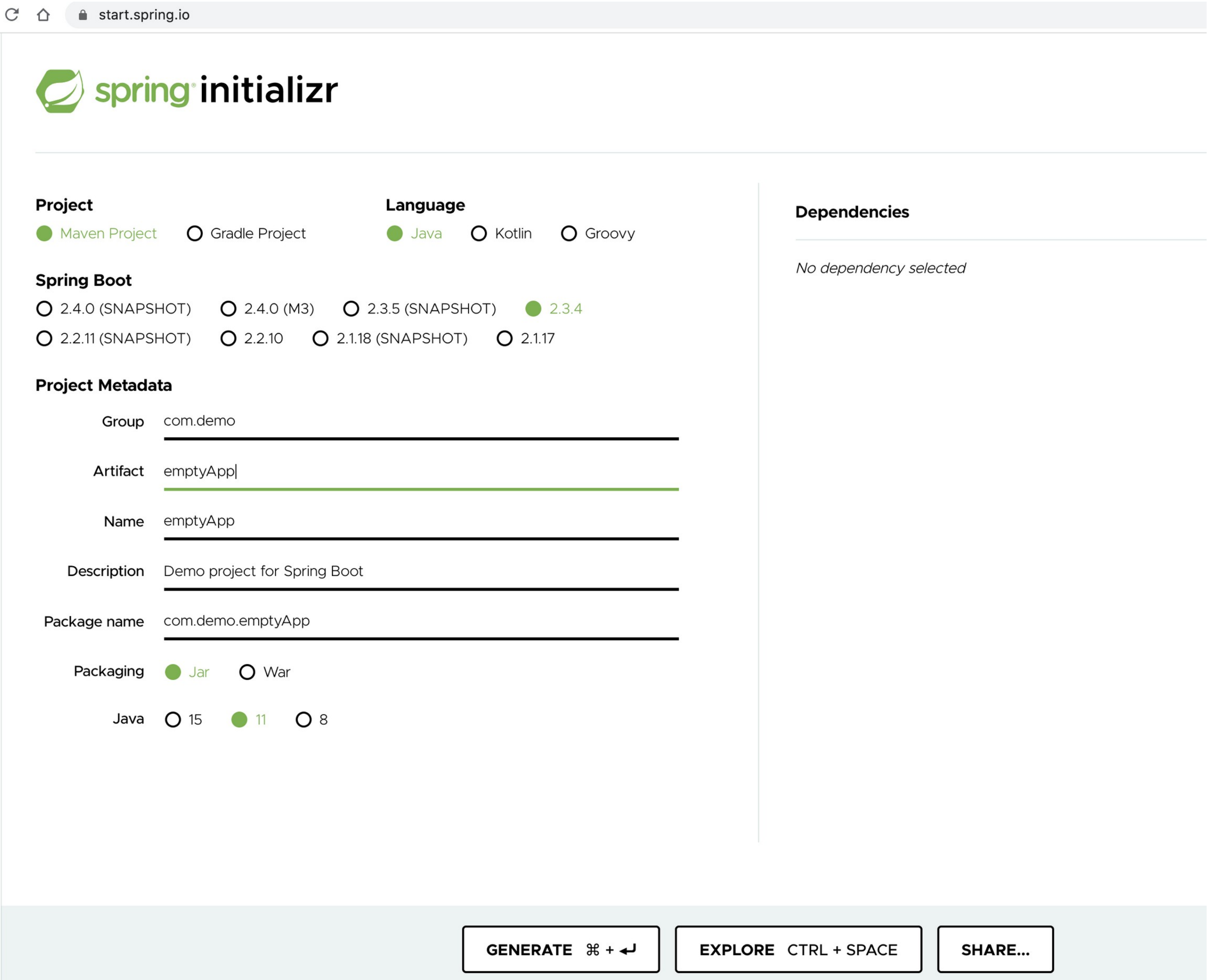
Spring boot – un aperçu

Visitez le site start.spring.IO

- Choisissez votre version de spring boot
- Renseignez groupId, ArtefactId (cf cours sur maven)

- Puis concernant les dépendances ...

Exemple : Empty app démo



start.spring.io

spring initializr

Project

● Maven Project ○ Gradle Project

Language

● Java ○ Kotlin ○ Groovy

Spring Boot

○ 2.4.0 (SNAPSHOT) ○ 2.4.0 (M3) ○ 2.3.5 (SNAPSHOT) ● 2.3.4
○ 2.2.11 (SNAPSHOT) ○ 2.2.10 ○ 2.1.18 (SNAPSHOT) ○ 2.1.17

Project Metadata

Group: com.demo

Artifact: emptyApp

Name: emptyApp

Description: Demo project for Spring Boot

Package name: com.demo.emptyApp

Packaging: ● Jar ○ War

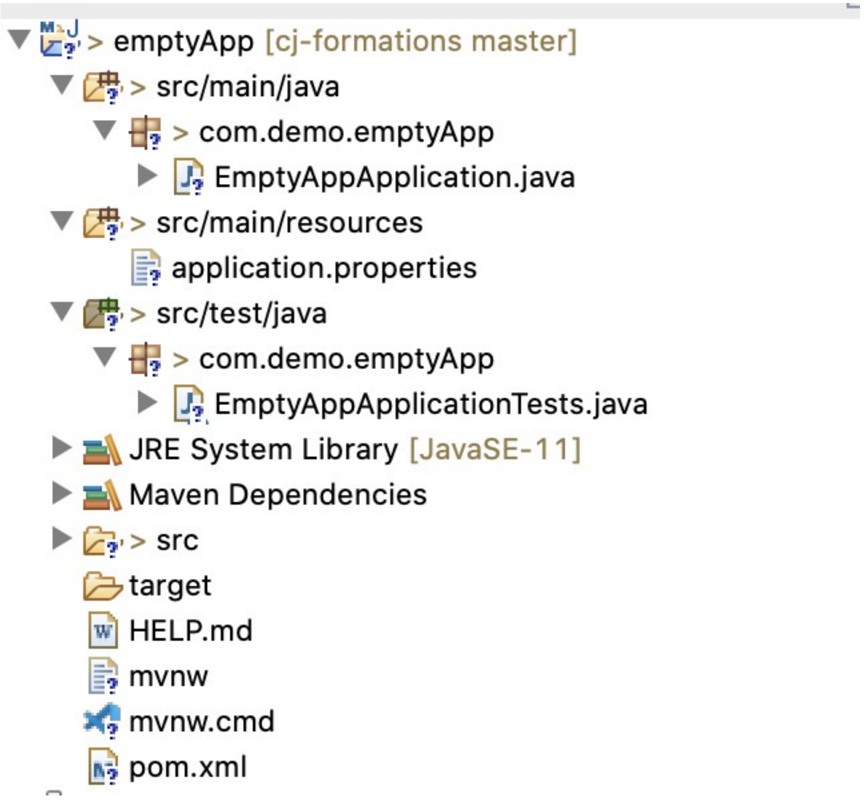
Java: ○ 15 ● 11 ○ 8

Dependencies

No dependency selected

Exemple : Empty app démo (suite)

