrapper implements ComponentCallbacks2`

java.lang.Object
↳ android.content.Context
↳ android.content.ContextWrapper
↳ android.app.Application

Known Direct Subclasses

MockApplication

Base class for maintaining global application state. You can provide your own implementation by creating a subclass and specifying the fully-qualified name of this subclass as the `"android:name"` attribute in your AndroidManifest.xml's `<application>` tag. The Application class, or your subclass of the Application class, is instantiated before any other class when the process for your application/package is created.

Note: There is normally no need to subclass Application. In most situations, static singletons can provide the same functionality in a more modular way. If your singleton needs a global context (for example to register broadcast receivers), include `Context.getApplicationContext()` as a `Context` argument when invoking your singleton's `getInstance()` method.

Summary

Nested classes	
`interface`	`Application.ActivityLifecycleCallbacks`
`interface`	`Application.OnProvideAssistDataListener` Callback interface for use with `registerOnProvideAssistDataListener(Application.OnProvideAssistDataListener)` and `unregisterOnProvideAssistDataListener(Application.OnProvideAssistDataListener)`.

Inherited constants
From class `android.content.Context`
From interface `android.content.ComponentCallbacks2`

Public constructors
`Application()`

Public methods	
`void`	`onConfigurationChanged(Configuration newConfig)` Called by the system when the device configuration changes while your component is running.

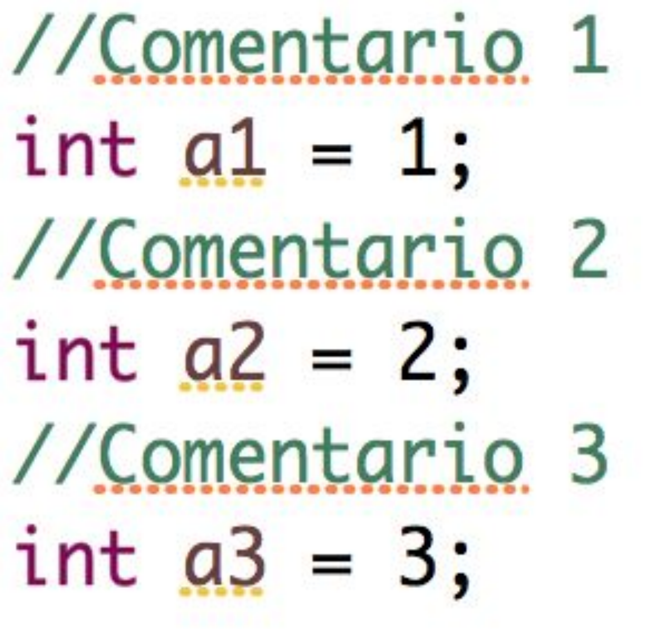
Comentarios

```
// Soy un comentario :)
```

3 formas de poner comentarios

// un comentario

Todo lo que esté en esa línea será ignorado por la computadora



```
//Comentario 1
int a1 = 1;
//Comentario 2
int a2 = 2;
//Comentario 3
int a3 = 3;
```

Comentario en una línea

3 formas de poner comentarios

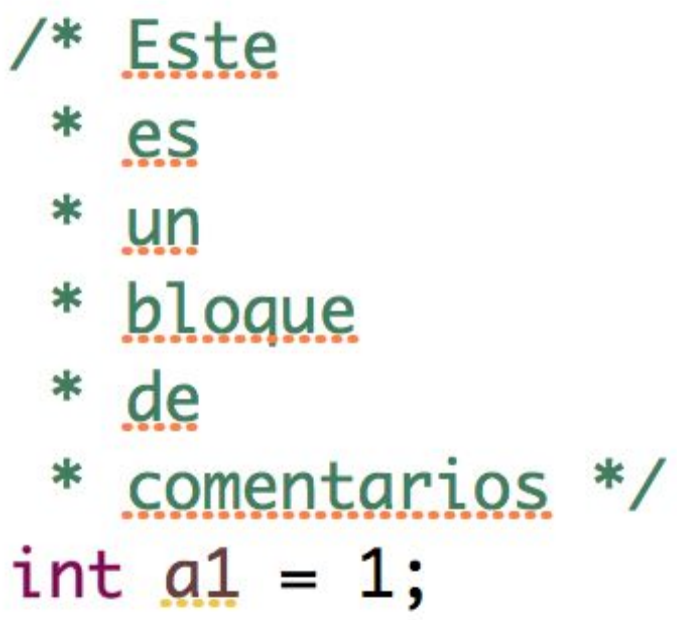
● // un comentario

```
Todo lo que esté en esa línea será
ignorado por la computadora
```

● **/* un bloque de comentarios */**

```
Todo lo que esté dentro será ignorado
```

●



```
/* Este
 * es
 * un
 * bloque
 * de
 * comentarios */
int a1 = 1;
```

Bloque de comentarios

3 formas de poner comentarios

● // un comentario

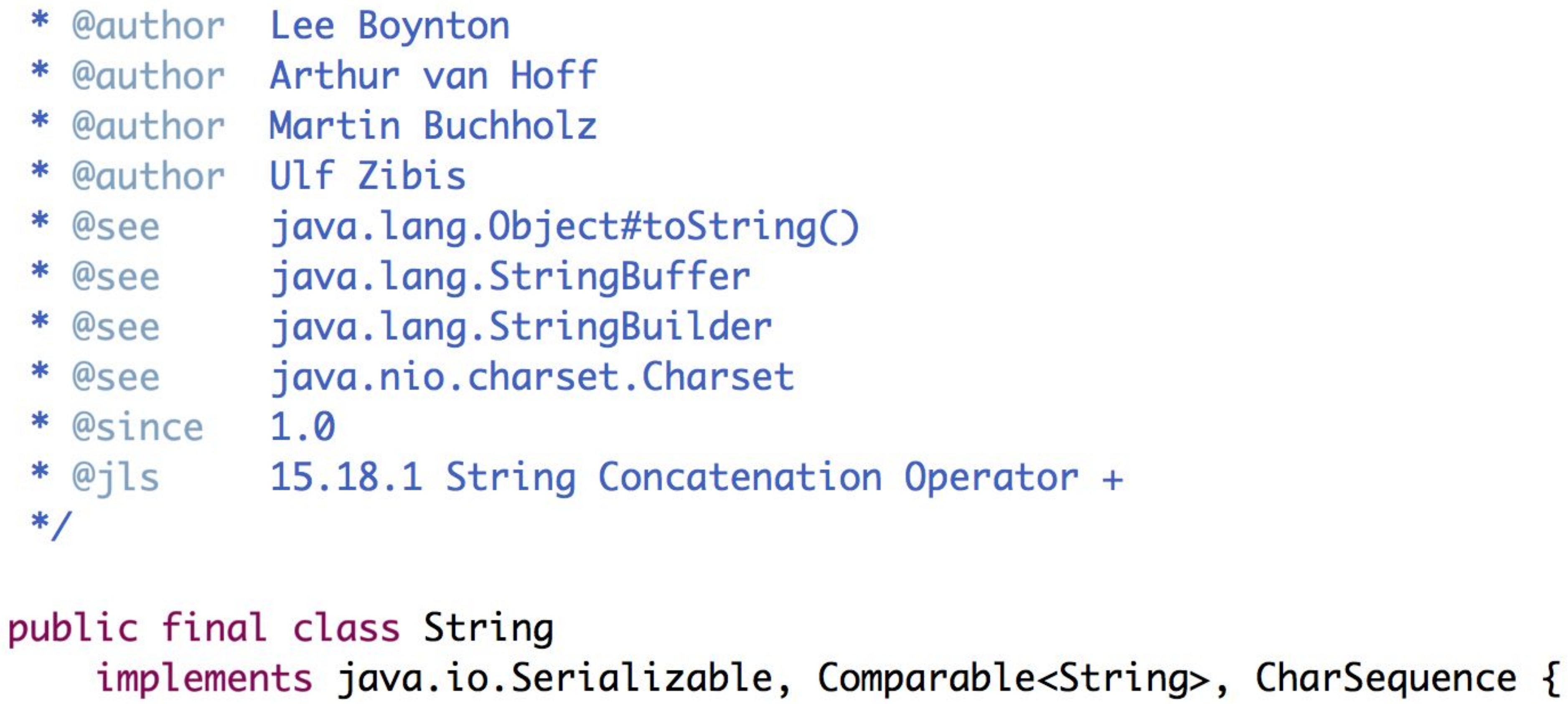
`Todo lo que esté en esa línea será ignorado por la computadora`

● /* un bloque de comentarios */

`Todo lo que esté dentro será ignorado`

● **/** documentacion */**

`Todo lo que esté dentro será un comentario de documentación llamado doc comment`



```
 * @author  Lee Boynton
 * @author  Arthur van Hoff
 * @author  Martin Buchholz
 * @author  Ulf Zibis
 * @see     java.lang.Object#toString()
 * @see     java.lang.StringBuffer
 * @see     java.lang.StringBuilder
 * @see     java.nio.charset.Charset
 * @since   1.0
 * @jls     15.18.1 String Concatenation Operator +
 */

public final class String
    implements java.io.Serializable, Comparable<String>, CharSequence {
```

JavaDoc comment

```
/**
* [descripción corta]
* <p>
* [descripción larga]
*
* [author, version, params,
returns, throws, see, other tags]
* [see also]
*/
```

Ejemplo

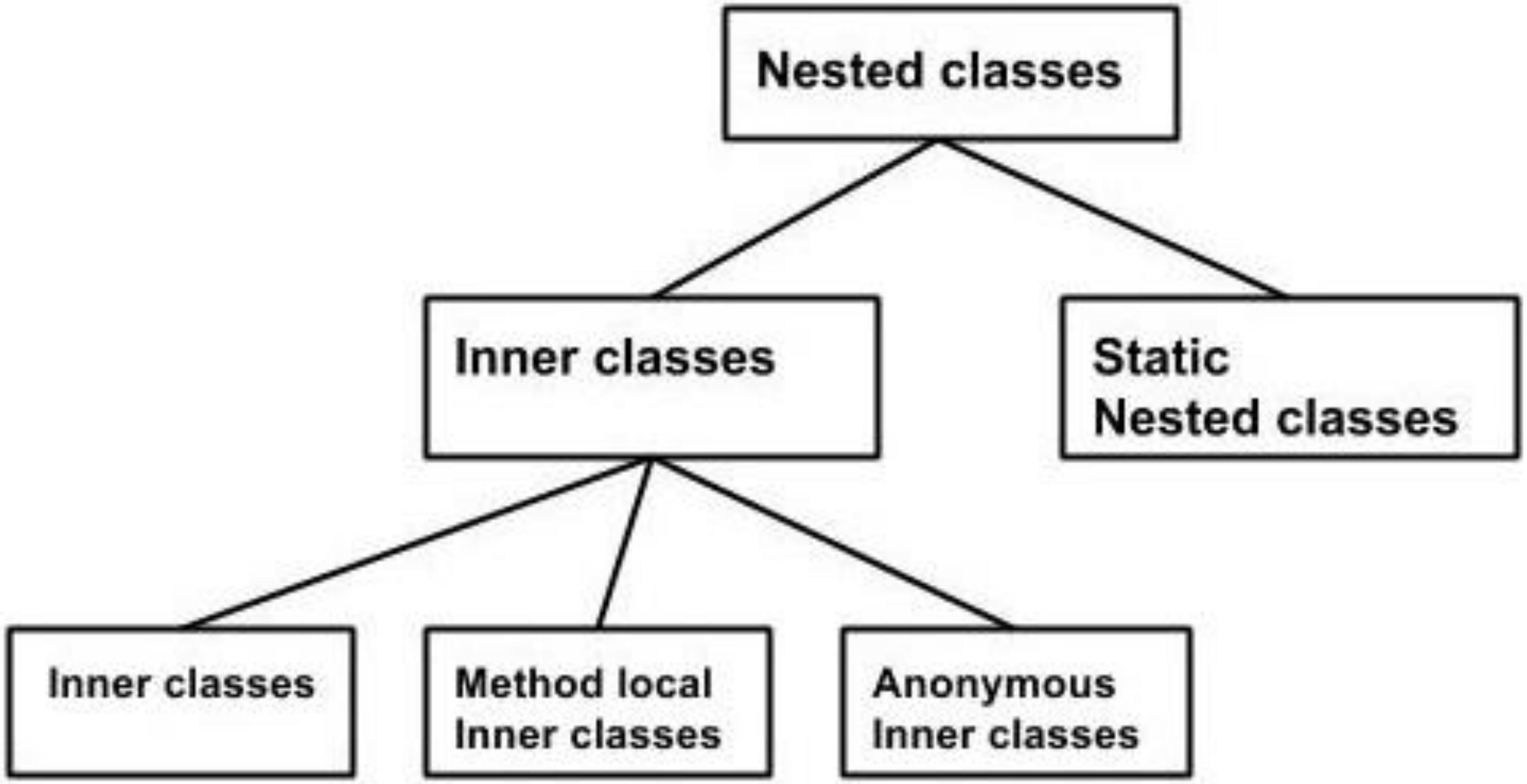
Platzi

Clases Avanzadas

CLASES ANIDADAS

```
class ClaseExterior {

    class ClaseAnidada {

    }

}
```

