

Ejercicio 18. Responda a las siguientes preguntas:

1. ¿Qué es Maven?

Es una herramienta dedicada a construir y administrar proyectos relacionados con java.

2. ¿Qué es el repositorio central de Maven?, ¿hasta qué punto son fiables las bibliotecas que hay en él?

El repositorio central de Maven es un repositorio de software que contiene una gran cantidad de bibliotecas, marcos y plugins de código abierto que pueden ser utilizados en proyectos Java. La fiabilidad de las bibliotecas son bastante confiables. Sin embargo, debido a la naturaleza abierta del repositorio, siempre existe la posibilidad de que algunas bibliotecas puedan contener errores o problemas de seguridad.

3. ¿Qué es el repositorio local?

El repositorio local de Maven es un directorio en el sistema de archivos de tu computadora donde Maven almacena las dependencias descargadas de internet.

Ejercicio 19. Instale Maven. Por ejemplo, en OpenSuse, se ejecuta:

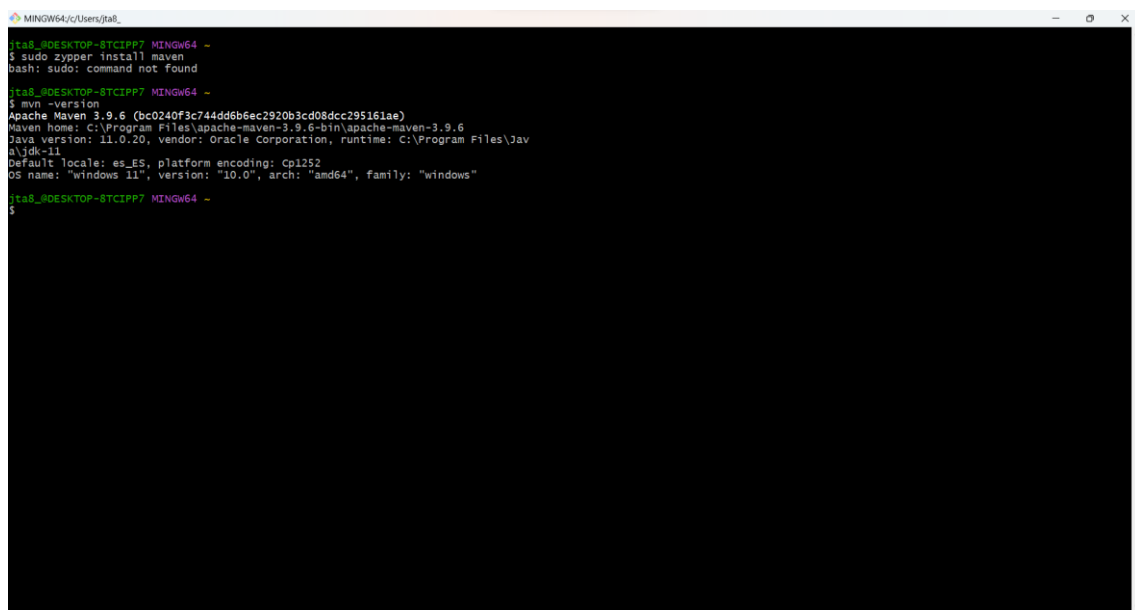
```
sudo zypper install maven
```

Para comprobar que se ha instalado correctamente:

```
mvn -version
```

Para otros sistemas operativos, seleccione la opción download de la página de Maven:

<https://maven.apache.org/>



```
MINGW64/c/Users/jra8_
jra8_DESKTOP-STCIPP7 MINGW64 ~
$ sudo zypper install maven
bash: sudo: command not found

jra8_DESKTOP-STCIPP7 MINGW64 ~
$ mvn -version
Apache Maven 3.9.6 (bc0240f3c744dd6b6ec2920b3cd08dccc295161ae)
Maven home: C:\Program Files\apache-maven-3.9.6-bin\apache-maven-3.9.6
Java version: 11.0.20, vendor: Oracle Corporation, runtime: C:\Program Files\jav
ajdk-11
Default locale: es_ES, platform encoding: Cp1252
OS name: "windows 11", version: "10.0", arch: "amd64", family: "windows"

jra8_DESKTOP-STCIPP7 MINGW64 ~
$
```

Ejercicio 20. Realice los siguientes apartados:

1. Cree un proyecto en Maven ejecutando la siguiente instrucción:

```
mvn archetype:generate -DgroupId=org.pr2 -DartifactId=miPrimeraAplicacion -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -DinteractiveMode=false
```

y explore el árbol de directorios generado.

```
MINGW64/c/Users/jta\
$ mvn archetype:generate -DgroupId=org.pr2 -DartifactId=miPrimeraAplicacion -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -DinteractiveMode=false
[INFO] Scanning for projects...
[INFO]
[INFO] ----- org.apache.maven:standalone-pom -----
[INFO] Building Maven Stub Project (No POM) 1
[INFO]
[INFO]
[INFO] >>> archetype:3.2.1:generate (default-cli) > generate-sources @ standalone-pom >>>
[INFO]
[INFO] <<< archetype:3.2.1:generate (default-cli) < generate-sources @ standalone-pom <<<
[INFO]
[INFO] --- archetype:3.2.1:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in Batch mode
[INFO]
[INFO] Using following parameters for creating project from Archetype: maven-archetype-quickstart:1.4
[INFO]
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: miPrimeraAplicacion
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: org.pr2
[INFO] Parameter: packageInPathFormat, Value: org/pr2
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: miPrimeraAplicacion
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: C:\Users\jta\miPrimeraAplicacion
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 2.142 s
[INFO] Finished at: 2024-03-14T18:29:25+01:00
[INFO]
[INFO] -----
MINGW64/c/Users/jta\miPrimeraAplicacion
$
```

2. ¿Qué es un arquetipo en Maven?

Un arquetipo es una plantilla. Cuando creamos un proyecto tenemos que especificar uno. Un arquetipo crea la estructura del proyecto, el contenido del pom.xml, la estructura de carpetas y los ficheros que incluye por defecto.