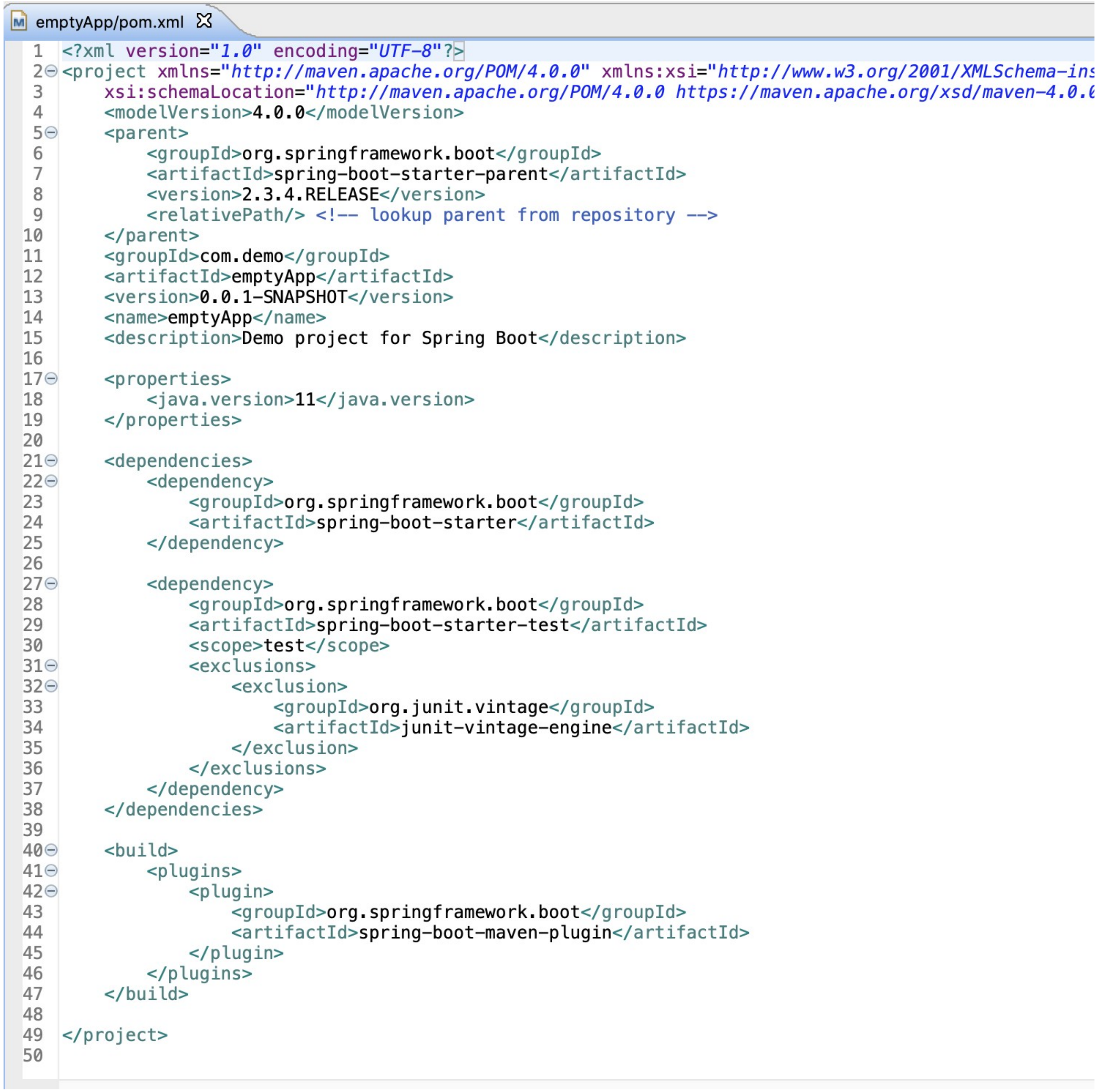
- Décompressez le emptyApp.zip
- Ouvrez l'application dans eclipse en tant que projet Maven



```
▼ > emptyApp [cj-formations master]
   ▼ > src/main/java
      ▼ > com.demo.emptyApp
         ▶ EmptyAppApplication.java
   ▼ > src/main/resources
        application.properties
   ▼ > src/test/java
      ▼ > com.demo.emptyApp
         ▶ EmptyAppApplicationTests.java
   ▶ JRE System Library [JavaSE-11]
   ▶ Maven Dependencies
   ▶ > src
     target
     HELP.md
     mvnw
     mvnw.cmd
     pom.xml
```