CLASES ANIDADAS


Nested classes
Inner classes
Static Nested classes
Inner classes
Method local Inner classes
Anonymous Inner classes

```
class ClaseExterior {
    static class ClaseStaticaAnidada {
    }
    class ClaseInterna {
    }
}
```

CLASES ANIDADAS

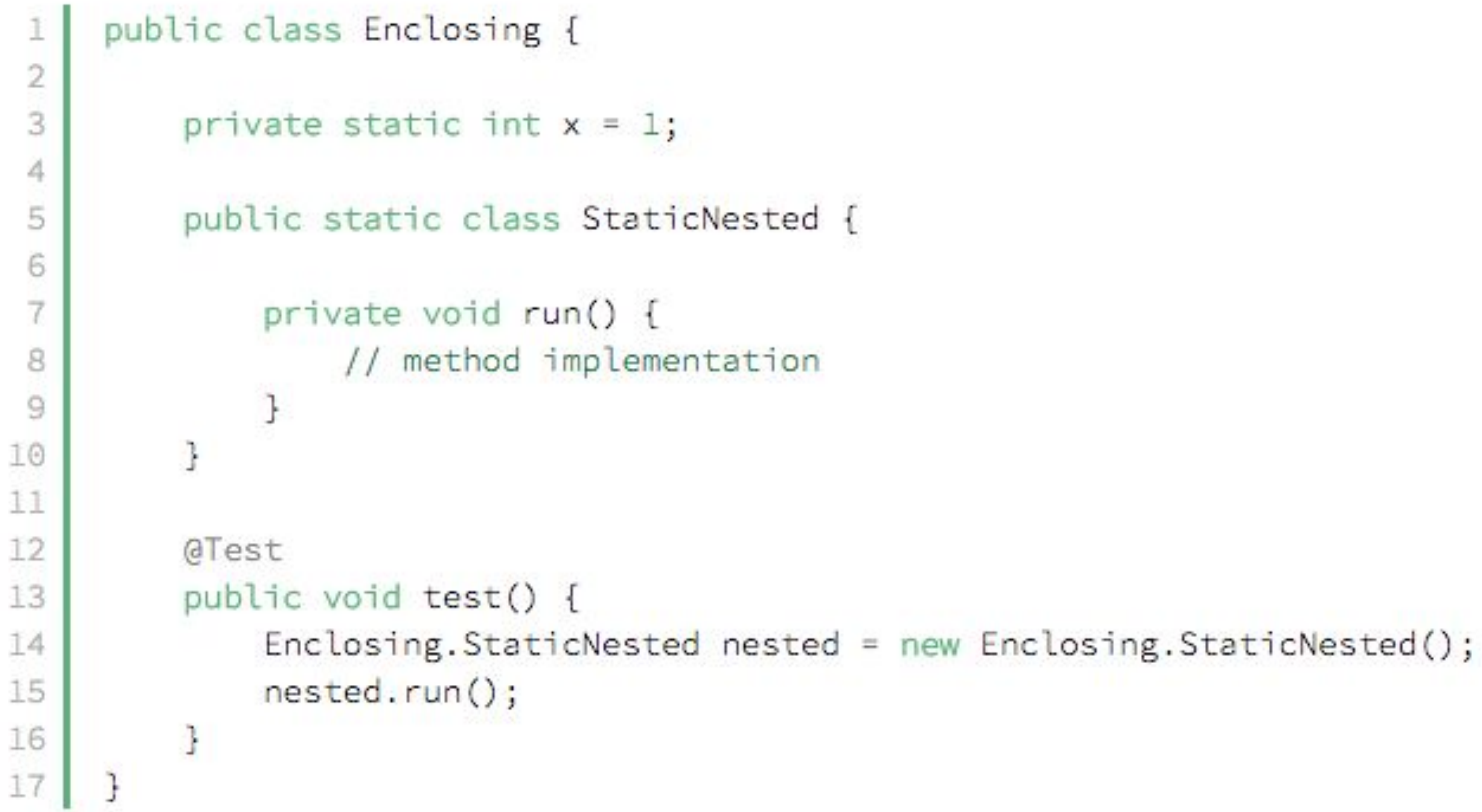
Clases anidadas

`static`

- Estáticas
- No Estáticas

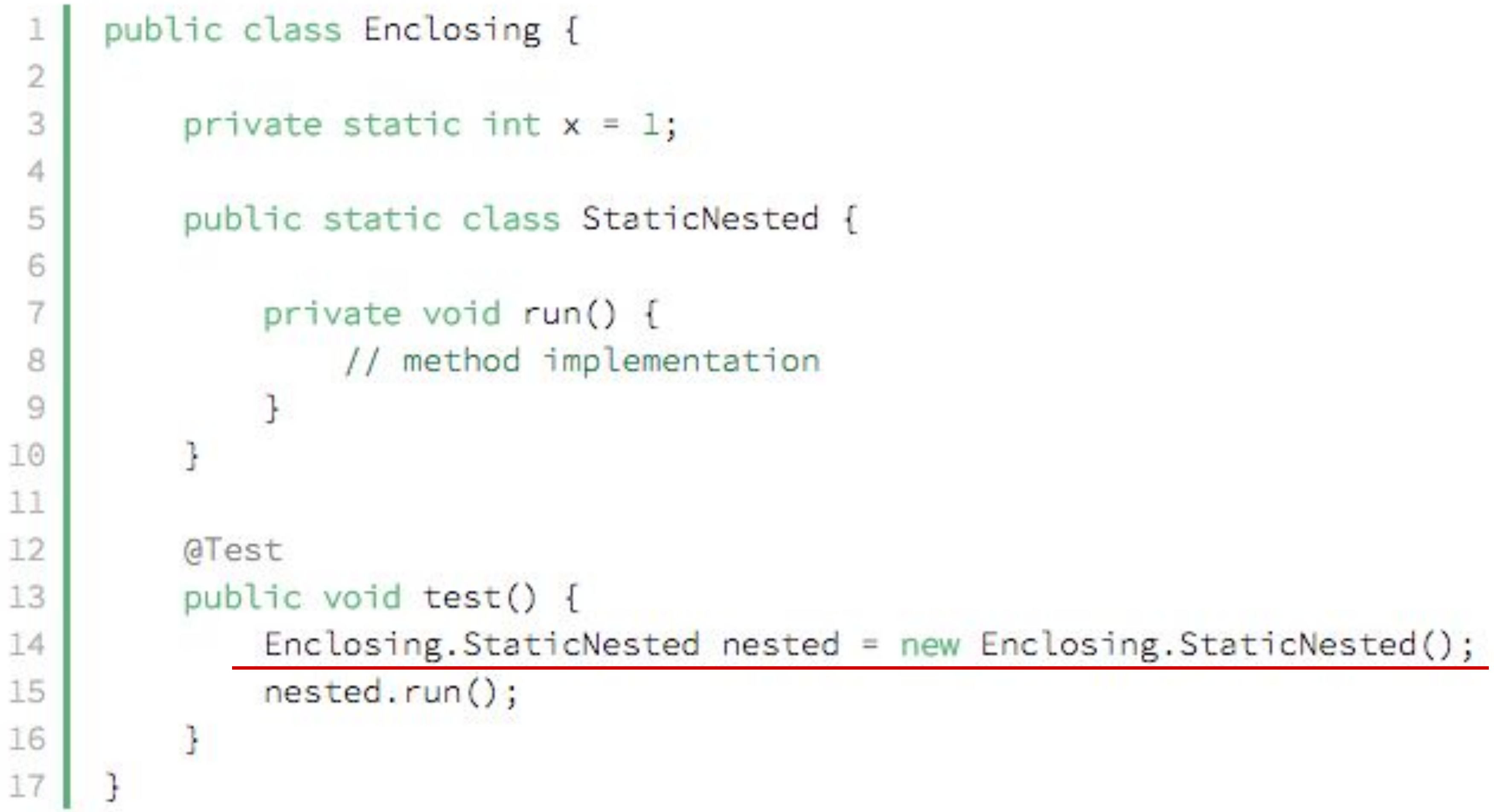
Clases estáticas

No se necesitan crear instancias para llamarlas



```java
public class Enclosing {

    private static int x = 1;

    public static class StaticNested {

        private void run() {
            // method implementation
        }
    }

    @Test
    public void test() {
        Enclosing.StaticNested nested = new Enclosing.StaticNested();
        nested.run();
    }
}
```