3. Entre en el directorio miPrimeraAplicacion:

```
cd miPrimeraAplicacion
```

```
MINGW64/c/Users/jta\miPrimeraAplicacion
$ mvn archetype:generate -DgroupId=org.pr2 -DartifactId=miPrimeraAplicacion -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -DinteractiveMode=false
[INFO] Scanning for projects...
[INFO]
[INFO] ----- org.apache.maven:standalone-pom -----
[INFO] Building Maven Stub Project (No POM) 1
[INFO]
[INFO]
[INFO] >>> archetype:3.2.1:generate (default-cli) > generate-sources @ standalone-pom >>>
[INFO]
[INFO] <<< archetype:3.2.1:generate (default-cli) < generate-sources @ standalone-pom <<<
[INFO]
[INFO] --- archetype:3.2.1:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in Batch mode
[INFO]
[INFO] Using following parameters for creating project from Archetype: maven-archetype-quickstart:1.4
[INFO]
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: miPrimeraAplicacion
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: org.pr2
[INFO] Parameter: packageInPathFormat, Value: org/pr2
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: miPrimeraAplicacion
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: C:\Users\jta\miPrimeraAplicacion
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 2.142 s
[INFO] Finished at: 2024-03-14T18:29:25+01:00
[INFO]
[INFO] -----
MINGW64/c/Users/jta\miPrimeraAplicacion
$ cd miPrimeraAplicacion
MINGW64/c/Users/jta\miPrimeraAplicacion
$ ls
pom.xml src/
MINGW64/c/Users/jta\miPrimeraAplicacion
$
```

4. Explique el fichero pom.xml.

5. Explore el árbol de directorios.

```
MINGW64~/Users/jaf/miPrimerAplicacion
ls -laR
ls -laR
pom.xml src/
./src:
main/ test/
./src/main:
java/
./src/main/java:
org/
./src/main/java/org:
pr2/
./src/main/java/org/pr2:
App.java
./src/test:
java/
./src/test/java:
org/
./src/test/java/org:
pr2/
./src/test/java/org/pr2:
AppTest.java
ls -laR Desktop-ETCIP7 MINGW64 ~/miPrimerAplicacion
$
```

6. Compile el programa:

mvn compile

```
MINGW64~/Users/jaf/miPrimerAplicacion
ls -laR Desktop-ETCIP7 MINGW64 ~/miPrimerAplicacion
$ mvn compile
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.pr2:miPrimerAplicacion >-----
[INFO] Building miPrimerAplicacion 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO]
[INFO] ---> [ jar ]
[INFO]
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-resources-plugin/3.0.2/maven-resources-plugin-3.0.2.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-resources-plugin/3.0.2/maven-resources-plugin-3.0.2.pom (7.1 kB at 24 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-plugins/30/maven-plugins-30.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-plugins/30/maven-plugins-30.pom (10 kB at 221 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-resources-plugin/3.0.2/maven-resources-plugin-3.0.2.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-resources-plugin/3.0.2/maven-resources-plugin-3.0.2.jar (32 kB at 366 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-compiler-plugin/3.8.0/maven-compiler-plugin-3.8.0.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-compiler-plugin/3.8.0/maven-compiler-plugin-3.8.0.pom (12 kB at 829 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-compiler-plugin/3.8.0/maven-compiler-plugin-3.8.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-compiler-plugin/3.8.0/maven-compiler-plugin-3.8.0.jar (62 kB at 2.0 MB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-plugins/32/maven-plugins-32.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-plugins/32/maven-plugins-32.pom (11 kB at 227 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/32/maven-parent-32.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/32/maven-parent-32.pom (43 kB at 887 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/apache/20/apache-20.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/apache/20/apache-20.pom (16 kB at 547 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-compiler-plugin/3.8.0/maven-compiler-plugin-3.8.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-compiler-plugin/3.8.0/maven-compiler-plugin-3.8.0.jar (62 kB at 2.0 MB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/junit/junit4.11/junit4-11.pom
Downloaded from central: https://repo.maven.apache.org/maven2/junit/junit4.11/junit4-11.pom (2.3 kB at 76 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/hamcrest/hamcrest-core/1.3/hamcrest-core-1.3.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/hamcrest/hamcrest-core/1.3/hamcrest-core-1.3.pom (788 B at 48 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/hamcrest/hamcrest-parent/1.3/hamcrest-parent-1.3.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/hamcrest/hamcrest-parent/1.3/hamcrest-parent-1.3.pom (2.0 kB at 131 kB/s)
[INFO]
[INFO] --- resources:3.0.2:resources (default-resources) @ miPrimerAplicacion ---
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-component-annotations/1.6/plexus-component-annotations-1.6.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-component-annotations/1.6/plexus-component-annotations-1.6.pom (748 B at 24 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-containers/1.6/plexus-containers-1.6.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-containers/1.6/plexus-containers-1.6.pom (3.8 kB at 121 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus/3.3.2/plexus-3.3.2.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus/3.3.2/plexus-3.3.2.pom (22 kB at 591 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.0.24/plexus-utils-3.0.24.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.0.24/plexus-utils-3.0.24.pom (4.1 kB at 133 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-filtering/3.1.1/maven-filtering-3.1.1.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-filtering/3.1.1/maven-filtering-3.1.1.pom (5.7 kB at 172 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.0.0/maven-shared-utils-3.0.0.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.0.0/maven-shared-utils-3.0.0.pom (3.6 kB at 185 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-components/21/maven-shared-components-21.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-components/21/maven-shared-components-21.pom (5.1 kB at 319 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons-io/commons-io/2.4/commons-io-2.4.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons-io/commons-io/2.4/commons-io-2.4.pom (10 kB at 216 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/25/commons-parent-25.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/25/commons-parent-25.pom (48 kB at 1.0 MB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/apache/9/apache-9.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/apache/9/apache-9.pom (33 kB at 474 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-interpolation/1.22/plexus-interpolation-1.22.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-interpolation/1.22/plexus-interpolation-1.22.pom (0.5 kB at 48 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-interpolation/1.24/plexus-interpolation-1.24.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-interpolation/1.24/plexus-interpolation-1.24.pom (2.6 kB at 42 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-component-annotations/1.6/plexus-component-annotations-1.6.jar
```