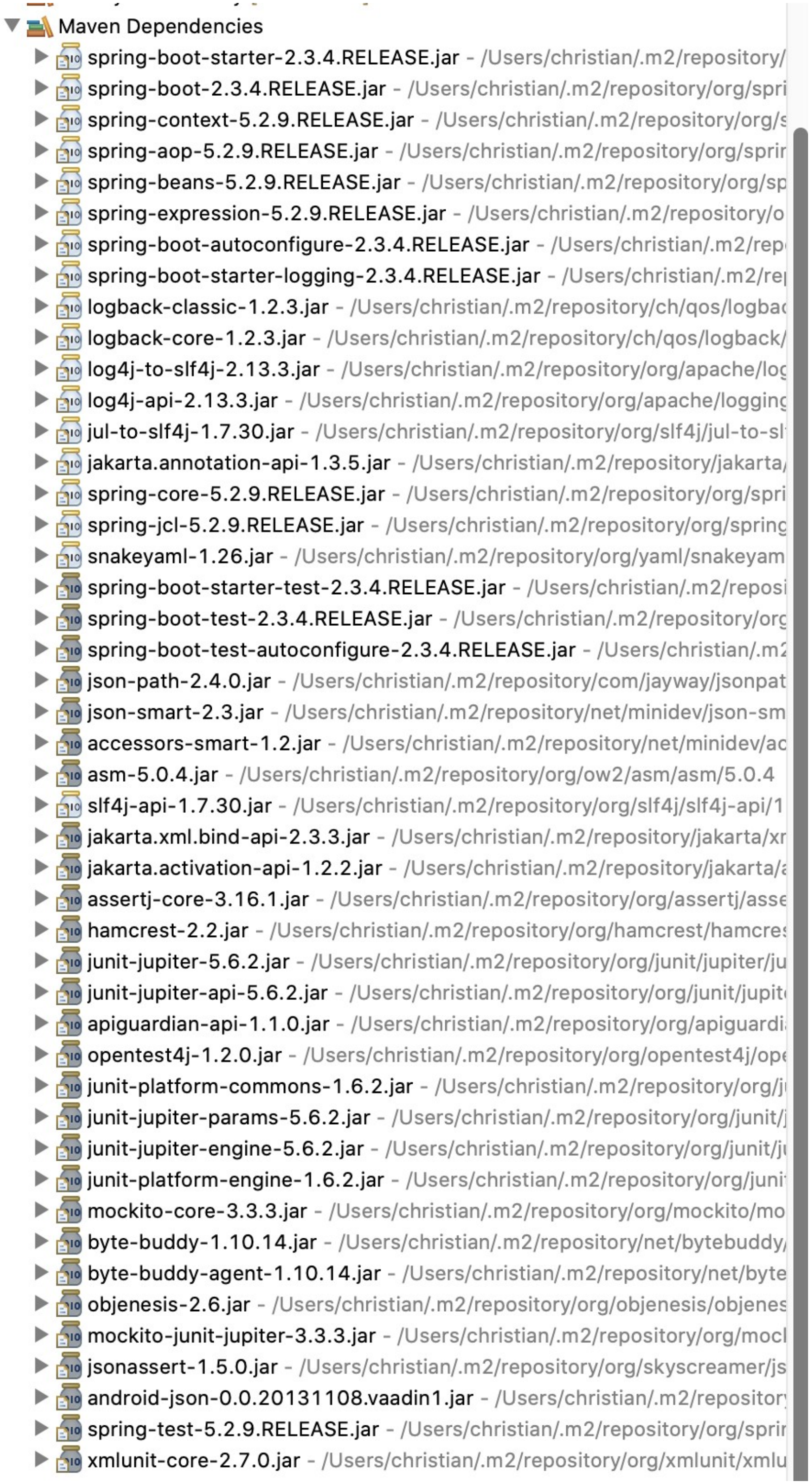
Attention : maven prend un moment (selon votre vitesse de connection) pour installer les librairies importées nécessaires à un projet spring boot , surtout la première fois, car ensuite les librairies sont présentes dans votre dossier .m2

Les dépendances installées via le pom.xml



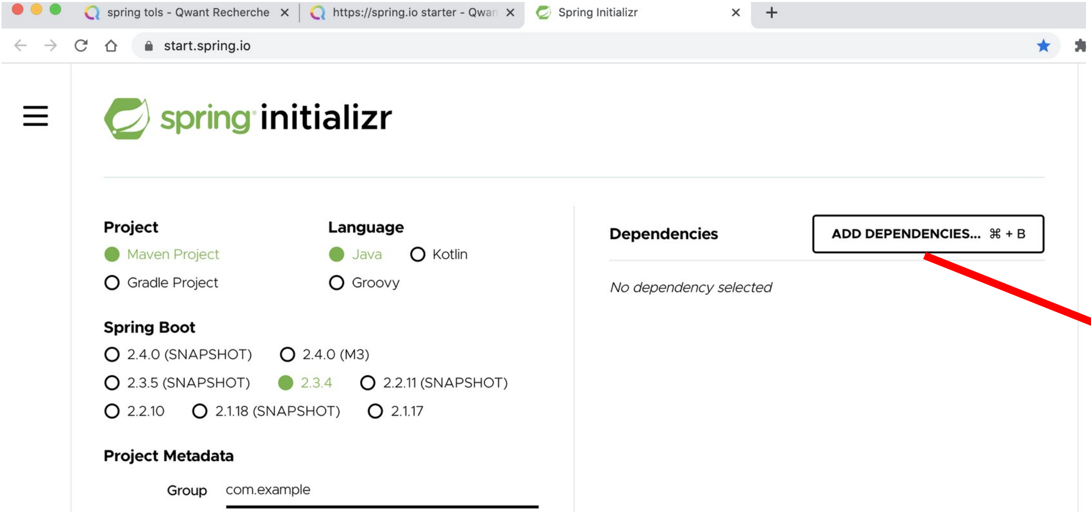
emptyApp/pom.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-ins
    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0
    <modelVersion>4.0.0</modelVersion>
    <parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>2.3.4.RELEASE</version>
        <relativePath/> <!-- lookup parent from repository -->
    </parent>
    <groupId>com.demo</groupId>
    <artifactId>emptyApp</artifactId>
    <version>0.0.1-SNAPSHOT</version>
    <name>emptyApp</name>
    <description>Demo project for Spring Boot</description>

    <properties>
        <java.version>11</java.version>
    </properties>

    <dependencies>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter</artifactId>
        </dependency>

        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-test</artifactId>
            <scope>test</scope>
            <exclusions>
                <exclusion>
                    <groupId>org.junit.vintage</groupId>
                    <artifactId>junit-vintage-engine</artifactId>
                </exclusion>
            </exclusions>
        </dependency>
    </dependencies>

    <build>
        <plugins>
            <plugin>
                <groupId>org.springframework.boot</groupId>
                <artifactId>spring-boot-maven-plugin</artifactId>
            </plugin>
        </plugins>
    </build>