Clases Estáticas

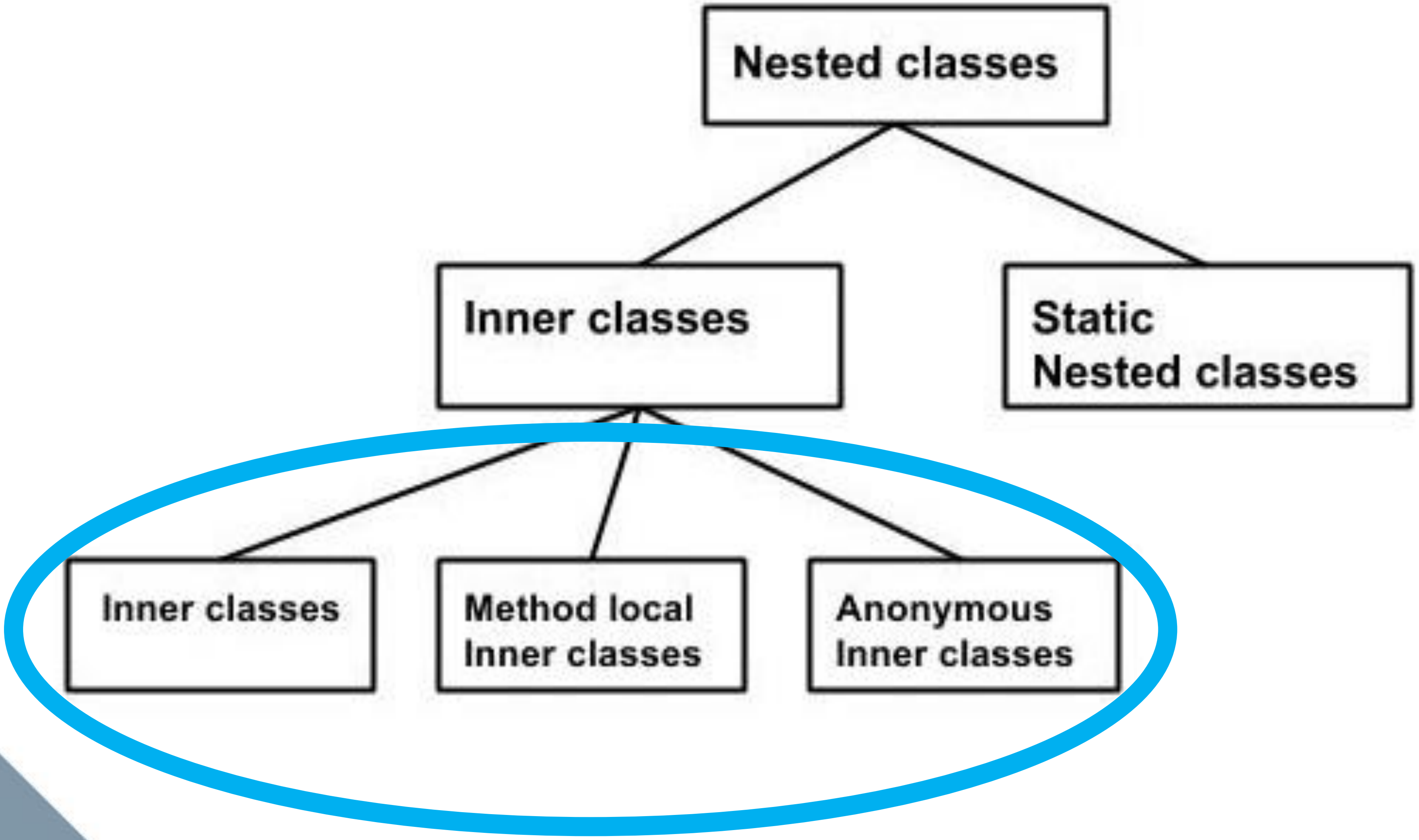


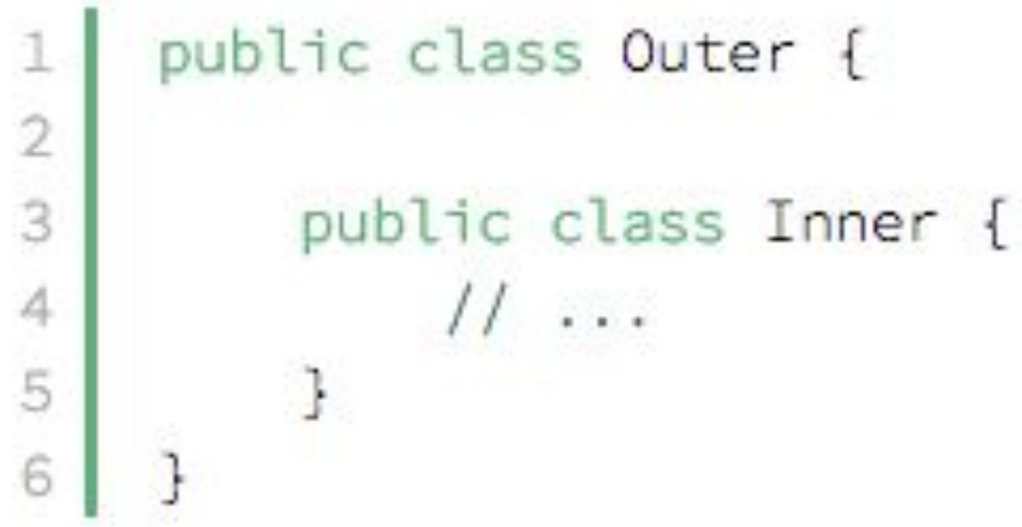
```java
public class Enclosing {

    private static int x = 1;

    public static class StaticNested {

        private void run() {
            // method implementation
        }
    }

    @Test
    public void test() {
        Enclosing.StaticNested nested = new Enclosing.StaticNested();
        nested.run();
    }
}
```

Clases Estáticas

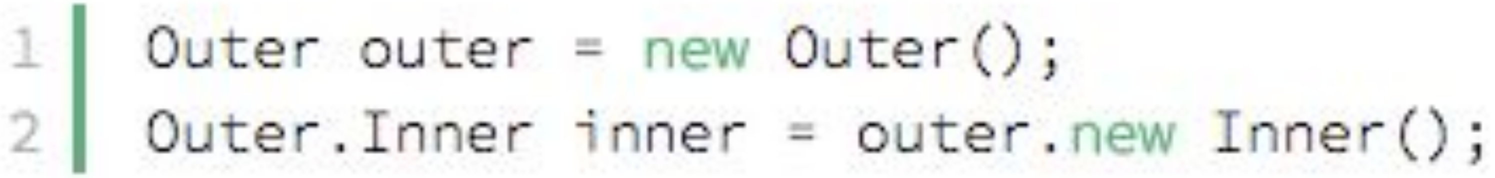
Clases estáticas

Solo se pueden llamar a los métodos estáticos


Nested classes
Inner classes
Static Nested classes
Inner classes
Method local Inner classes
Anonymous Inner classes

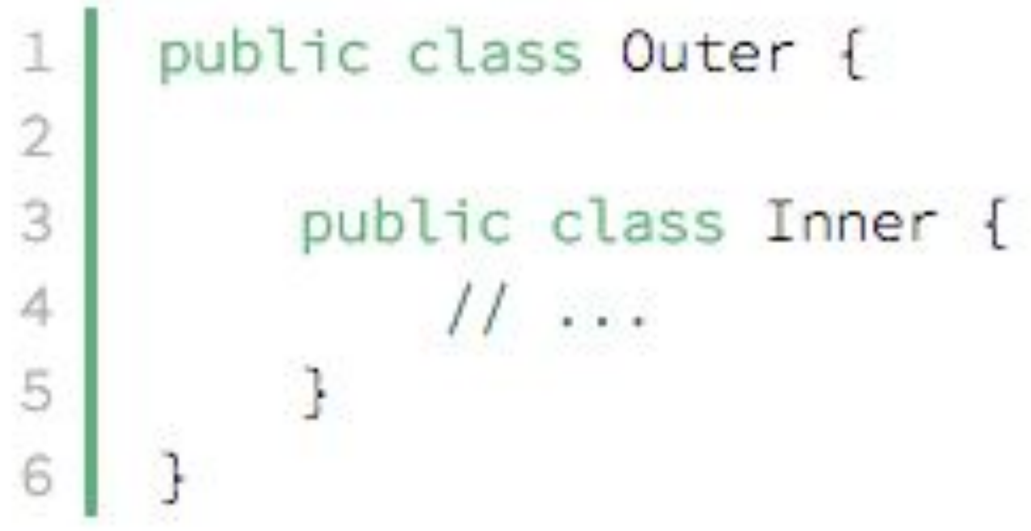


```java
public class Outer {

    public class Inner {
        // ...
    }
}
```

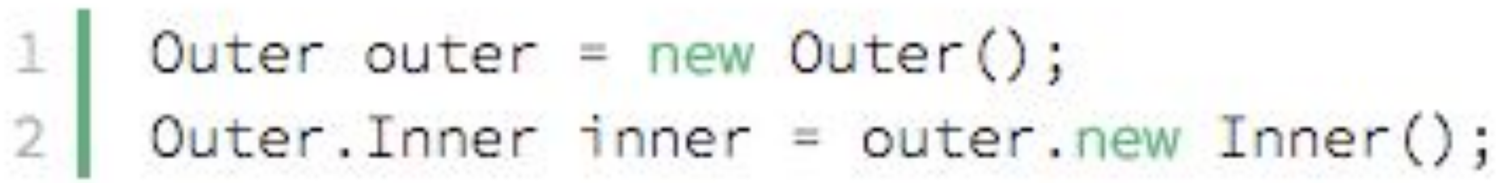


```java
Outer outer = new Outer();
Outer.Inner inner = outer.new Inner();
```

Clases Anidadas - Inner

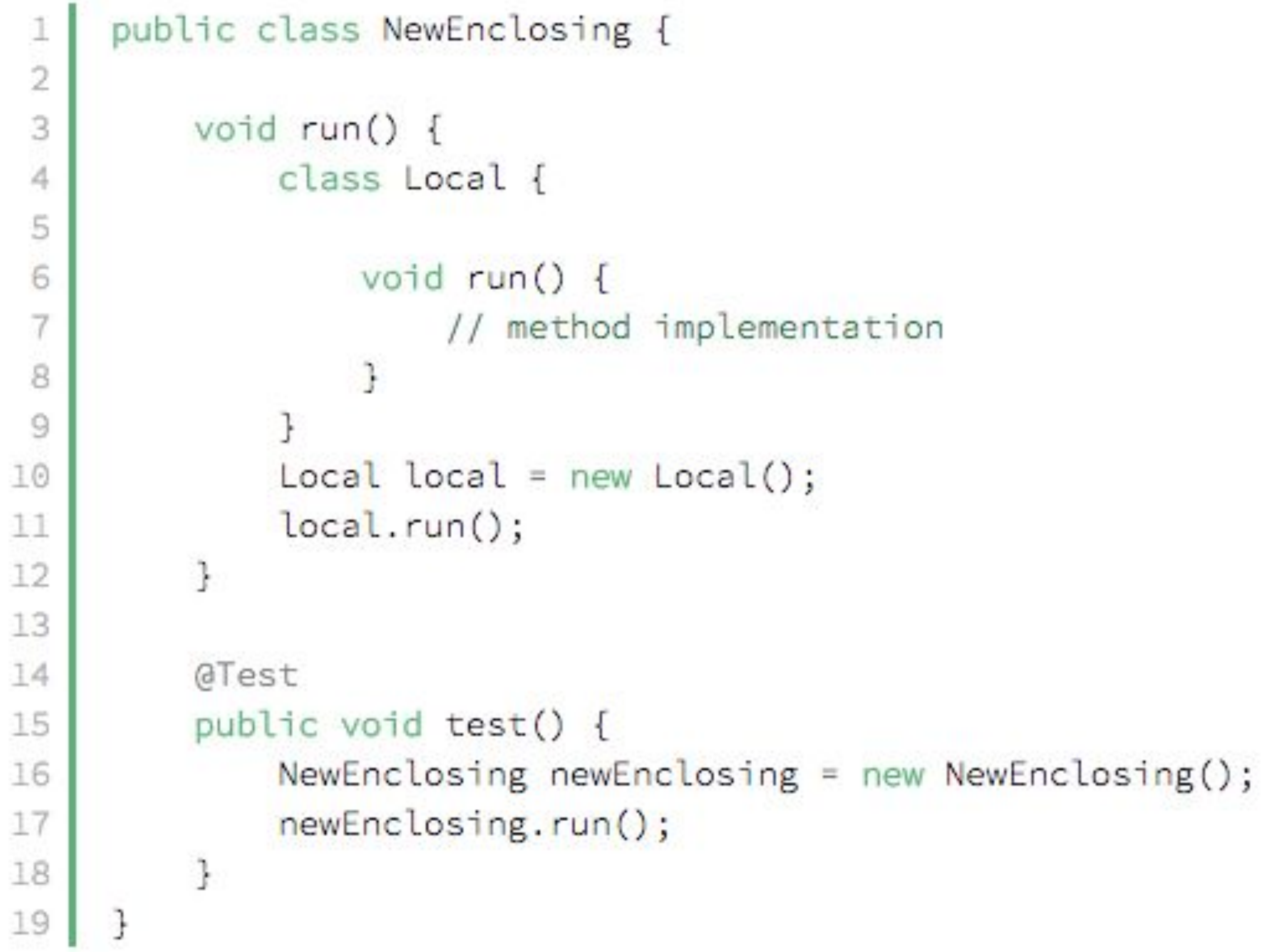


```java
public class Outer {

    public class Inner {
        // ...
    }
}
```



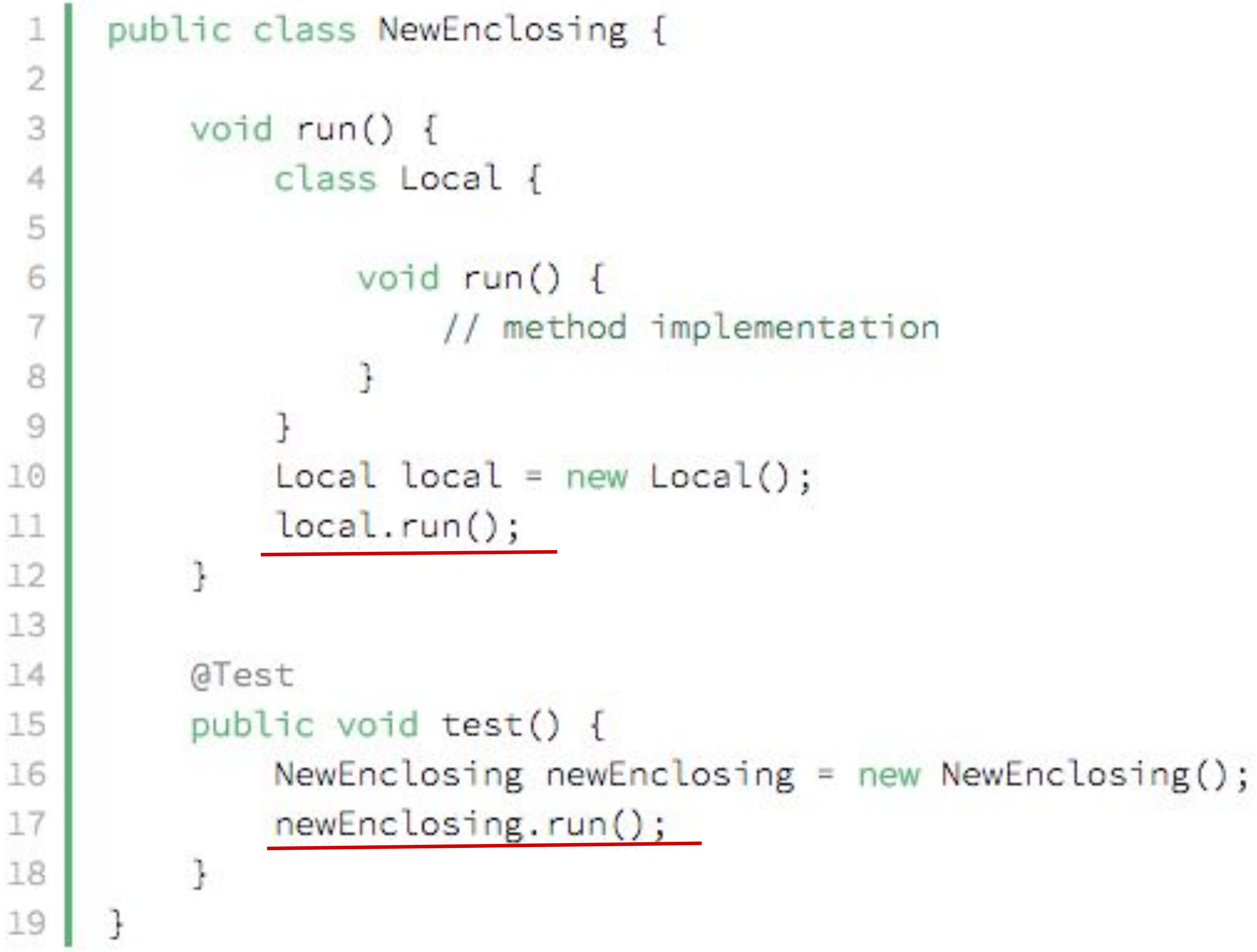
```java
Outer outer = new Outer();
Outer.Inner inner = outer.new Inner();
```