7. Ejecute el programa:

mvn exec:java -D exec.mainClass=org.pr2.App

```
MINGW64/Users/jta/_miPrimerAplicacion
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-exec/1.4.0/commons-exec-1.4.0.jar (99 kB at 399 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/4.0.0/plexus-utils-4.0.0.jar (192 kB at 1.4 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-commons/9.6/asm-commons-9.6.jar (72 kB at 512 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/resolver/maven-resolver-api/1.4.1/maven-resolver-api-1.4.1.jar (149 kB at 861 kB/s)
Hello world!
[INFO] BUILD SUCCESS
[INFO] Total time: 2.669 s
[INFO] Finished at: 2024-03-14T20:14:38+01:00
[INFO]
[ta8_BDESKTOP-8TC1PP7 MINGW64 ~/_miPrimerAplicacion]

$ mvn clean compile
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.pr2:miPrimerAplicacion >-----
[INFO] Building miPrimerAplicacion 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- clean:3.0.0:clean (default-clean) @ miPrimerAplicacion ---
[INFO] Deleting C:\Users\jta\_miPrimerAplicacion\target
[INFO]
[INFO] --- resources:3.0.2:resources (default-resources) @ miPrimerAplicacion ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory C:\Users\jta\_miPrimerAplicacion\src/main/resources
[INFO]
[INFO] --- compiler:3.0.0:compile (default-compile) @ miPrimerAplicacion ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to C:\Users\jta\_miPrimerAplicacion\target\classes
[INFO]
[INFO] BUILD SUCCESS
[INFO] Total time: 0.801 s
[INFO] Finished at: 2024-03-14T20:20:00+01:00
[INFO]
[ta8_BDESKTOP-8TC1PP7 MINGW64 ~/_miPrimerAplicacion]

$ mvn exec:java -D exec.mainClass=org.pr2.App
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.pr2:miPrimerAplicacion >-----
[INFO] Building miPrimerAplicacion 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- exec:3.2.0:java (default-cli) @ miPrimerAplicacion ---
Hello world!
[INFO] BUILD SUCCESS
[INFO] Total time: 0.457 s
[INFO] Finished at: 2024-03-14T20:21:17+01:00
[INFO]
[ta8_BDESKTOP-8TC1PP7 MINGW64 ~/_miPrimerAplicacion]

$
```

8. Elimine los artefactos generados anteriormente, vuelva compilar y ejecute de nuevo:

mvn clean compile

mvn exec:java -D exec.mainClass=org.pr2.App

```
MINGW64/Users/jta/_miPrimerAplicacion
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-exec/1.4.0/commons-exec-1.4.0.jar (99 kB at 399 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/4.0.0/plexus-utils-4.0.0.jar (192 kB at 1.4 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-commons/9.6/asm-commons-9.6.jar (72 kB at 512 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/resolver/maven-resolver-api/1.4.1/maven-resolver-api-1.4.1.jar (149 kB at 861 kB/s)
Hello world!
[INFO] BUILD SUCCESS
[INFO] Total time: 2.669 s
[INFO] Finished at: 2024-03-14T20:14:38+01:00
[INFO]
[ta8_BDESKTOP-8TC1PP7 MINGW64 ~/_miPrimerAplicacion]

$ mvn clean compile
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.pr2:miPrimerAplicacion >-----
[INFO] Building miPrimerAplicacion 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- clean:3.0.0:clean (default-clean) @ miPrimerAplicacion ---
[INFO] Deleting C:\Users\jta\_miPrimerAplicacion\target
[INFO]
[INFO] --- resources:3.0.2:resources (default-resources) @ miPrimerAplicacion ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory C:\Users\jta\_miPrimerAplicacion\src/main/resources
[INFO]
[INFO] --- compiler:3.0.0:compile (default-compile) @ miPrimerAplicacion ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to C:\Users\jta\_miPrimerAplicacion\target\classes
[INFO]
[INFO] BUILD SUCCESS
[INFO] Total time: 0.801 s
[INFO] Finished at: 2024-03-14T20:20:00+01:00
[INFO]
[ta8_BDESKTOP-8TC1PP7 MINGW64 ~/_miPrimerAplicacion]

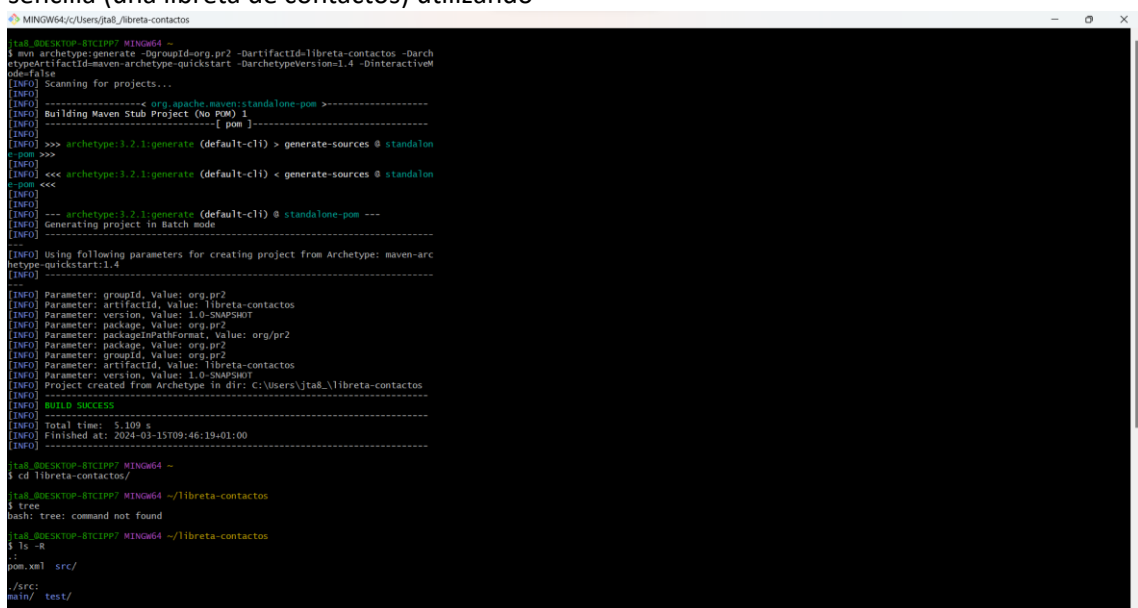
$ mvn exec:java -D exec.mainClass=org.pr2.App
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.pr2:miPrimerAplicacion >-----
[INFO] Building miPrimerAplicacion 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- exec:3.2.0:java (default-cli) @ miPrimerAplicacion ---
Hello world!
[INFO] BUILD SUCCESS
[INFO] Total time: 0.457 s
[INFO] Finished at: 2024-03-14T20:21:17+01:00
[INFO]
[ta8_BDESKTOP-8TC1PP7 MINGW64 ~/_miPrimerAplicacion]

$
```

- **Validate:** valida que el proyecto es correcto y que toda la información necesaria está disponible según la especificación de los POMs.
- **Compile:** compila el código fuente del proyecto revisando todos los directorios `src/main/java`, alojando `.class` en `target/clases`.
- **Test:** prueba el código fuente compilando utilizando el marco de prueba unitario indicando en el POM, normalmente JUnit. Si el resultado de alguno de ellos no es correcto se interrumpe la construcción.

- Package: recoge el código compilado y lo empaqueta en su formato distribuible, normalmente como un fichero del tipo <aplicacion>.jar
- Install: instala el paquete en el repositorio local, para usarlo con independencia en otros repositorios locales.
- Deploy: copia el binario construido en el repositorio remoto, para compartirlo con otros desarrolladores y proyectos. Esta fase requiere que se indique la URL del repositorio donde desplegar, así como las credenciales a usar en caso necesario.
- Clean: si se invoca manualmente Maven eliminará todos los recursos generados durante la compilación y el empaquetado, borrando el directorio target.
- Site: produce un informe HTML acerca del proyecto mostrando la documentación del API de Javadoc y estadísticas según las herramientas de análisis que se hayan configurado.