</project>

```



```
Maven Dependencies
  spring-boot-starter-2.3.4.RELEASE.jar - /Users/christian/.m2/repository/
  spring-boot-2.3.4.RELEASE.jar - /Users/christian/.m2/repository/org/spri
  spring-context-5.2.9.RELEASE.jar - /Users/christian/.m2/repository/org/s
  spring-aop-5.2.9.RELEASE.jar - /Users/christian/.m2/repository/org/sprir
  spring-beans-5.2.9.RELEASE.jar - /Users/christian/.m2/repository/org/sp
  spring-expression-5.2.9.RELEASE.jar - /Users/christian/.m2/repository/o
  spring-boot-autoconfigure-2.3.4.RELEASE.jar - /Users/christian/.m2/rep
  spring-boot-starter-logging-2.3.4.RELEASE.jar - /Users/christian/.m2/re
  logback-classic-1.2.3.jar - /Users/christian/.m2/repository/ch/qos/logbac
  logback-core-1.2.3.jar - /Users/christian/.m2/repository/ch/qos/logback/
  log4j-to-slf4j-2.13.3.jar - /Users/christian/.m2/repository/org/apache/log
  log4j-api-2.13.3.jar - /Users/christian/.m2/repository/org/apache/logging
  jul-to-slf4j-1.7.30.jar - /Users/christian/.m2/repository/org/slf4j/jul-to-sl
  jakarta.annotation-api-1.3.5.jar - /Users/christian/.m2/repository/jakarta/
  spring-core-5.2.9.RELEASE.jar - /Users/christian/.m2/repository/org/spri
  spring-jcl-5.2.9.RELEASE.jar - /Users/christian/.m2/repository/org/spring
  snakeyaml-1.26.jar - /Users/christian/.m2/repository/org/yaml/snakeyam
  spring-boot-starter-test-2.3.4.RELEASE.jar - /Users/christian/.m2/reposi
  spring-boot-test-2.3.4.RELEASE.jar - /Users/christian/.m2/repository/org
  spring-boot-test-autoconfigure-2.3.4.RELEASE.jar - /Users/christian/.m2
  json-path-2.4.0.jar - /Users/christian/.m2/repository/com/jayway/jsonpat
  json-smart-2.3.jar - /Users/christian/.m2/repository/net/minidev/json-sm
  accessors-smart-1.2.jar - /Users/christian/.m2/repository/net/minidev/ac
  asm-5.0.4.jar - /Users/christian/.m2/repository/org/ow2/asm/asm/5.0.4
  slf4j-api-1.7.30.jar - /Users/christian/.m2/repository/org/slf4j/slf4j-api/1
  jakarta.xml.bind-api-2.3.3.jar - /Users/christian/.m2/repository/jakarta/xr
  jakarta.activation-api-1.2.2.jar - /Users/christian/.m2/repository/jakarta/a
  assertj-core-3.16.1.jar - /Users/christian/.m2/repository/org/assertj/asse
  hamcrest-2.2.jar - /Users/christian/.m2/repository/org/hamcrest/hamcres
  junit-jupiter-5.6.2.jar - /Users/christian/.m2/repository/org/junit/jupiter/ju
  junit-jupiter-api-5.6.2.jar - /Users/christian/.m2/repository/org/junit/jupit
  apiguardian-api-1.1.0.jar - /Users/christian/.m2/repository/org/apiguardi
  opentest4j-1.2.0.jar - /Users/christian/.m2/repository/org/opentest4j/ope
  junit-platform-commons-1.6.2.jar - /Users/christian/.m2/repository/org/j
  junit-jupiter-params-5.6.2.jar - /Users/christian/.m2/repository/org/junit/j
  junit-jupiter-engine-5.6.2.jar - /Users/christian/.m2/repository/org/junit/ju
  junit-platform-engine-1.6.2.jar - /Users/christian/.m2/repository/org/juni