Clases Anidadas - Inner



```java
public class NewEnclosing {

    void run() {
        class Local {

            void run() {
                // method implementation
            }
        }
        Local local = new Local();
        local.run();
    }

    @Test
    public void test() {
        NewEnclosing newEnclosing = new NewEnclosing();
        newEnclosing.run();
    }
}
```

Clases Locales a Método



```java
public class NewEnclosing {

    void run() {
        class Local {

            void run() {
                // method implementation
            }
        }
        Local local = new Local();
        local.run();
    }

    @Test
    public void test() {
        NewEnclosing newEnclosing = new NewEnclosing();
        newEnclosing.run();
    }
}
```

Clases Locales a Método

```java
abstract class SimpleAbstractClass {
    abstract void run();
}
```

```java
public class AnonymousInnerTest {

    @Test
    public void whenRunAnonymousClass_thenCorrect() {
        SimpleAbstractClass simpleAbstractClass = new SimpleAbstractClass() {
            void run() {
                // method implementation
            }
        };
        simpleAbstractClass.run();
    }
}
```

Clases Anónimas

Clases anidadas

Clases Helper
Agrupadas por lógica
Encapsulación

Clases
Estáticas vs Anidadas

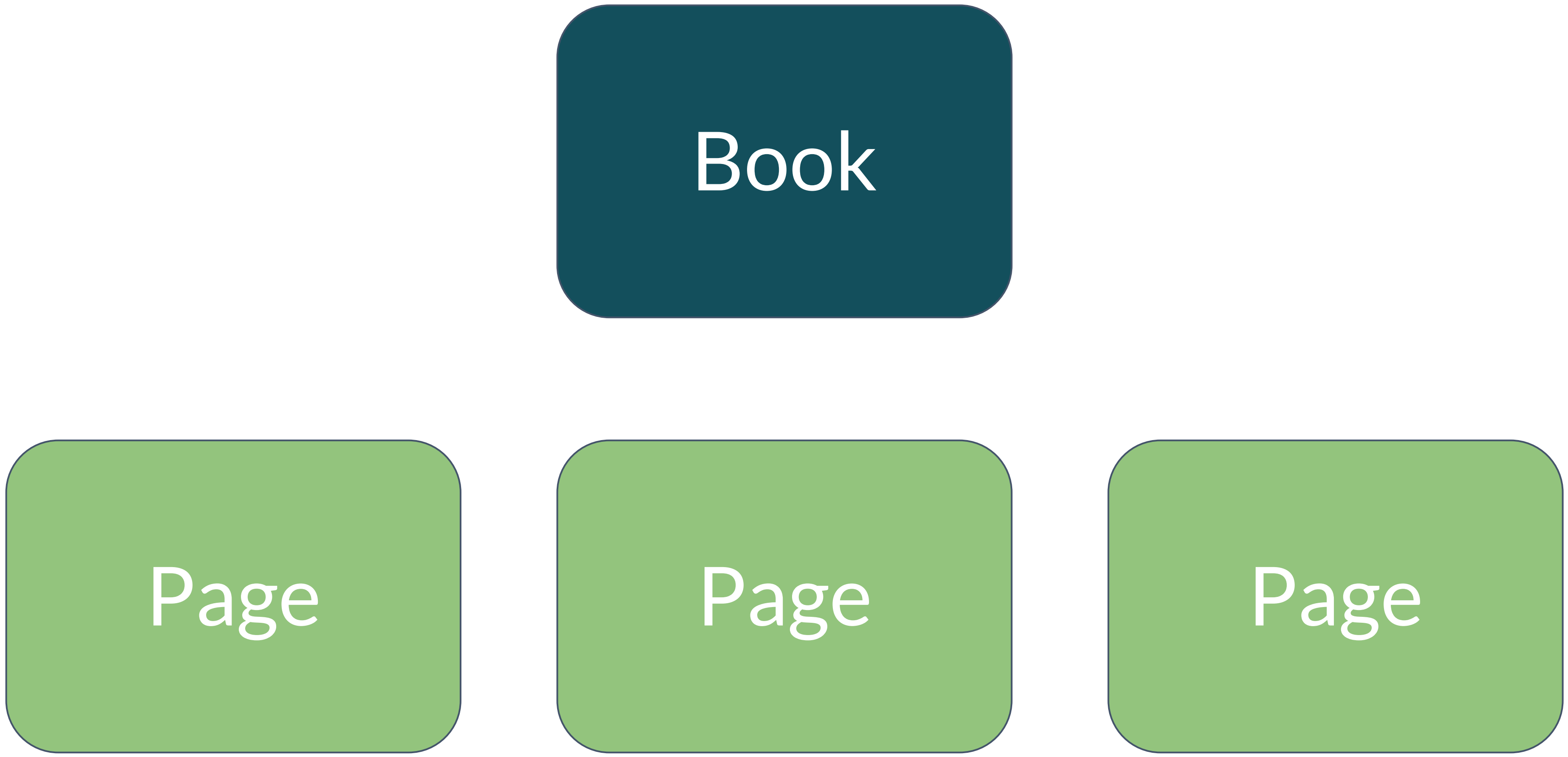
Estáticas solo podemos llamar a métodos y elementos de su misma naturaleza

Clases **Estáticas vs Anidadas**

Anidadas pueden llamar a cualquier tipo de elemento o método

Ejemplo

Book


Book
Page
Page
Page

Platzi

Interfaces Avanzadas

Interfaces avanzadas

Métodos Abstractos
Campos constantes

Interfaces avanzadas

Tipo de referencia
Polimorfismo similar Clases
Abstractas

Java 8 y 9

Java 8

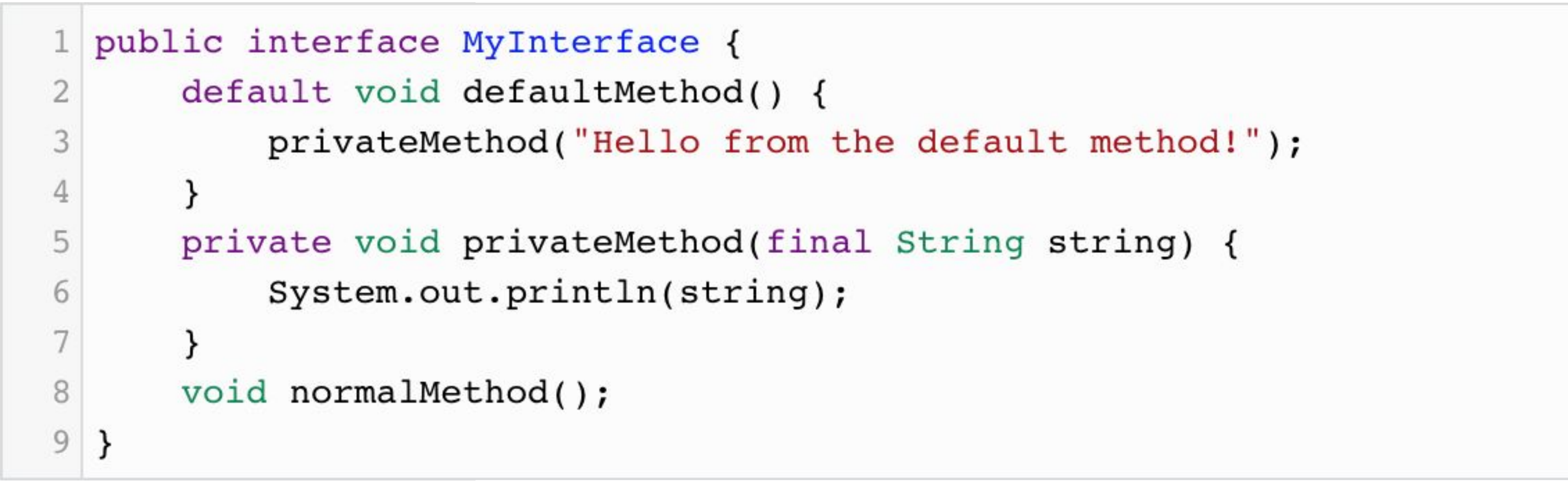
`default`

Java 9

`private`

Interfaces avanzadas

Ahora podemos tener
implementación en métodos



```java
public interface MyInterface {
    default void defaultMethod() {
        privateMethod("Hello from the default method!");
    }
    private void privateMethod(final String string) {
        System.out.println(string);
    }
    void normalMethod();
}
```

`default y private` Methods

DAO

Data Access Object

DAO - Data Access Object

Patrón de diseño

Métodos CRUD

(Create, Read, Update y Delete).

Ejemplo

Platzi

Interfaces Avanzadas

Interfaces Funcionales

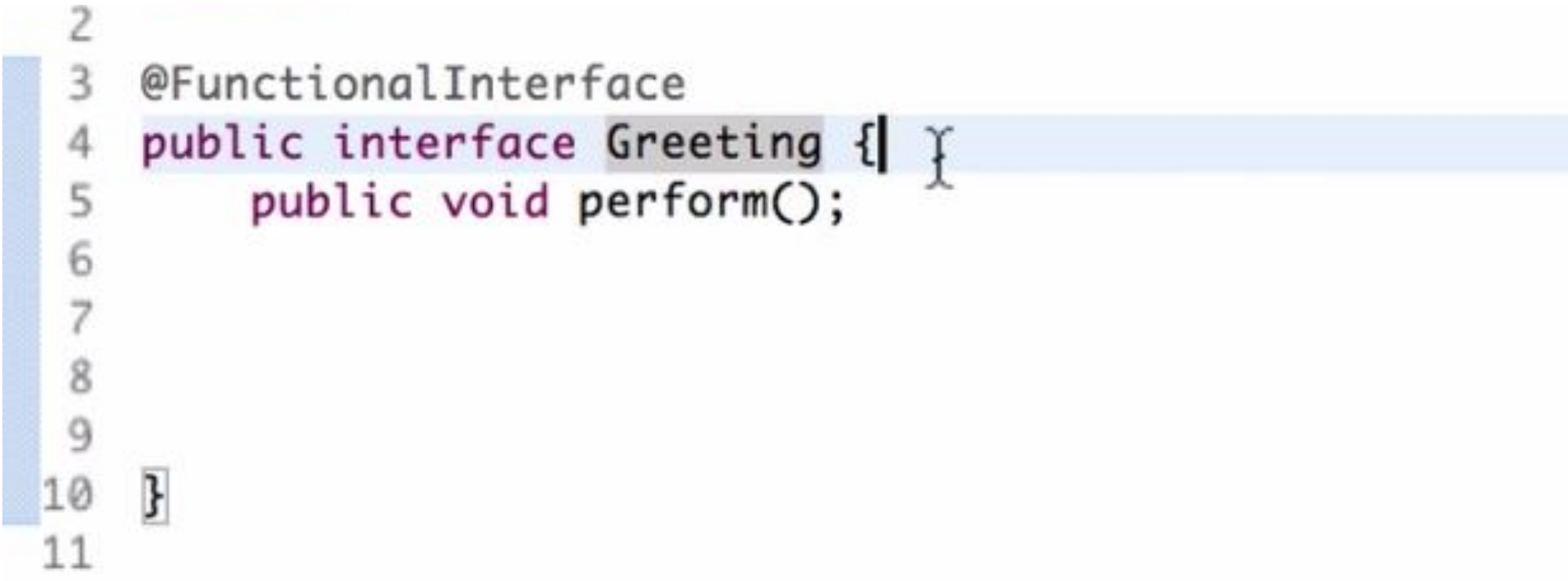
Interfaces funcionales

Tienen un solo método abstracto

SAM(Single Abstract Method)