Ejercicio 21. El propósito del presente ejercicio es la realización de una aplicación sencilla (una libreta de contactos) utilizando



```
MINGW64 C:\Users\jta8\libreta-contactos
PS C:\Users\jta8\libreta-contactos> mvn archetype:generate -DgroupId=org.pr2 -DartifactId=libreta-contactos -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -DinteractiveMode=false
[INFO] Scanning for projects...
[INFO] ----- org.apache.maven:standalone-pom >-----
[INFO] Building Maven Stub Project (No POM) 1
[INFO] ----- [ pom ] -----
[INFO] >>> archetype:1.2.1:generate (default-cli) > generate-sources @ standalone-pom >>>
[INFO] <<< archetype:1.2.1:generate (default-cli) < generate-sources @ standalone-pom <<<
[INFO] --- archetype:1.2.1:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in Batch mode
[INFO] -----
[INFO] Using following parameters for creating project from Archetype: maven-archetype-quickstart:1.4
[INFO] -----
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: libreta-contactos
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: org.pr2
[INFO] Parameter: packageInPathFormat, Value: org/pr2
[INFO] Parameter: package, Value: org.pr2
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: libreta-contactos
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: C:\Users\jta8\libreta-contactos
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 5.109 s
[INFO] Finished at: 2024-03-15T09:46:19+01:00
[INFO] -----
PS C:\Users\jta8\libreta-contactos> cd libreta-contactos/
PS C:\Users\jta8\libreta-contactos> tree
tree: command not found
PS C:\Users\jta8\libreta-contactos> ls -R
.
pom.xml src/
./src:
main/ test/
```

Maven. Se pide realizar

los apartados que se muestran a continuación:

1. Genere el proyecto:

mvn archetype:generate -DgroupId=org.pr2 -DartifactId=libreta

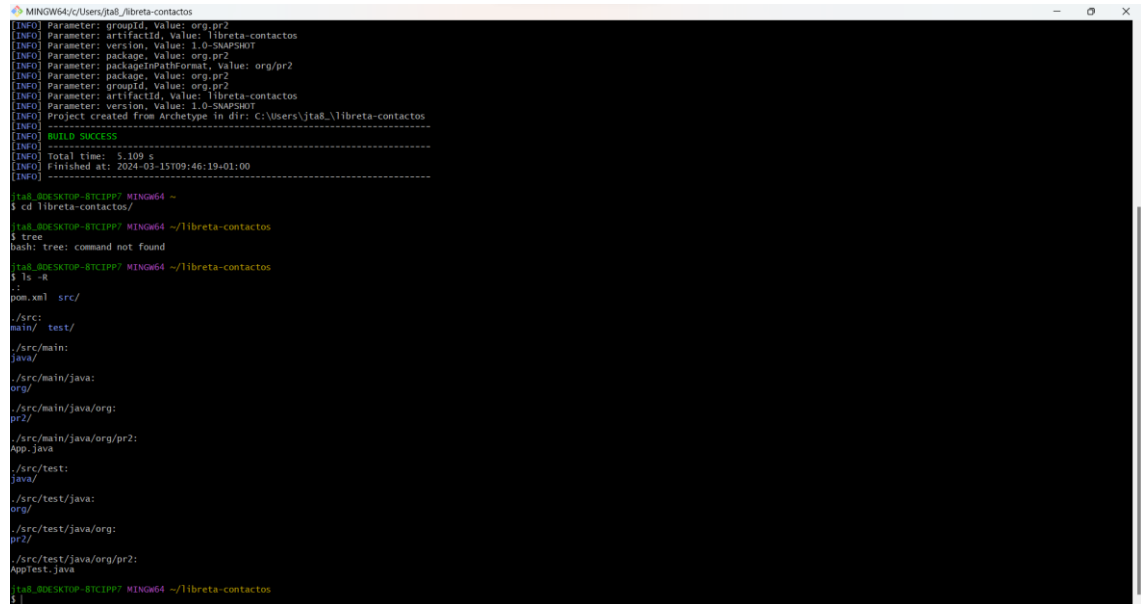
-contactos -DarchetypeArtifactId=maven-archetypequickstart

-DarchetypeVersion=1.4 -DinteractiveMode=false

2. Explore el árbol de directorios de src:

cd libreta-contactos

tree



```
MINGW64/c/Users/jta8/libreta-contactos
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: libreta-contactos
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: org.pr2
[INFO] Parameter: packaging, Value: jar
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: libreta-contactos
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: C:\Users\jta8\libreta-contactos
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 5.109 s
[INFO] Finished at: 2024-03-15T09:46:19+01:00
[INFO] -----

jta8@DESKTOP-8TC1PP7 MINGW64 ~
$ cd libreta-contactos/
$ tree
bash: tree: command not found

jta8@DESKTOP-8TC1PP7 MINGW64 ~/libreta-contactos
$ ls -R
.:
pom.xml src/
./src:
main/ test/
./src/main:
java/
./src/main/java:
org/
./src/main/java/org:
pr2/
./src/main/java/org/pr2:
App.java
./src/test:
java/
./src/test/java:
org/
./src/test/java/org:
pr2/
./src/test/java/org/pr2:
AppTest.java
jta8@DESKTOP-8TC1PP7 MINGW64 ~/libreta-contactos
$
```

3. Explore el código de la clase principal:

vi src/main/java/org/pr2/App.java



```
package org.pr2;

/**
 * Hello world!
 */
public class App {
    public static void main( String[] args )
    {
        System.out.println( "Hello world!" );
    }
}
```


4. Compile:

mvn compile

```
MINGW64/c/Users/jta8/libreta-contactos
- pom.xml src/
- ./src:
- main/ test/
- ./src/main:
- java/
- ./src/main/java:
- org/
- ./src/main/java/org:
- pr2/
- ./src/main/java/org/pr2:
- App.java
- ./src/test:
- java/
- ./src/test/java:
- org/
- ./src/test/java/org:
- pr2/
- ./src/test/java/org/pr2:
- AppTest.java

jta8_RDESKTOP-BTCLIPP7 MINGW64 ~/libreta-contactos
$ vi src/main/java/org/pr2/App.java
jta8_RDESKTOP-BTCLIPP7 MINGW64 ~/libreta-contactos
$ mvn compile
[INFO] Scanning for projects...
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- resources:3.0.2:resources (default-resources) @ libreta-contactos ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory C:\Users\jta8\libreta-contactos\src\main\resources
[INFO] --- compiler:3.8.0:compile (default-compile) @ libreta-contactos ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to C:\Users\jta8\libreta-contactos\target\classes
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.911 s
[INFO] Finished at: 2024-03-15T09:53:26+01:00
[INFO] -----

jta8_RDESKTOP-BTCLIPP7 MINGW64 ~/libreta-contactos
$
```