  mockito-core-3.3.3.jar - /Users/christian/.m2/repository/org/mockito/mo
  byte-buddy-1.10.14.jar - /Users/christian/.m2/repository/net/bytebuddy/
  byte-buddy-agent-1.10.14.jar - /Users/christian/.m2/repository/net/byte
  objenesis-2.6.jar - /Users/christian/.m2/repository/org/objenesis/objenes
  mockito-junit-jupiter-3.3.3.jar - /Users/christian/.m2/repository/org/mocl
  jsonassert-1.5.0.jar - /Users/christian/.m2/repository/org/skyscreamer/js
  android-json-0.0.20131108.vaadin1.jar - /Users/christian/.m2/repositor
  spring-test-5.2.9.RELEASE.jar - /Users/christian/.m2/repository/org/sprir
  xmlunit-core-2.7.0.jar - /Users/christian/.m2/repository/org/xmlunit/xmlu
```

Exemple 2 Le choisir les dépendances d'un projet spring boot (lors de sa création)


spring tols - Qwant Recherche
https://spring.io starter - Qwan
Spring Initializr
start.spring.io
spring initializr

Project

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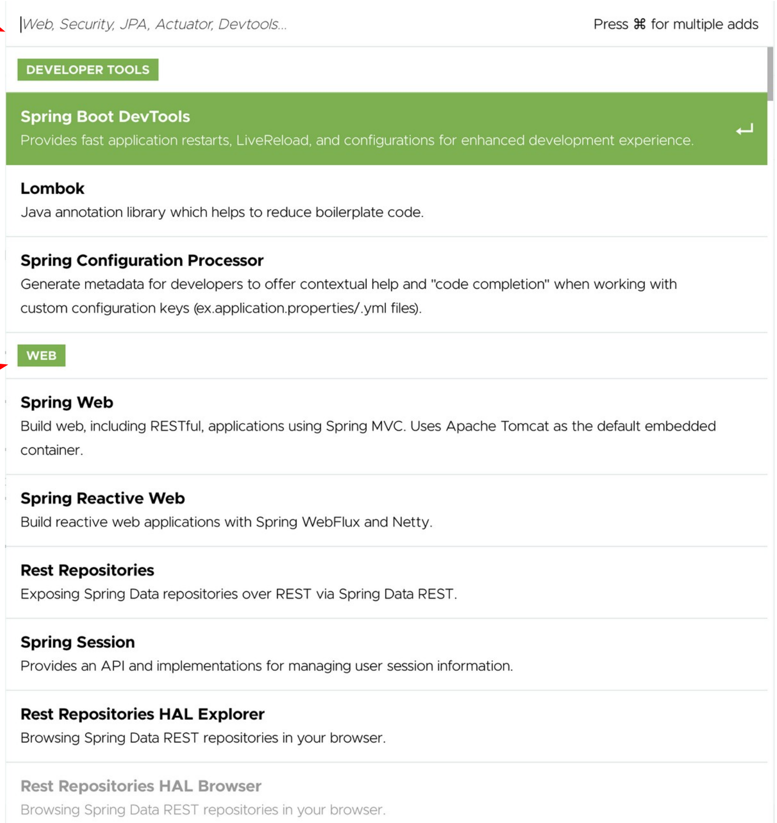
○ 2.2.10 ○ 2.1.18 (SNAPSHOT) ○ 2.1.17

Project Metadata

Group com.example

Dependencies ADD DEPENDENCIES... ⌘ + B

No dependency selected


Web, Security, JPA, Actuator, Devtools... Press ⌘ for multiple adds

DEVELOPER TOOLS

Spring Boot DevTools
Provides fast application restarts, LiveReload, and configurations for enhanced development experience.

Lombok
Java annotation library which helps to reduce boilerplate code.

Spring Configuration Processor
Generate metadata for developers to offer contextual help and "code completion" when working with custom configuration keys (ex.application.properties/.yml files).

WEB

Spring Web
Build web, including RESTful, applications using Spring MVC. Uses Apache Tomcat as the default embedded container.

Spring Reactive Web
Build reactive web applications with Spring WebFlux and Netty.

Rest Repositories
Exposing Spring Data repositories over REST via Spring Data REST.

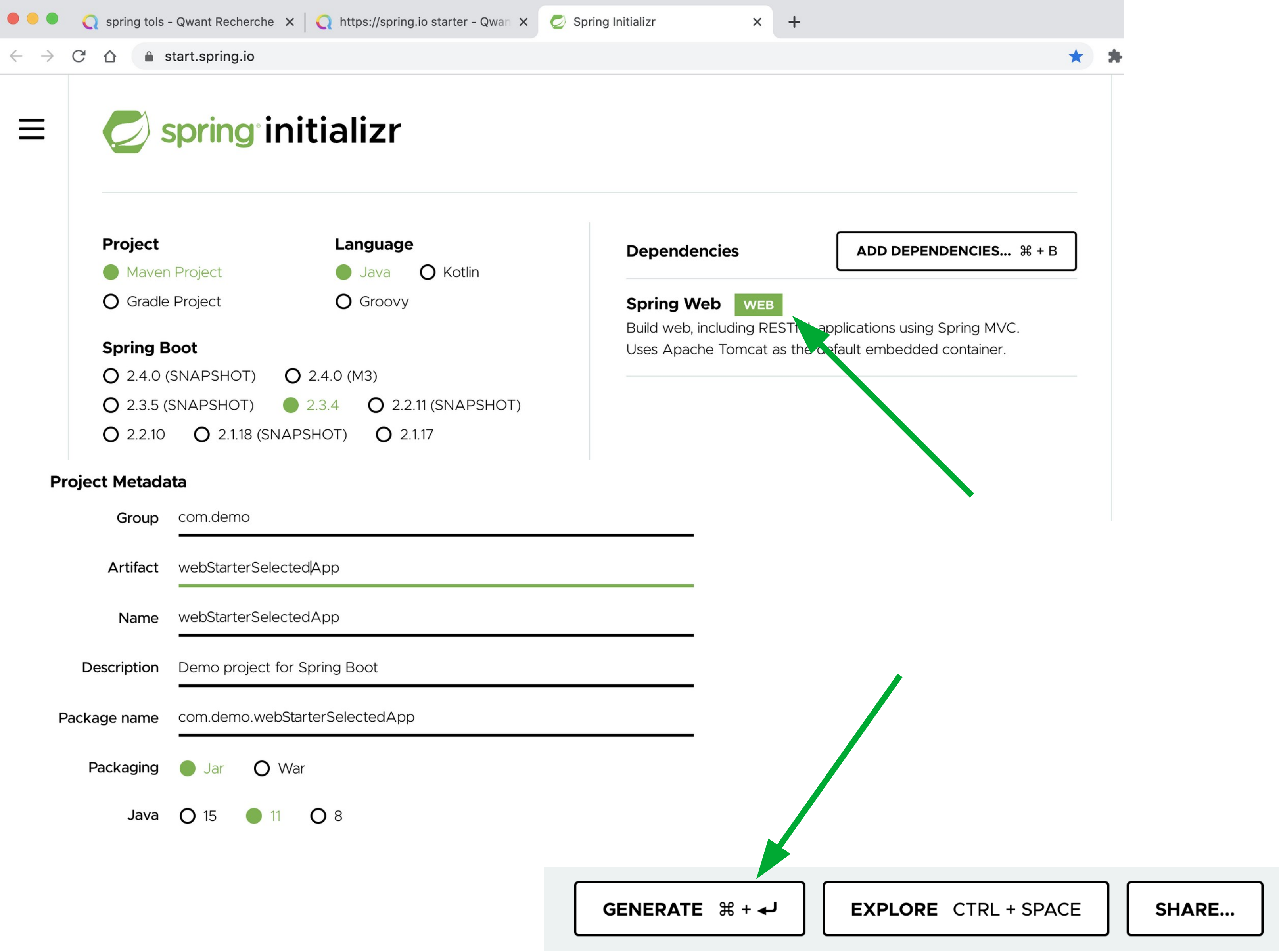
Spring Session
Provides an API and implementations for managing user session information.

Rest Repositories HAL Explorer
Browsing Spring Data REST repositories in your browser.

Rest Repositories HAL Browser
Browsing Spring Data REST repositories in your browser.

Choisir Web

Choisir Web pour la demo



spring tols - Qwant Recherche
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○ 2.3.5 (SNAPSHOT) ● 2.3.4 ○ 2.2.11 (SNAPSHOT)
○ 2.2.10 ○ 2.1.18 (SNAPSHOT) ○ 2.1.17

Project Metadata

Group com.demo

Artifact webStarterSelectedApp

Name webStarterSelectedApp

Description Demo project for Spring Boot

Package name com.demo.webStarterSelectedApp

Packaging ● Jar ○ War

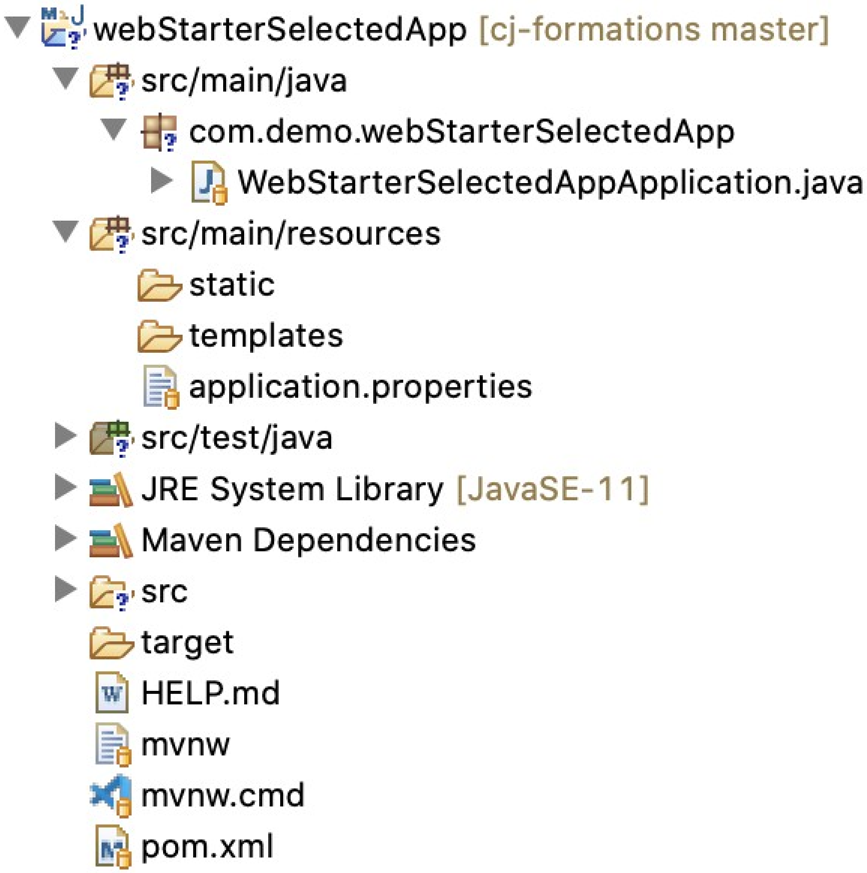
Java ○ 15 ● 11 ○ 8

Dependencies

Spring Web WEB

Build web, including RESTful applications using Spring MVC. Uses Apache Tomcat as the default embedded container.

Le projet web spring boot généré

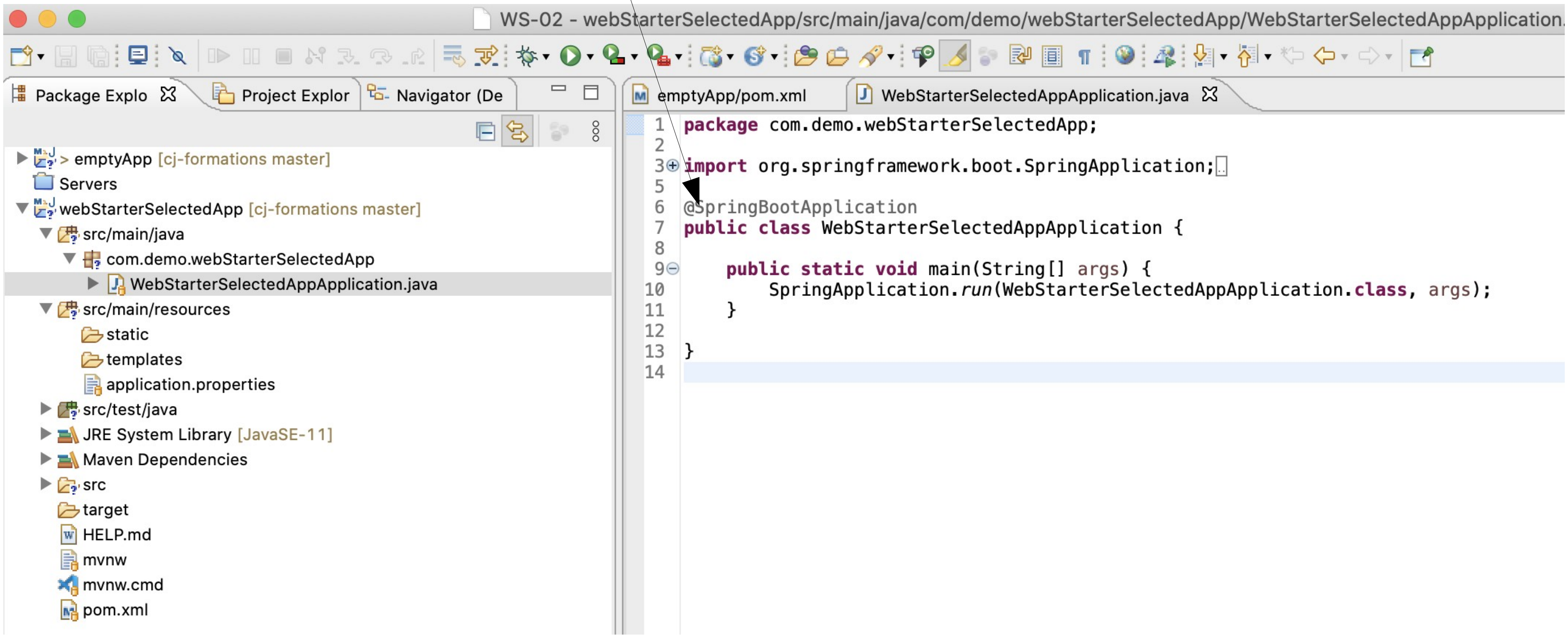