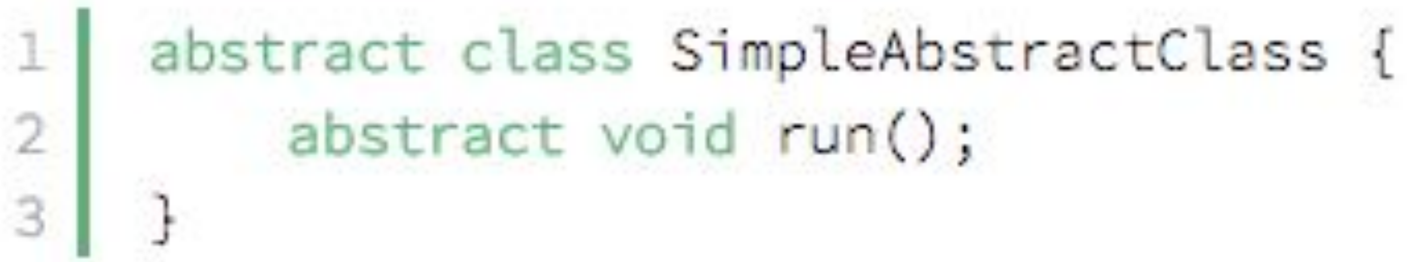
```
@FunctionalInterface
```

BUENA PRÁCTICA

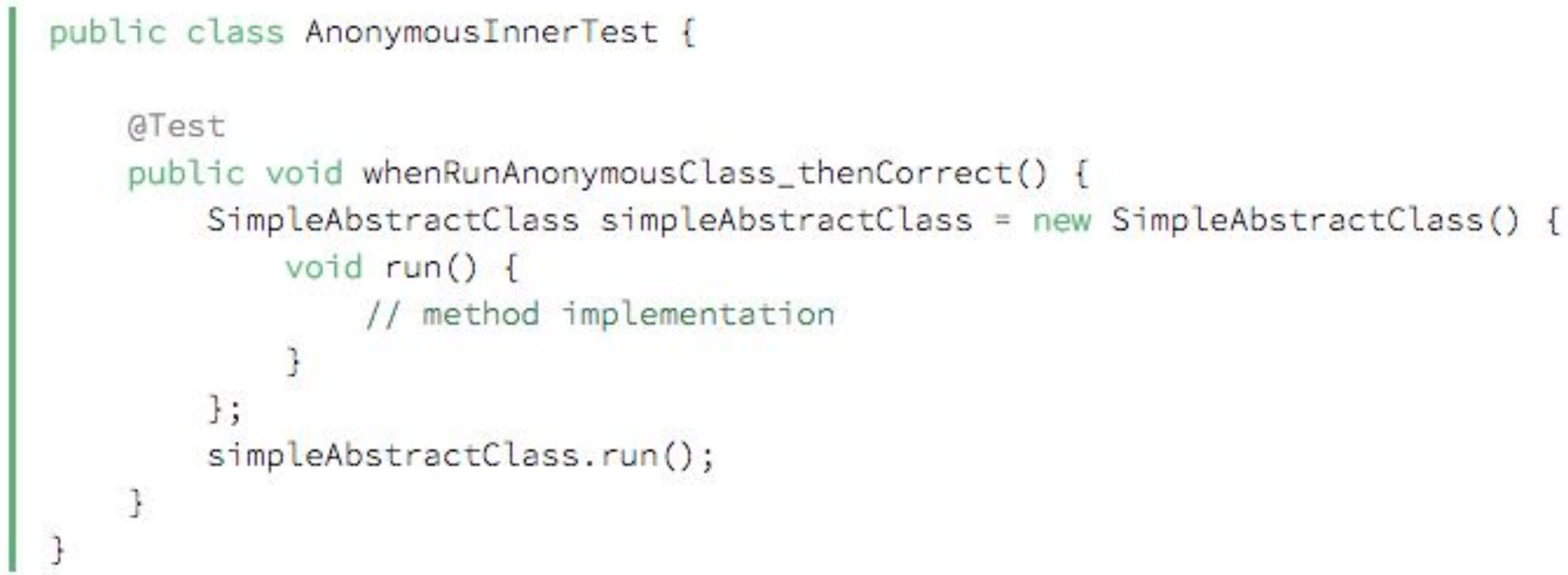


```java
@FunctionalInterface
public interface Greeting {
    public void perform();




}
```

@FunctionalInterface
SAM (Single Abstract Method)



```java
abstract class SimpleAbstractClass {
    abstract void run();
}
```



```java
public class AnonymousInnerTest {

    @Test
    public void whenRunAnonymousClass_thenCorrect() {
        SimpleAbstractClass simpleAbstractClass = new SimpleAbstractClass() {
            void run() {
                // method implementation
            }
        };
        simpleAbstractClass.run();
    }
}
```

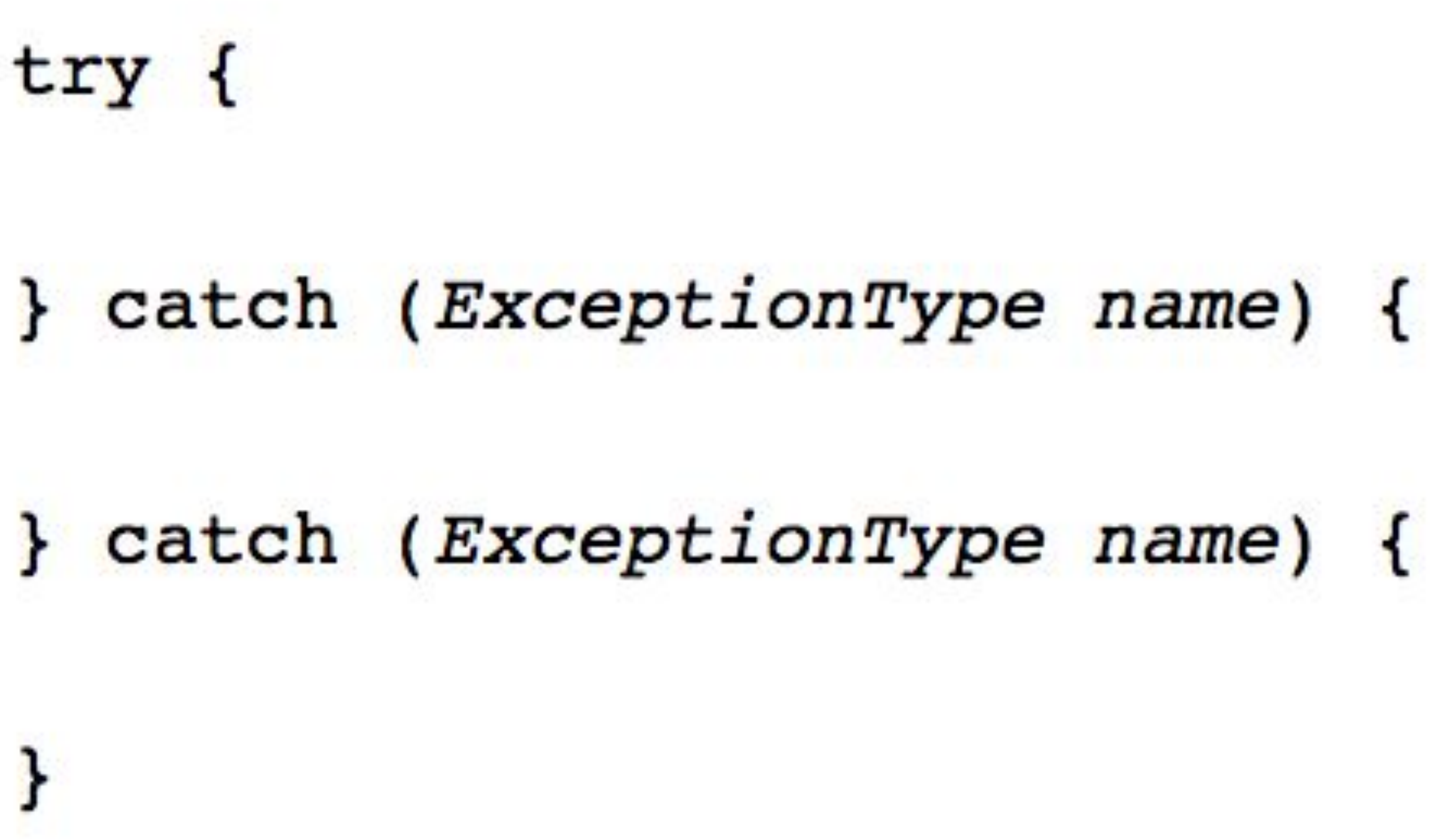
Clases Anónimas

Excepciones

Try-catch-finally

Excepciones

Manejar Excepciones significa que añadirás un bloque de código para manejar un error

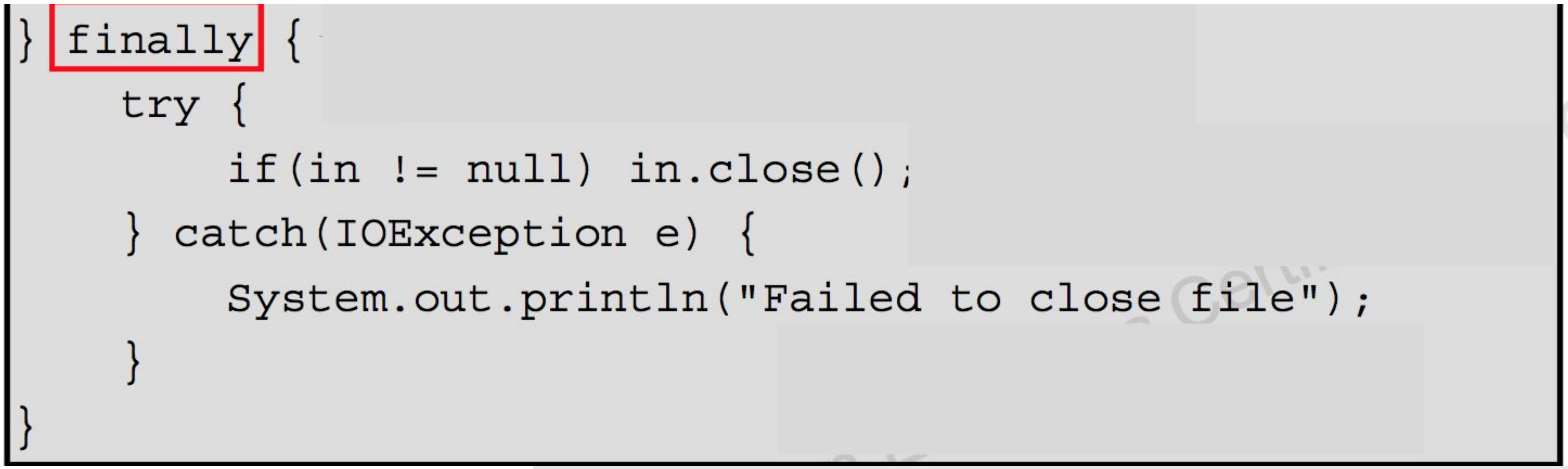


```
try {

} catch (ExceptionType name) {

} catch (ExceptionType name) {

}
```

try - catch

```
finally {
    if (out != null) {
        System.out.println("Closing PrintWriter");
        out.close();
    } else {
        System.out.println("PrintWriter not open");
    }
}
```

finally



```
} finally {
    try {
        if(in != null) in.close();
    } catch(IOException e) {
        System.out.println("Failed to close file");
    }
}
```