5. Compruebe que la aplicación ejecuta:

mvn exec:java -D exec.mainClass=org.pr2.App

```
MINGW64/c/Users/jta8/libreta-contactos
- ./src/test:
- java/
- ./src/test/java:
- org/
- ./src/test/java/org:
- pr2/
- ./src/test/java/org/pr2:
- AppTest.java

jta8_RDESKTOP-BTCLIPP7 MINGW64 ~/libreta-contactos
$ vi src/main/java/org/pr2/App.java
jta8_RDESKTOP-BTCLIPP7 MINGW64 ~/libreta-contactos
$ mvn compile
[INFO] Scanning for projects...
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- resources:3.0.2:resources (default-resources) @ libreta-contactos ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory C:\Users\jta8\libreta-contactos\src\main\resources
[INFO] --- compiler:3.8.0:compile (default-compile) @ libreta-contactos ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to C:\Users\jta8\libreta-contactos\target\classes
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.911 s
[INFO] Finished at: 2024-03-15T09:53:26+01:00
[INFO] -----

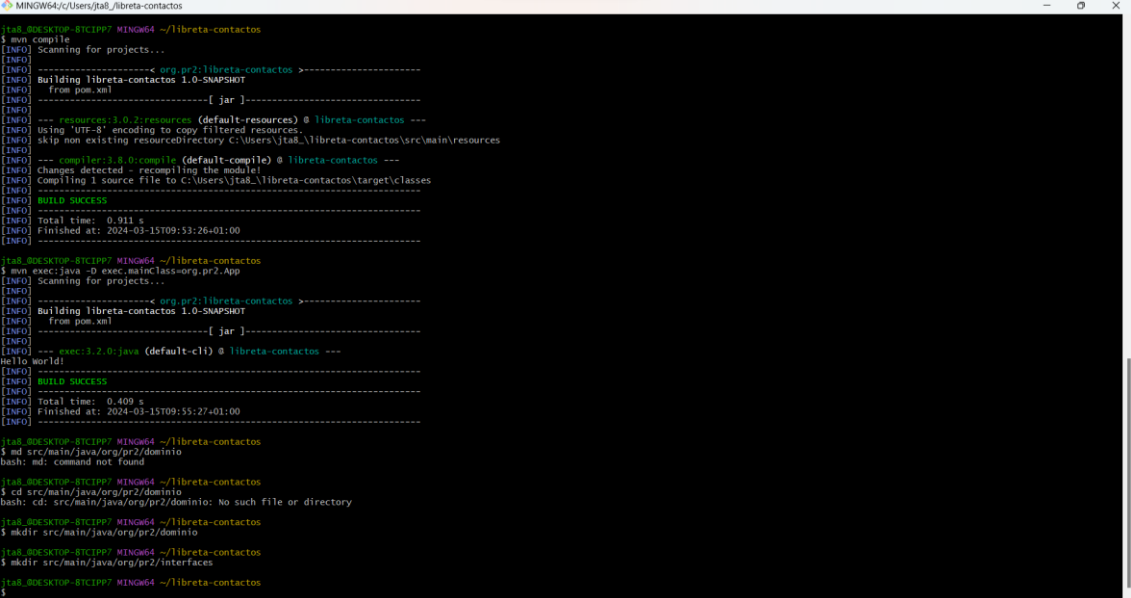
jta8_RDESKTOP-BTCLIPP7 MINGW64 ~/libreta-contactos
$ mvn exec:java -D exec.mainClass=org.pr2.App
[INFO] Scanning for projects...
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- exec:3.2.0:java (default-cli) @ libreta-contactos ---
[INFO] -----
[INFO] will be world!
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.409 s
[INFO] Finished at: 2024-03-15T09:55:27+01:00
[INFO] -----

jta8_RDESKTOP-BTCLIPP7 MINGW64 ~/libreta-contactos
$
```


6. Cree un directorio para el dominio de la aplicación y otro para la interfaz de usuario:

```
md src/main/java/org/pr2/dominio
```

```
md src/main/java/org/pr2/interfaces
```



```
MINGW64/c/Users/ja8/libreta-contactos
$ mvn compile
[INFO] Scanning for projects...
[INFO]
[INFO] ----- org.pr2:libreta-contactos > -----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] ----- [ jar ] -----
[INFO]
[INFO] --- resources:3.0.2:resources (default-resources) @ libreta-contactos ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory C:\Users\ja8\libreta-contactos\src\main\resources
[INFO]
[INFO] --- compiler:3.0.0:compile (default-compile) @ libreta-contactos ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to C:\Users\ja8\libreta-contactos\target\classes
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 0.911 s
[INFO] Finished at: 2024-03-15T09:53:26+01:00
[INFO]
$ mvn exec:java -D exec.mainClass=org.pr2.App
[INFO] Scanning for projects...
[INFO]
[INFO] ----- org.pr2:libreta-contactos > -----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] ----- [ jar ] -----
[INFO]
[INFO] --- exec:3.2.0:java (default-cli) @ libreta-contactos ---
[INFO]
[INFO] --- BUILD SUCCESS ---
[INFO]
[INFO] Total time: 0.409 s
[INFO] Finished at: 2024-03-15T09:55:27+01:00
[INFO]
$ cd src/main/java/org/pr2/dominio
bash: cd: src/main/java/org/pr2/dominio: no such file or directory
$ mkdir src/main/java/org/pr2/dominio
$ cd src/main/java/org/pr2/interfaces
$ mkdir src/main/java/org/pr2/interfaces
$
```

7. Escriba las clases Contacto.java en el directorio src/main/java/org/pr2/dominio

```
package org.pr2.dominio;

public class Contacto
{
    private String nombre;
    private String telefono;
    public void setNombre(String nombre) {
        this.nombre = nombre;
    }
    public String getNombre() {
        return nombre;
    }
    public void setTelefono(String telefono) {
        this.telefono = telefono;
    }
    public String getTelefono() {
        return telefono;
    }
    @Override
    public String toString() {
        return "nombre: " + getNombre() + " " +
            "telefono: " + getTelefono();
    }
}
```

```

}
public Contacto(String nombre, String telefono) {
    this.nombre = nombre;
    this.telefono = telefono;
}
public Contacto() {
}
}