```
▼ webStarterSelectedApp [cj-formations master]
  ▼ src/main/java
    ▼ com.demo.webStarterSelectedApp
      ▶ WebStarterSelectedAppApplication.java
  ▼ src/main/resources
      static
      templates
      application.properties
  ▶ src/test/java
  ▶ JRE System Library [JavaSE-11]
  ▶ Maven Dependencies
  ▶ src
    target
    HELP.md
    mvnw
    mvnw.cmd
    pom.xml
```

Remarque

- Dans les projets spring boot que l'on a crée , on y trouve des fichiers mvnw et mvnw.cmd
- Nous en parlerons par la suite, ainsi que de chaque répertoire et fichier présent dans le projet.

@SpringBootApplication


WS-02 - webStarterSelectedApp/src/main/java/com/demo/webStarterSelectedApp/WebStarterSelectedAppApplication.
Package Explo
Project Explor
Navigator (De
emptyApp/pom.xml
WebStarterSelectedAppApplication.java
> emptyApp [cj-formations master]
Servers
webStarterSelectedApp [cj-formations master]
src/main/java
com.demo.webStarterSelectedApp
WebStarterSelectedAppApplication.java
src/main/resources
static
templates
application.properties
src/test/java
JRE System Library [JavaSE-11]
Maven Dependencies
src
target
HELP.md
mvnw
mvnw.cmd
pom.xml

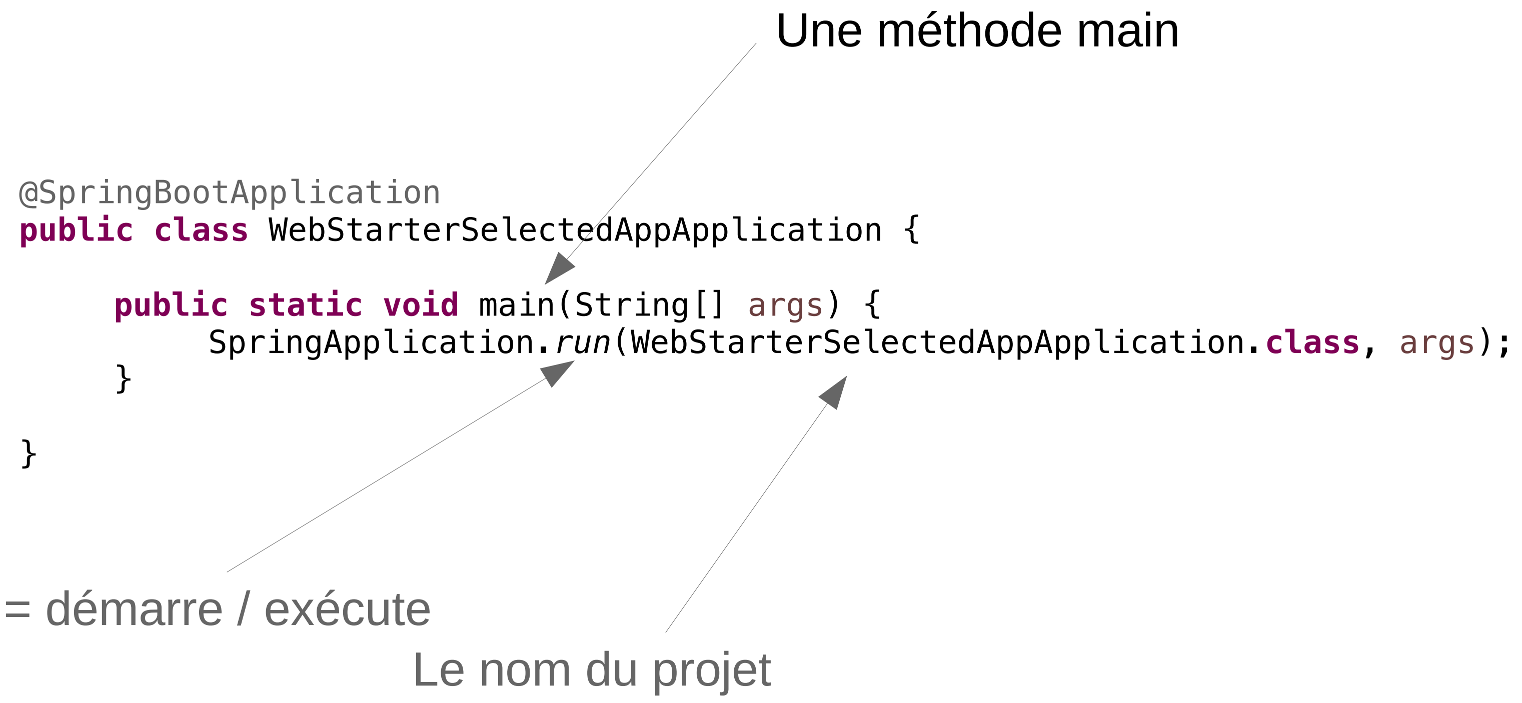
```java
package com.demo.webStarterSelectedApp;