Cerrar recursos

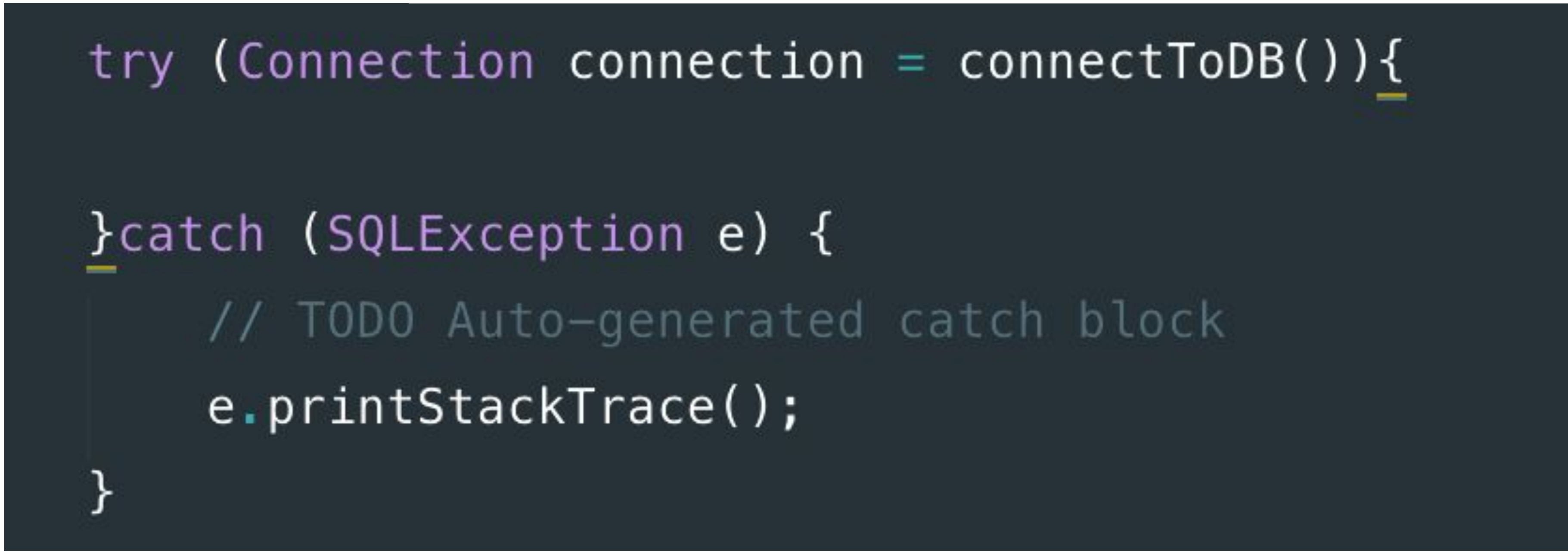
Try-with-resources

```
BufferedReader reader = newBufferedReader(new InputStreamReader(System.in));

try(BufferedReader r1 = reader) {
  //sentencias

} catch(Exception e) {
  //sentencias

}
```

Aquí se ve la variable `r1` que francamente estaría de más, ahora podemos ponerlo así:

```
BufferedReader reader = newBufferedReader(new InputStreamReader(System.in));

try(reader) {
  //sentencias

} catch(Exception e) {
  //sentencias

}
```

Cerrar recursos



```
try (Connection connection = connectToDB()){

}catch (SQLException e) {
    // TODO Auto-generated catch block
    e.printStackTrace();
}
```

Cerrar recursos

JDBC

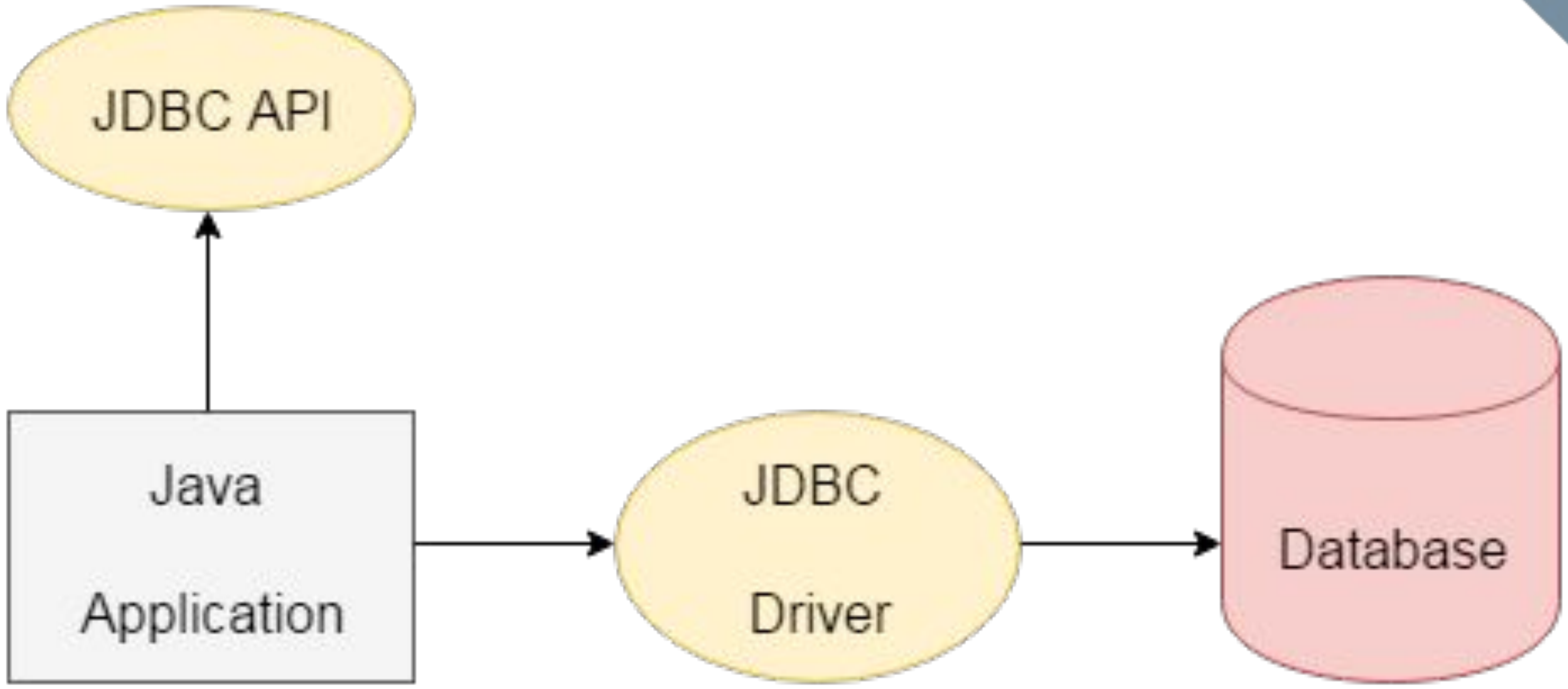
JDBC

Java Data Base Connectivity

JDBC

Es un API compuesta por
varias clases
Operaciones a base de datos

JDBC



Componentes

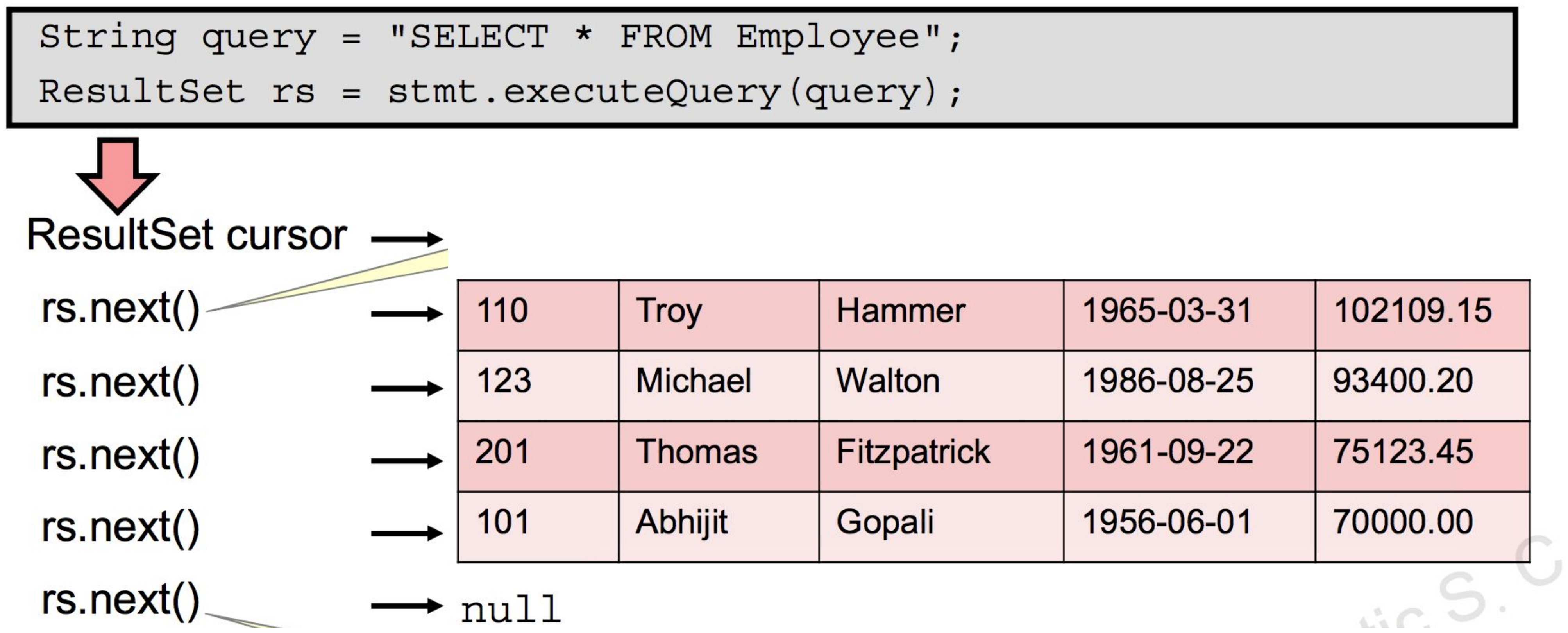
DriverManager

Connection

Statement

PreparedStatement

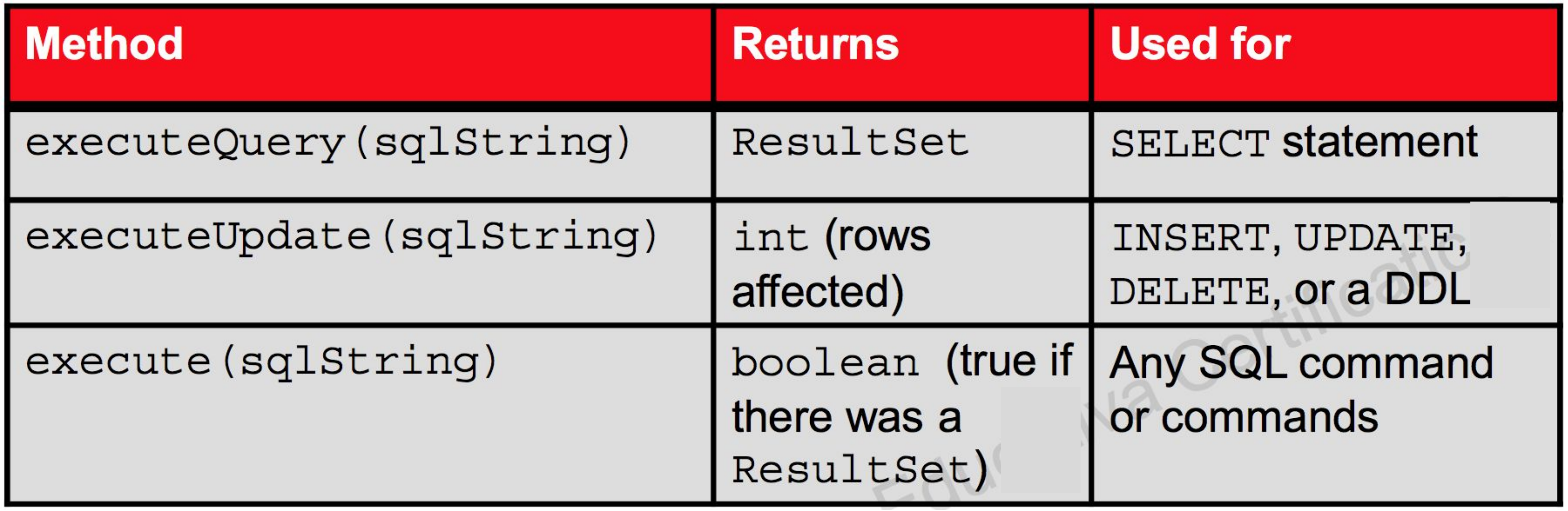
ResultSet



```
String query = "SELECT * FROM Employee";
ResultSet rs = stmt.executeQuery(query);
```

110	Troy	Hammer	1965-03-31	102109.15
123	Michael	Walton	1986-08-25	93400.20
201	Thomas	Fitzpatrick	1961-09-22	75123.45
101	Abhijit	Gopali	1956-06-01	70000.00

ResultSet



Method	Returns	Used for
`executeQuery(sqlString)`	`ResultSet`	`SELECT` statement
`executeUpdate(sqlString)`	`int` (rows affected)	`INSERT`, `UPDATE`, `DELETE`, or a DDL
`execute(sqlString)`	`boolean` (true if there was a `ResultSet`)	Any SQL command or commands