```

8. En el mismo directorio, escriba la clase Libreta.java

```

package org.pr2.dominio;
import java.io.File;
import java.io.FileWriter;
import java.io.IOException;
import java.util.ArrayList;
import java.util.Scanner;
public class Libreta
{
    private String nombreFichero = "contactos.txt";
    private ArrayList<Contacto> contactos = new ArrayList<>()
        ;

    public void addContacto(Contacto contacto)
    {
        contactos.add(contacto);
    }
    @Override
    public String toString() {
        StringBuilder sb = new StringBuilder();
        for(Contacto contacto : contactos)
        {
            sb.append(contacto + "¥n");
        }
        return sb.toString();
    }
    public Libreta() {
        try
        {
            File fichero = new File(nombreFichero);
            fichero.createNewFile();
            Scanner sc = new Scanner(fichero);
            while(sc.hasNext())
            {
                Contacto contacto = new Contacto();
                contacto.setNombre(sc.nextLine());
                contacto.setTelefono(sc.nextLine());
                contactos.add(contacto);
            }
        }
    }
}

```

```

    }catch(IOException ex)
    {
        System.err.println(ex);
    }
}

private void volcarContactos()
{
    System.out.println(contactos);
    try
    {
        FileWriter fw = new FileWriter(nombreFichero);
        for(Contacto contacto : contactos)
        {
            fw.write(contacto.getNombre()+"¥n");
            fw.write(contacto.getTelefono()+"¥n");
        }
        fw.close();
    }catch(IOException ex)
    {
        System.err.println(ex);
    }
}

    public void annadirContacto(Contacto contacto)

{
    contactos.add(contacto);
    this.volcarContactos();
}
}

```

9. Escriba la clase Interfaz.java en el directorio src/main/java/org/pr2/interfaces

```

package org.pr2.interfaces;
import org.pr2.dominio.*;
public class Interfaz
{
    public static void iniciar(String args[])
    {
        Libreta libreta = new Libreta();
        if (args[0].equals("add"))
        {
            Contacto contacto = new Contacto(args[1], args
[2]);
            libreta.annadirContacto(contacto);
        }
        else if (args[0].equals("show")) System.out.println(
libreta);
        else System.out.println("Opcion incorrecta");
    }
}

```

```
}
```

10. Modifique la clase App.java

```
package org.pr2;
```

```
import org.pr2.interfaces.*;
```

```
public class App
```

```
{
```

```
    public static void main( String[] args )
```

```
    {
```

```
        Interfaz.iniciar(args);
```

```
    }
```

```
}
```

11. compile:

```
mvn compile
```

```
MINGW64~\Users\jta8\libreta-contactos
[INFO] --- exec:3.2.0:java (default-cli) @ libreta-contactos ---
hello world!
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.409 s
[INFO] Finished at: 2024-03-15T09:55:27+01:00
[INFO] -----

jta8_BDESKTOP-RTCI97 MINGW64 ~/libreta-contactos
$ cd src/main/java/org/pr2/ dominio
bash: cd: src/main/java/org/pr2/ dominio: No such file or directory

jta8_BDESKTOP-RTCI97 MINGW64 ~/libreta-contactos
$ mkdir src/main/java/org/pr2/ dominio
$ mkdir src/main/java/org/pr2/ interfaces

jta8_BDESKTOP-RTCI97 MINGW64 ~/libreta-contactos
$ touch src/main/java/org/pr2/ dominio/ Contacto.java
$ touch src/main/java/org/pr2/ dominio/ Libreta.java
$ touch src/main/java/org/pr2/ interfaces/ Interfaz.java

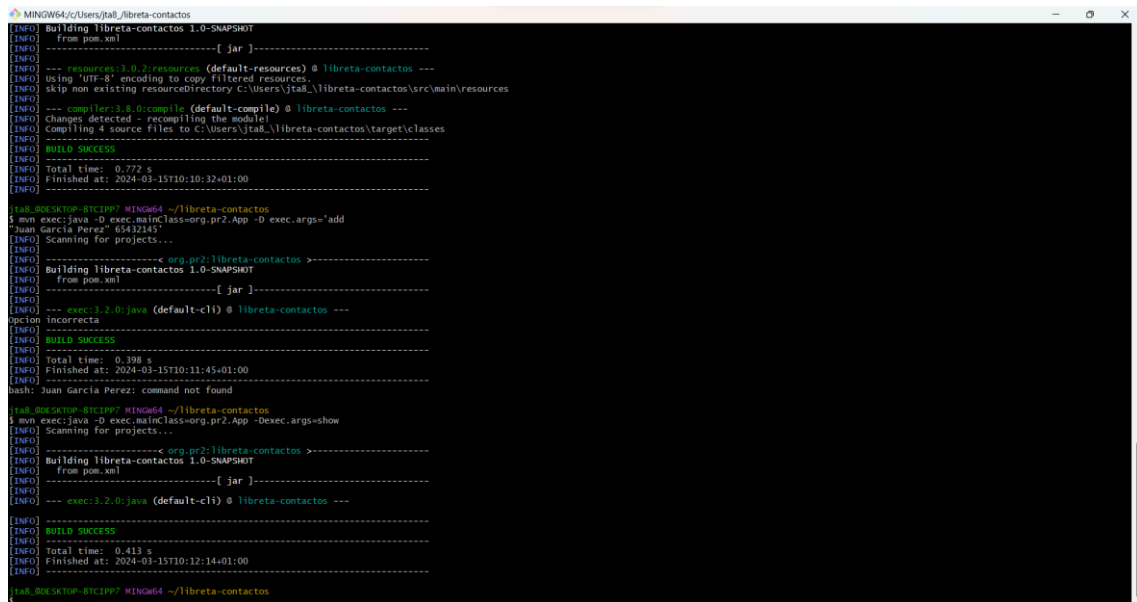
jta8_BDESKTOP-RTCI97 MINGW64 ~/libreta-contactos
$ mvn compile
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- resources:3.0.2:resources (default-resources) @ libreta-contactos ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory C:\Users\jta8\libreta-contactos\src\main\resources
[INFO]
[INFO] --- compiler:3.8.0:compile (default-compile) @ libreta-contactos ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 4 source files to C:\Users\jta8\libreta-contactos\target\classes
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 0.772 s
[INFO] Finished at: 2024-03-15T10:10:32+01:00
[INFO]
jta8_BDESKTOP-RTCI97 MINGW64 ~/libreta-contactos
$
```