import org.springframework.boot.SpringApplication;

@SpringBootApplication
public class WebStarterSelectedAppApplication {

    public static void main(String[] args) {
        SpringApplication.run(WebStarterSelectedAppApplication.class, args);
    }

}
```

La classe annotée avec @SpringBootApplication sert à démarrer l'application Spring boot

@SpringBootApplication = "on a une application spring boot ici …"

On verra ce que cela signifie au-delà de ce message.

@SpringBootApplication



Une méthode main

```
@SpringBootApplication
public class WebStarterSelectedAppApplication {

	public static void main(String[] args) {
		SpringApplication.run(WebStarterSelectedAppApplication.class, args);
	}

}
```

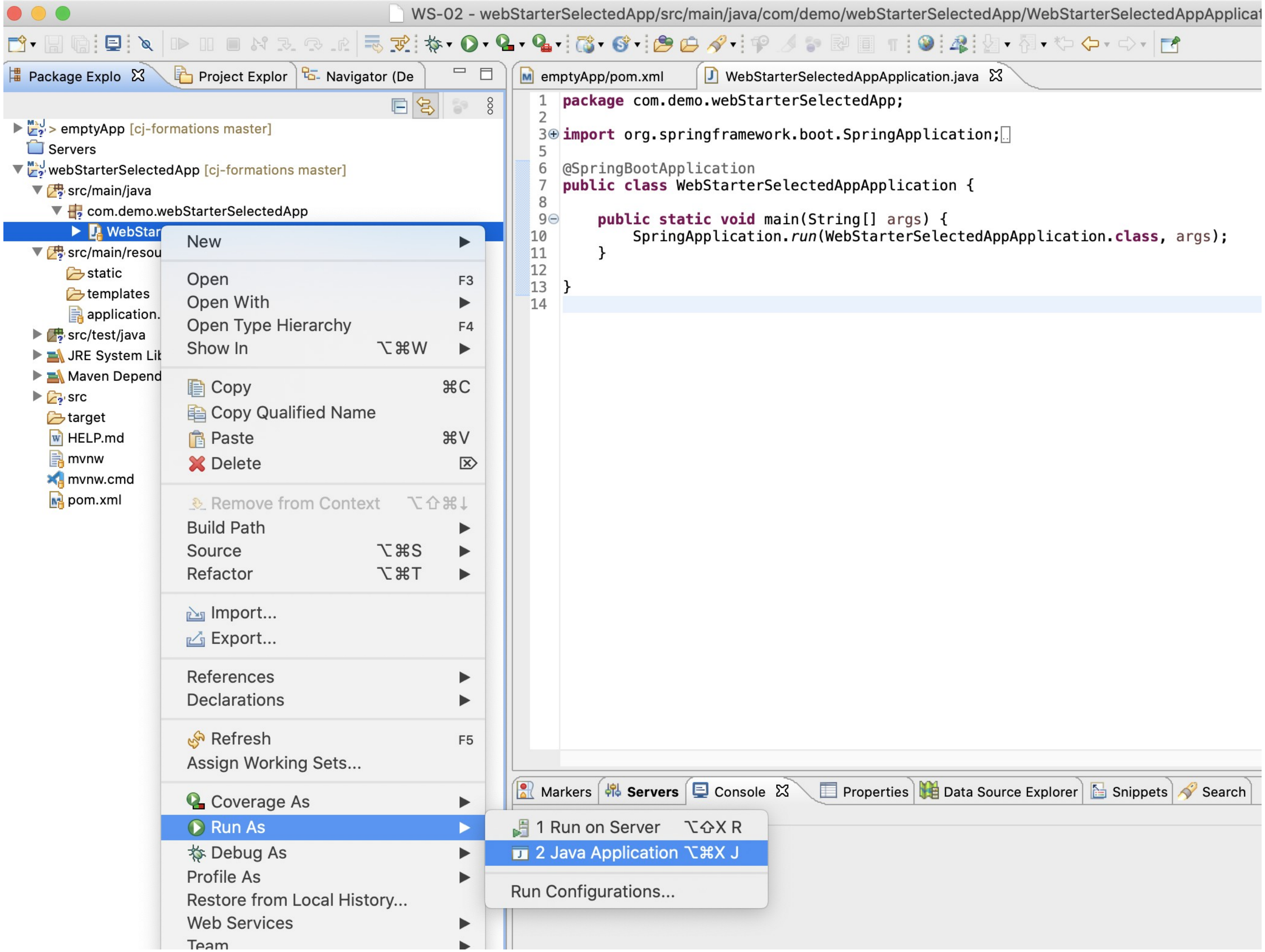
= démarre / exécute

Le nom du projet

Démarrons cette application web en faisant un clic droit sur
la classe WebStarterSelectedAppApplication
>Run As > Java Application !!!

On démarre comme une application Java SE

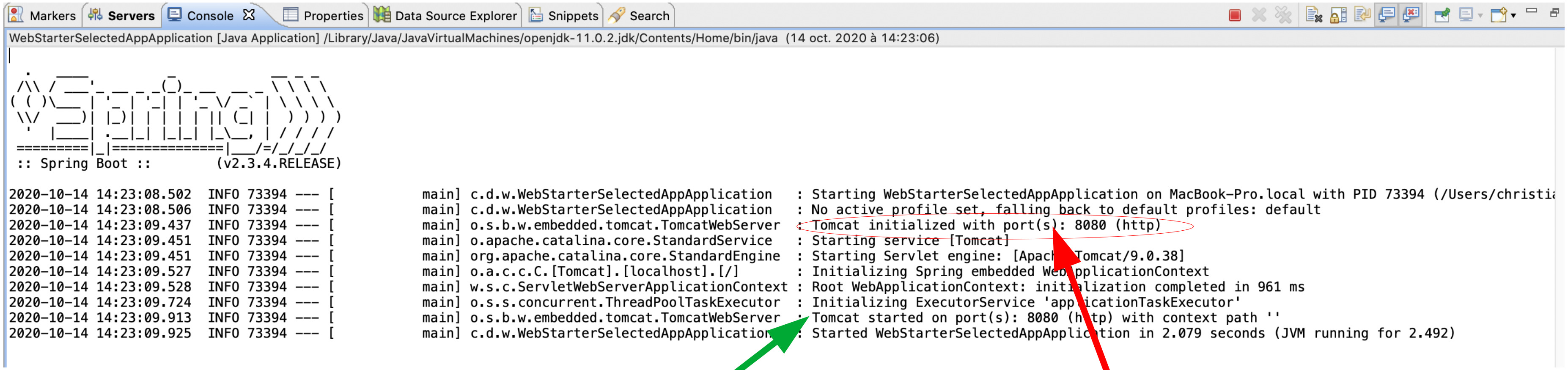
Run as Java Application