CRUD

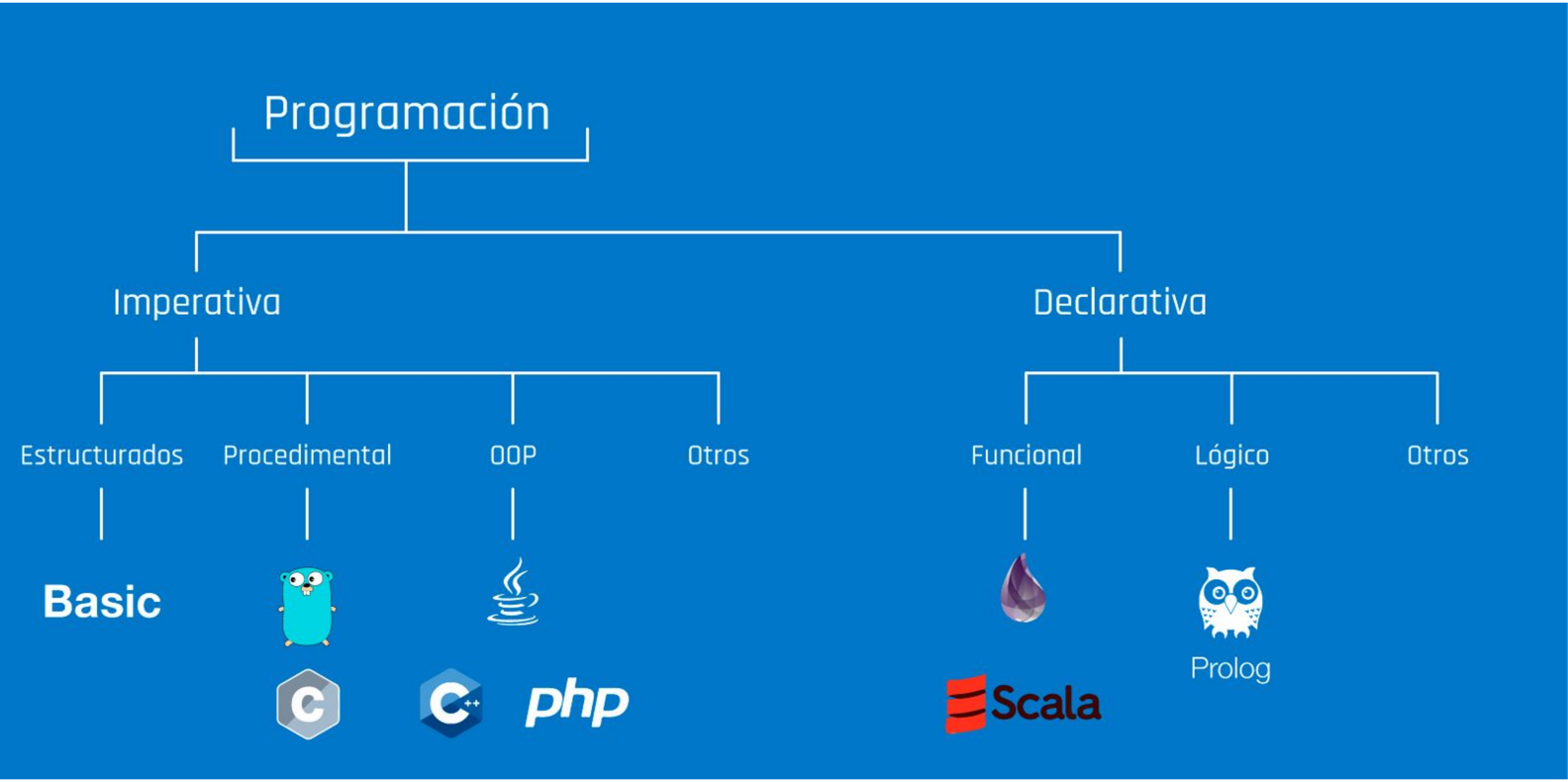
Programación Funcional

Programación Funcional

Paradigma de programación

Programación Funcional

Paradigma declarativo
vs.
Paradigma imperativo



https://medium.com/@Loopa/paradigmas-de-programaci%C3%B3n-programaci%C3%B3n-imperativa-y-programaci%C3%B3n-declarativa-4c4a4182fd87

Qué

Programación Funcional

Cómo

Programación imperativa

Qué

Programación Funcional

Cómo

Programación imperativa

ERLANG Haskell

elm

Java

Lenguajes Funcionales

Lenguajes con características Funcionales

Programación Funcional

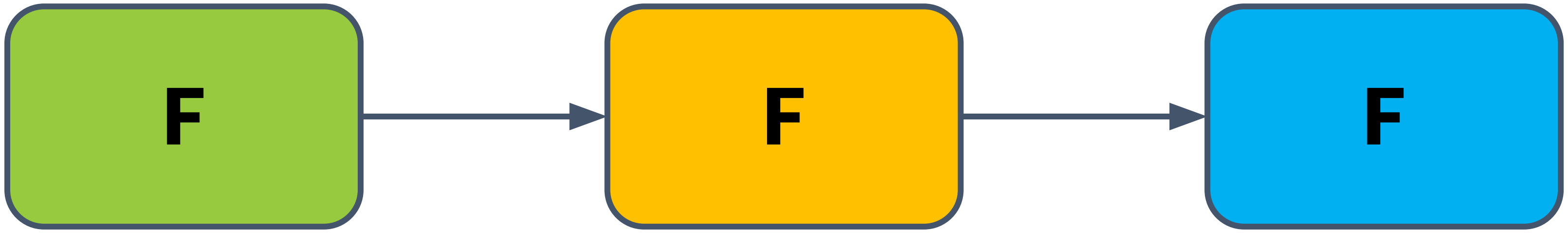
Funciones

Programación Funcional

Funciones
Entrada y Salida

Programación Funcional

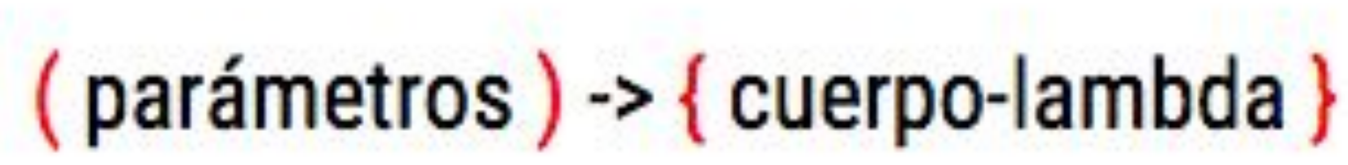
Programación Funcional



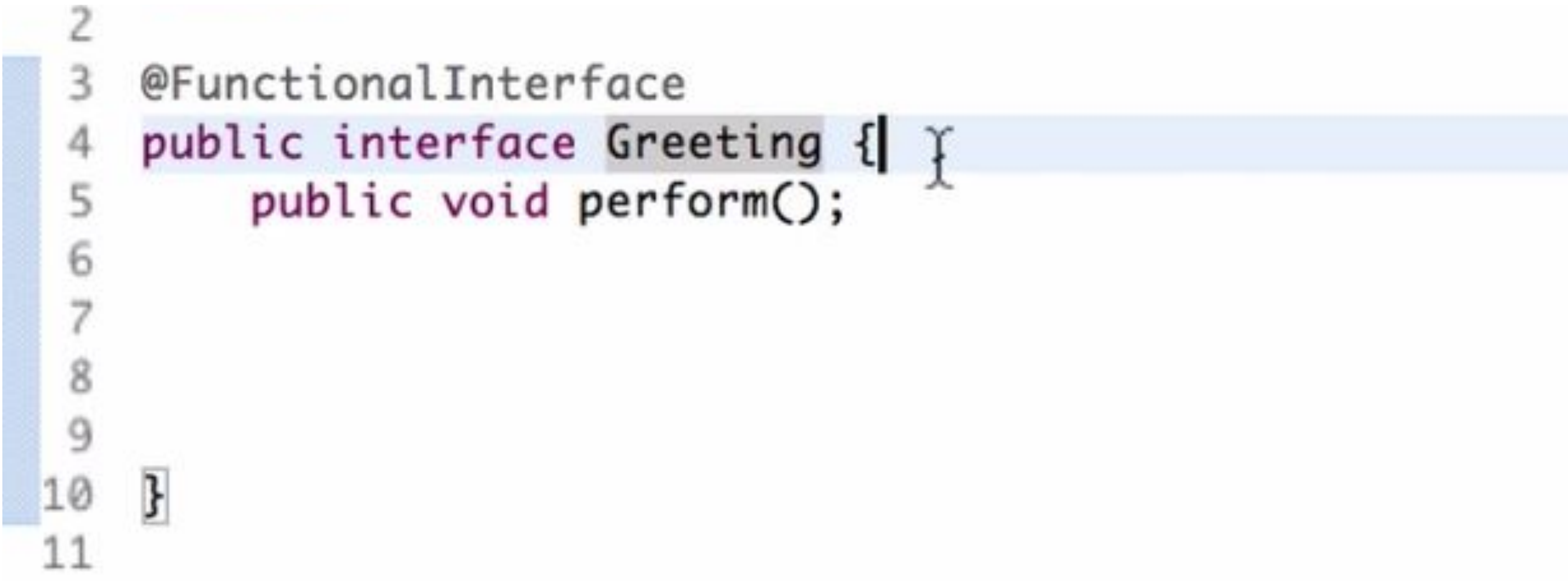
Funciones de orden superior

Lambdas

Lambdas

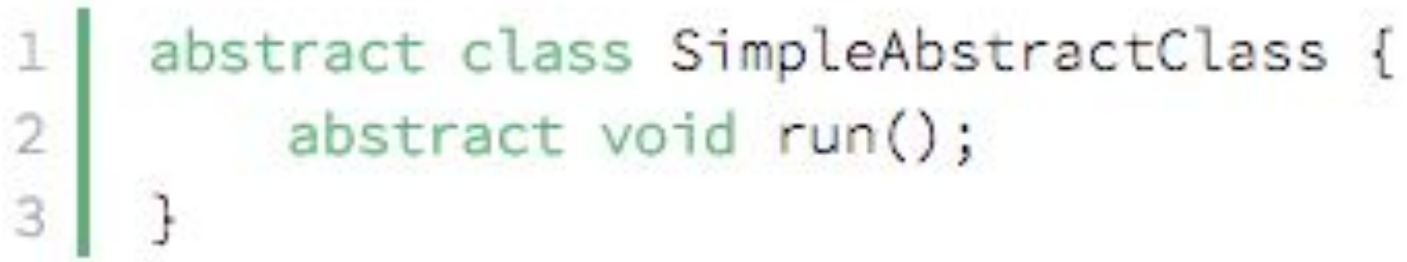


(parámetros) -> { cuerpo-lambda }

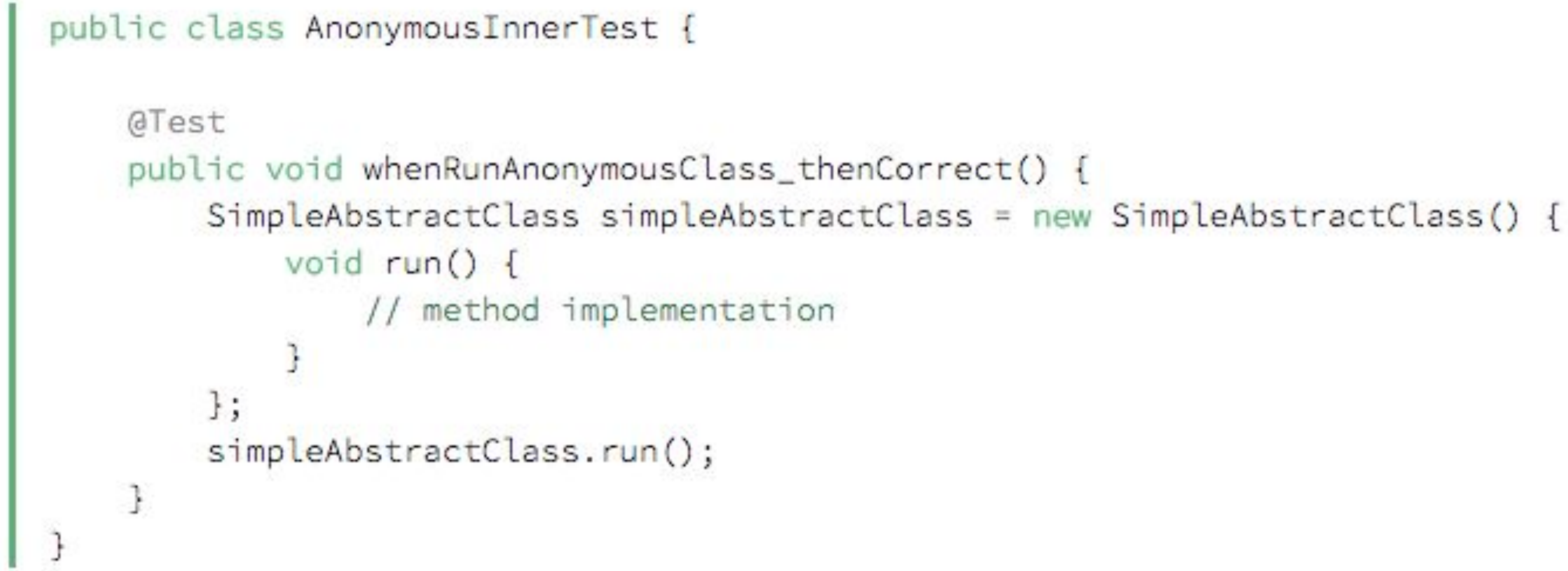


```java
@FunctionalInterface
public interface Greeting {
    public void perform();




}
```