12. Ejecute:

mvn exec:java -D exec.mainClass=org.pr2.App -D exec.args='add

"Juan Garcia Perez" 65432145'

mvn exec:java -D exec.mainClass=org.pr2.App -Dexec.args=show



```
MINGW64 C:\Users\jta8\libreta-contactos
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- resources:3.0.2:resources (default-resources) @ libreta-contactos ---
[INFO] using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory C:\Users\jta8\libreta-contactos\src\main\resources
[INFO] --- compiler:3.8.0:compile (default-compile) @ libreta-contactos ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 4 source files to C:\Users\jta8\libreta-contactos\target\classes
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.772 s
[INFO] Finished at: 2024-03-15T10:10:32+01:00
[INFO] -----

jta8_BOKS@BOKS-RTCP77 MINGW64 ~/libreta-contactos
$ mvn exec:java -D exec.mainClass=org.pr2.App -D exec.args='add
"Juan Garcia Perez" 65432145'
[INFO] Scanning for projects...
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- exec:3.2.0:java (default-cli) @ libreta-contactos ---
[INFO] Section incorrecta
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.398 s
[INFO] Finished at: 2024-03-15T10:11:45+01:00
[INFO] -----
bash: Juan Garcia Perez: command not found

jta8_BOKS@BOKS-RTCP77 MINGW64 ~/libreta-contactos
$ mvn exec:java -D exec.mainClass=org.pr2.App -Dexec.args=show
[INFO] Scanning for projects...
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO] --- exec:3.2.0:java (default-cli) @ libreta-contactos ---
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.413 s
[INFO] Finished at: 2024-03-15T10:12:14+01:00
[INFO] -----
```

Ejercicio 22. Lleve a cabo los siguientes apartados:

1. Añada en la sección de properties del pom.xml la siguiente línea:

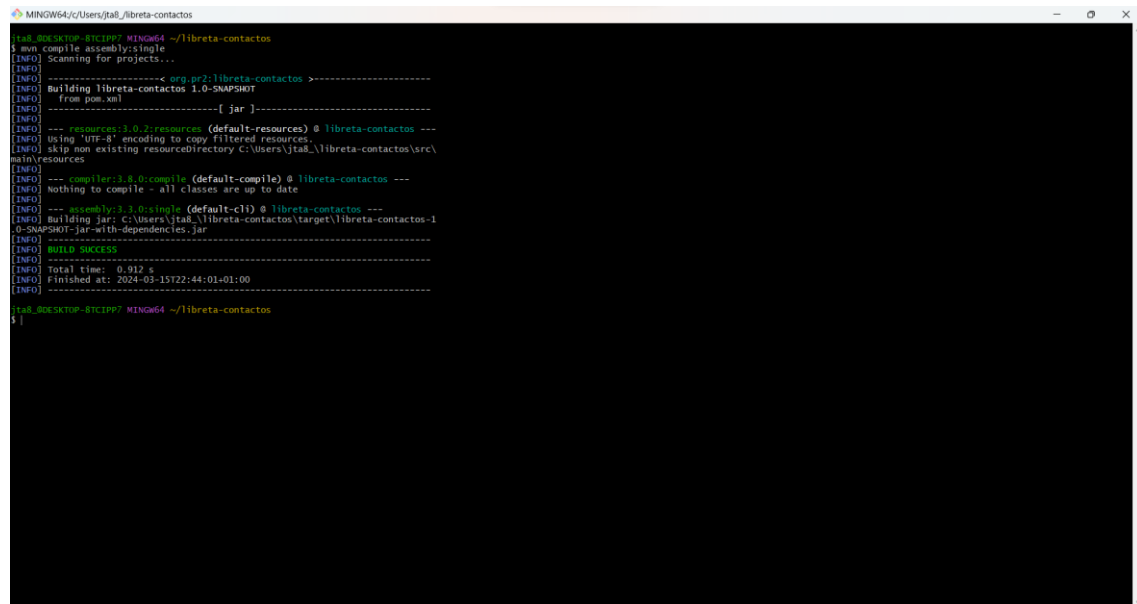
```
<aplicacion>org.pr2.App</aplicacion>
```

2. Añada el código que se muestra a continuación al pom.xml en la sección de plugins:

```
<plugin>
<artifactId>maven-assembly-plugin</artifactId>
<configuration>
<archive>
<manifest>
<mainClass>${aplicacion}</mainClass>
</manifest>
</archive>
<descriptorRefs>
<descriptorRef>jar-with-dependencies</
descriptorRef>
</descriptorRefs>
</configuration>
</plugin>
```

3. Genere el .jar invocando el plugin:

mvn compile assembly:single

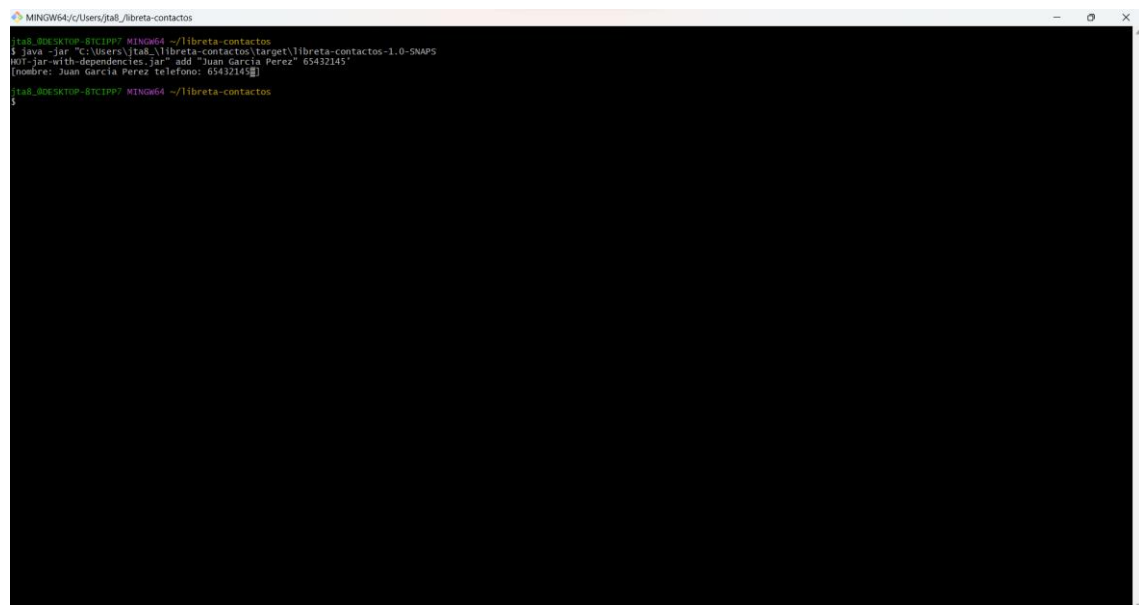


```
MINGW64/c/Users/jta8/libreta-contactos
jta8_DESKTOP-8TCIPP7 MINGW64 ~/libreta-contactos
$ mvn compile assembly:single
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- resources:3.0.2:resources (default-resources) @ libreta-contactos ---
[INFO] using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory C:\Users\jta8\libreta-contactos\src\main/resources
[INFO]
[INFO] --- compiler:3.8.0:compile (default-compile) @ libreta-contactos ---
[INFO] nothing to compile - all classes are up to date
[INFO]
[INFO] --- assembly:3.3.0:single (default-cli) @ libreta-contactos ---
[INFO] Building jar: C:\Users\jta8\libreta-contactos\target\libreta-contactos-1.0-SNAPSHOT-jar-with-dependencies.jar
[INFO]
[INFO] -----BUILD SUCCESS-----
[INFO]
[INFO] Total time: 0.982 s
[INFO] Finished at: 2024-03-15T22:44:01:00
[INFO]
jta8_DESKTOP-8TCIPP7 MINGW64 ~/libreta-contactos
$
```