```
package com.demo.webStarterSelectedApp;

import org.springframework.boot.SpringApplication;

@SpringBootApplication
public class WebStarterSelectedAppApplication {

    public static void main(String[] args) {
        SpringApplication.run(WebStarterSelectedAppApplication.class, args);
    }

}
```

Démarrage du projet spring boot

- On peut voir la bannière Spring boot au démarrage dans la console



WebStarterSelectedAppApplication [Java Application] /Library/Java/JavaVirtualMachines/openjdk-11.0.2.jdk/Contents/Home/bin/java (14 oct. 2020 à 14:23:06)

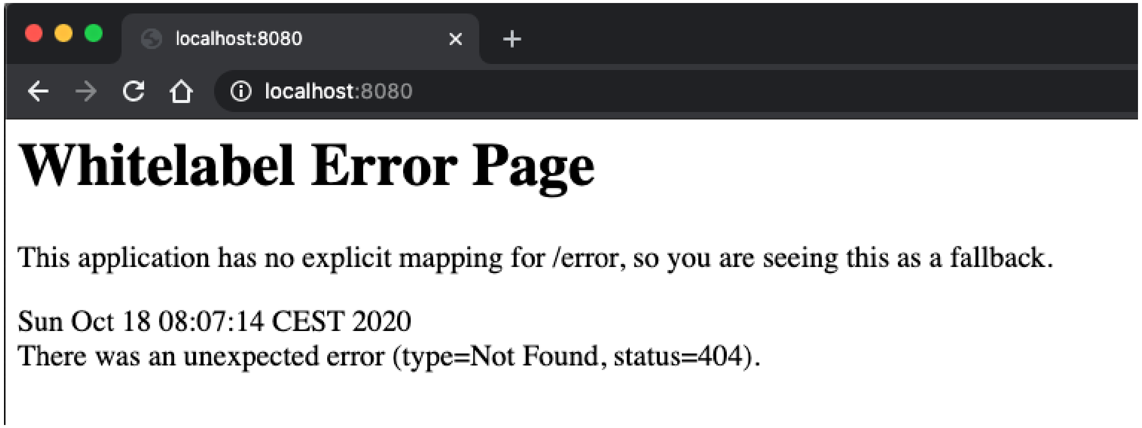
```
  .   ____          _            __ _ _
 /\\ / ___'_ __ _ _(_)_ __  __ _ \ \ \ \
( ( )\___ | '_ | '_| | '_ \/ _` | \ \ \ \
 \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
  '  |____| .__|_| |_|_| |_\__, | / / / /
 =========|_|==============|___/=/_/_/_/
 :: Spring Boot ::        (v2.3.4.RELEASE)

2020-10-14 14:23:08.502  INFO 73394 --- [           main] c.d.w.WebStarterSelectedAppApplication   : Starting WebStarterSelectedAppApplication on MacBook-Pro.local with PID 73394 (/Users/christia
2020-10-14 14:23:08.506  INFO 73394 --- [           main] c.d.w.WebStarterSelectedAppApplication   : No active profile set, falling back to default profiles: default
2020-10-14 14:23:09.437  INFO 73394 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port(s): 8080 (http)
2020-10-14 14:23:09.451  INFO 73394 --- [           main] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
2020-10-14 14:23:09.451  INFO 73394 --- [           main] org.apache.catalina.core.StandardEngine  : Starting Servlet engine: [Apache Tomcat/9.0.38]
2020-10-14 14:23:09.527  INFO 73394 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplicationContext
2020-10-14 14:23:09.528  INFO 73394 --- [           main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 961 ms
2020-10-14 14:23:09.724  INFO 73394 --- [           main] o.s.s.concurrent.ThreadPoolTaskExecutor  : Initializing ExecutorService 'applicationTaskExecutor'
2020-10-14 14:23:09.913  INFO 73394 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port(s): 8080 (http) with context path ''
2020-10-14 14:23:09.925  INFO 73394 --- [           main] c.d.w.WebStarterSelectedAppApplication   : Started WebStarterSelectedAppApplication in 2.079 seconds (JVM running for 2.492)
```

NB : Spring boot a démarré sur le port 8080

NB : Spring boot possède son propre serveur embarqué

Ouvrez votre navigateur

Entrez l'adresse suivante **localhost :8080**



Whitelabel Error Page

This application has no explicit mapping for /error, so you are seeing this as a fallback.

Sun Oct 18 08:07:14 CEST 2020
There was an unexpected error (type=Not Found, status=404).