@FunctionalInterface
SAM (Single Abstract Method)



```java
abstract class SimpleAbstractClass {
    abstract void run();
}
```



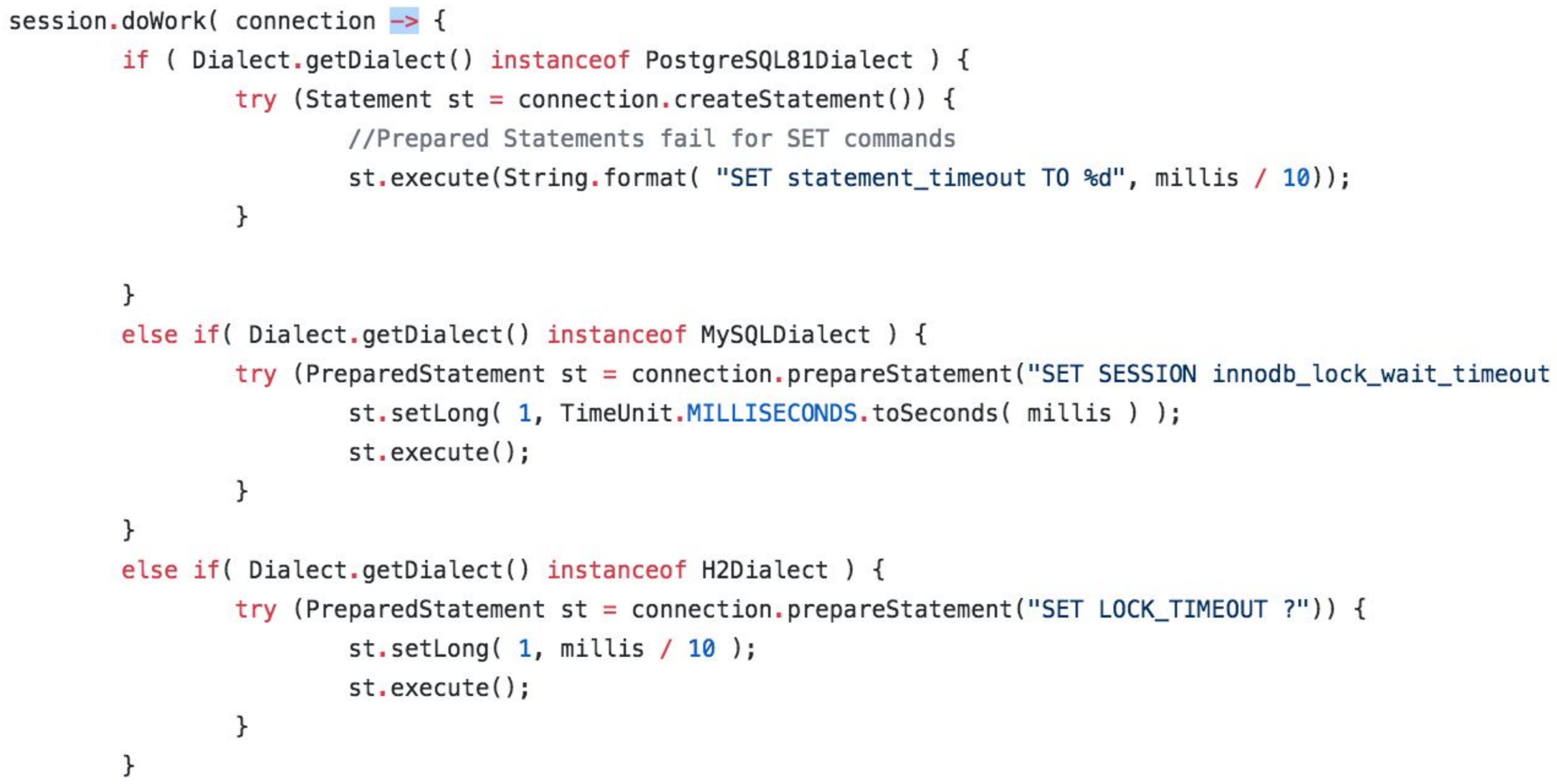
```java
public class AnonymousInnerTest {

    @Test
    public void whenRunAnonymousClass_thenCorrect() {
        SimpleAbstractClass simpleAbstractClass = new SimpleAbstractClass() {
            void run() {
                // method implementation
            }
        };
        simpleAbstractClass.run();
    }
}
```

Clases Anónimas

```
mButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // do something here
    }
});
```

```
mButton.setOnClickListener((View v) -> {
    // do something here
});
```

Android



```
session.doWork( connection -> {
        if ( Dialect.getDialect() instanceof PostgreSQL81Dialect ) {
                try (Statement st = connection.createStatement()) {
                        //Prepared Statements fail for SET commands
                        st.execute(String.format( "SET statement_timeout TO %d", millis / 10));
                }

        }
        else if( Dialect.getDialect() instanceof MySQLDialect ) {
                try (PreparedStatement st = connection.prepareStatement("SET SESSION innodb_lock_wait_timeout
                        st.setLong( 1, TimeUnit.MILLISECONDS.toSeconds( millis ) );
                        st.execute();
                }
        }
        else if( Dialect.getDialect() instanceof H2Dialect ) {
                try (PreparedStatement st = connection.prepareStatement("SET LOCK_TIMEOUT ?")) {
                        st.setLong( 1, millis / 10 );
                        st.execute();
                }
        }
```

Java Hibernate

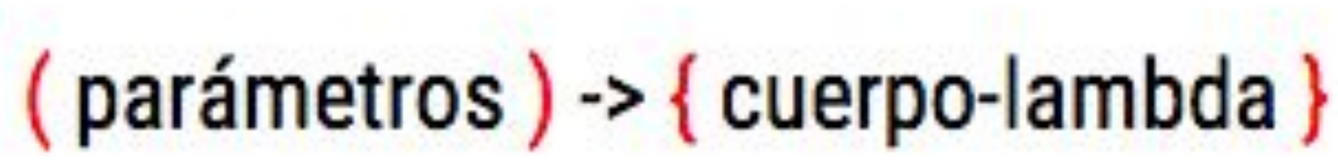
```java
mButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // do something here
    }
});
```

```java
mButton.setOnClickListener((View v) -> {
    // do something here
});
```

Android

Lambdas
Como variables

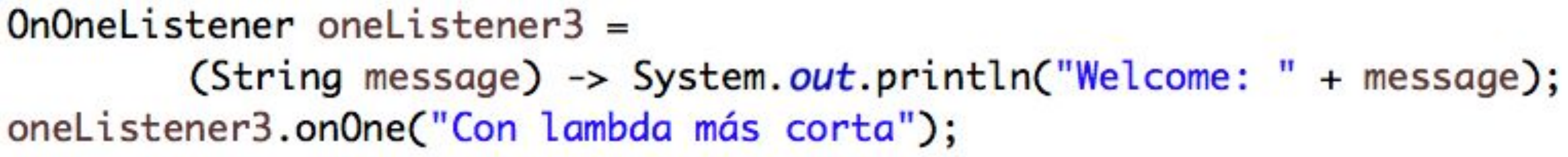
Lambdas



```
( parámetros ) -> { cuerpo-lambda }
```

Lambdas

Listener listener = (parámetros) -> { cuerpo-lambda }



```java
OnOneListener oneListener3 =
        (String message) -> System.out.println("Welcome: " + message);
oneListener3.onOne("Con lambda más corta");
```

Lambdas como variables

```
mButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // do something here
    }
});
```

```
mButton.setOnClickListener((View v) -> {
    // do something here
});
```

Android

Programación Funcional y Lambdas

No Iteración

No Iteración ✗

Sí Recursividad ✓

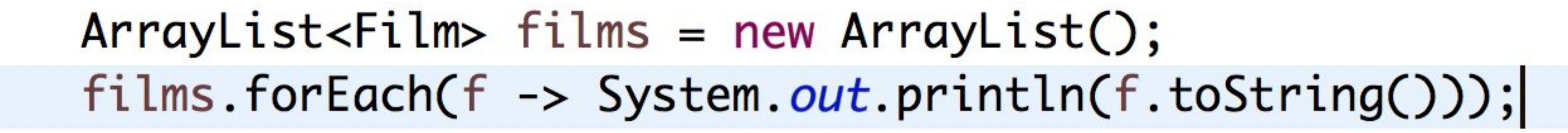
No Iteración ✗

Sí Recursividad ✓

Expresar Problemas

Recursividad

objects.**forEach()**



```java
ArrayList<Film> films = new ArrayList();
films.forEach(f -> System.out.println(f.toString()));
```

Recursividad

```
forEach(System.out::println)
```

RETO

Stream y Filter

Stream

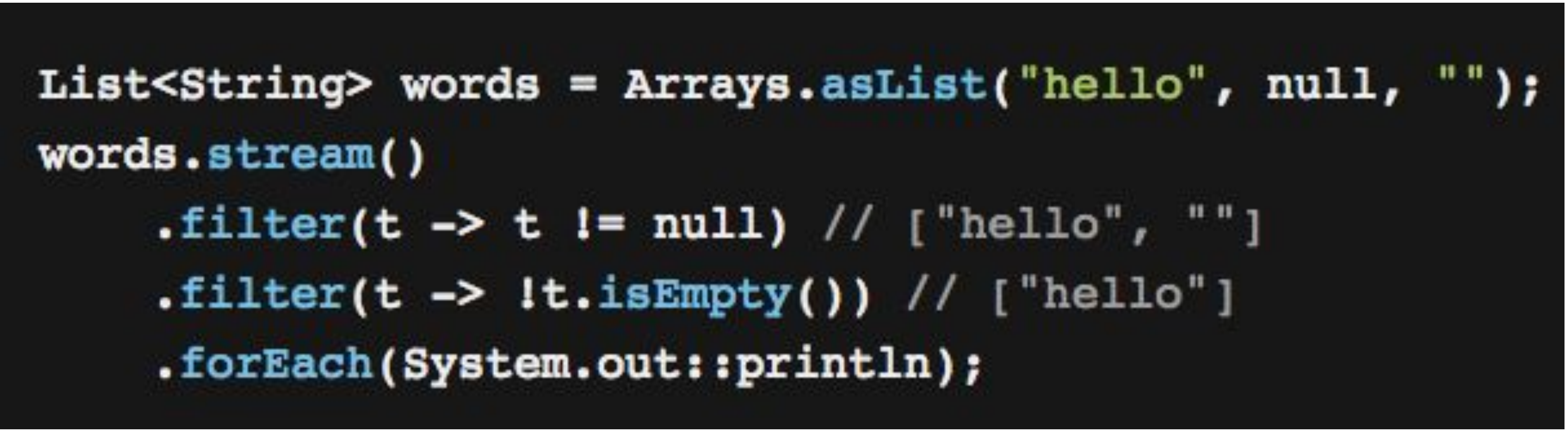
Un método que añadido a
todas las colecciones

Streams

objects.**stream()**

Filter

objects.stream()**.filter()**



```
List<String> words = Arrays.asList("hello", null, "");
words.stream()
    .filter(t -> t != null) // ["hello", ""]
    .filter(t -> !t.isEmpty()) // ["hello"]
    .forEach(System.out::println);
```

Filter

No asignaciones

No asignaciones ✗

Sí Inmutabilidad ✓

```
contentReport += m.toString() + "\n";
```