4. Compruebe el funcionamiento de la aplicación:

java -jar target/libreta-contactos-1.0-SNAPSHOT-jar-withdependencies.

jar show



```
MINGW64/c/Users/jta8/libreta-contactos
jta8_DESKTOP-8TCIPP7 MINGW64 ~/libreta-contactos
$ java -jar "C:\Users\jta8\libreta-contactos\target\libreta-contactos-1.0-SNAPSHOT-jar-with-dependencies.jar" add "Juan Garcia Perez" 65432145
(Nombre: Juan Garcia Perez telefono: 65432145)
jta8_DESKTOP-8TCIPP7 MINGW64 ~/libreta-contactos
$ jar show

```

Para que funcione el software generado en el presente ejercicio, es necesario haber incluido el plugin maven-assembly-plugin (véase ejercicio 22).

Ejercicio 23. Se pide realizar los apartados que se muestran a continuación:

1. Acceda al repositorio central de Maven:

<https://mvnrepository.com/repos/central>

2. Busque la biblioteca jopendocument.

3. Incluya el código de la dependencia en el pom.xml.

4. Modifique el código de la clase Libreta.java

```
package org.pr2.dominio;
import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileWriter;
import java.io.IOException;
import java.util.ArrayList;
import java.util.Scanner;
import javax.swing.table.DefaultTableModel;
import javax.swing.table.TableModel;
import org.jopendocument.dom.spreadsheet.SpreadSheet;
/**
 * Clase responsable de mantener la libreta de contactos.
 */
public class Libreta
{
    private String nombreFichero = "contactos.txt";
    private ArrayList<Contacto> contactos = new ArrayList
    <>();
    /**
     * Genera una cadena de caracteres a partir de la
     libreta.
     * @return la cadena de caracteres.
     */
    @Override
    public String toString() {
        StringBuilder sb = new StringBuilder();
        for(Contacto contacto : contactos)
        {
            sb.append(contacto + "%n");
        }
        return sb.toString();
    }
    /**
     * Lee la libreta con sus contactos del fichero <i>
     contactos.txt</i>.
     */
    public Libreta() {
        try
```



```

{
File fichero = new File(nombreFichero
);
fichero.createNewFile();
Scanner sc = new Scanner(fichero);
while(sc.hasNext())
{
Contacto contacto = new
Contacto();
contacto.setNombre(sc.
nextLine());

contacto.setTelefono(sc.
nextLine());
contactos.add(contacto);
}
}catch(IOException ex)
{
System.err.println(ex);
}
}

private void volcarContactos()
{
System.out.println(contactos);
try
{
FileWriter fw = new FileWriter(
nombreFichero);
for(Contacto contacto : contactos)
{
fw.write(contacto.getNombre()
+"%n");
fw.write(contacto.getTelefono
()+"%n");
}
fw.close();
}catch(IOException ex)
{
System.err.println(ex);
}
}

/**
 * Anade el <i>contacto</i> a la libreta.
 */
public void annadirContacto(String nombre, String
telefono)

```

```

{
    Contacto contacto = new Contacto(nombre,
    telefono);
    contactos.add(contacto);
    this.volcarContactos();
}
/**
 * Borra el contacto cuyo nombre es el indicado en el
 parametro
 *
 * @param nombre del contacto a borrar.
 */
public void borrarContacto(String nombre)
{
    Contacto contacto = new Contacto();
    contacto.setNombre(nombre);
    contactos.remove(contacto);

    this.volcarContactos();
}
/**
 * Genera una hoja de calculo
 */
public void generarHojaDeCalculo()
{
    final Object[][] datos = new Object[contactos.size()
    ][2];
    int i = 0;
    for(Contacto contacto : contactos)
    {
        datos[i][0] = contacto.getNombre();
        datos[i++][1] = contacto.getTelefono();
    }
    String[] columnas = new String[] { "Nombre", "Tele
    fono" };
    TableModel modelo = new DefaultTableModel(datos,
    columnas);
    final File file = new File("output/contactos.ods");
    try
    {
        SpreadSheet.createEmpty(modelo).saveAs(file);
    }catch(IOException ex)
    {
        System.out.println(ex);
    }
}

```

```
}
```

5. Modifique el código de la clase Interfaz.java

```
package org.pr2.interfaces;
import org.pr2.dominio.*;
/**
 * Implementa una interfaz texto para la libreta de contactos
 *
 */
public class Interfaz
{
    /**
     * Inicia la interfaz con parametros.
     * @param args puede ser <i>add nombre contacto</i> (p.ej
     * . <i>add Juan
     * 653421367</i>) para anadir contacto, o <i>show</i>
     * para mostrar todos
     * los contactos de la libreta. */

    public static void iniciar(String args[])
    {
        Libreta libreta = new Libreta();
        if (args[0].equals("add"))
        {
            libreta.annadirContacto(args[1], args[2]);
        }
        else if (args[0].equals("rm"))
        {
            libreta.borrarContacto(args[1]);
        }
        else if (args[0].equals("show")) System.out.println(
            libreta);
        else if (args[0].equals("hoja"))
        {
            libreta.generarHojaDeCalculo();
            System.out.println("Hoja de calculo generada en
            output/contactos.ods");
        }
        else System.out.println("Opcion incorrecta");
    }
}
```

6. Compruebe que funciona correctamente:

mvn clean compile assembly:single

java -jar target/libreta-contactos-1.0-SNAPSHOT-jar-withdependencies.

jar hoja

```
MINGW64/C:/Users/jta8/libreta-contactos
jta8_RIDEKTOP-BTCTIPP7 MINGW64 ~/libreta-contactos
$ mvn clean compile assembly:single
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- clean:3.1.0:clean (default-clean) @ libreta-contactos ---
[INFO] Deleting C:\Users\jta8\libreta-contactos\target
[INFO]
[INFO] --- resources:3.0.2:resources (default-resources) @ libreta-contactos ---
[INFO] Using 'UTF-8' encoding to copy filtered resources
[INFO] skip non existing resourceDirectory C:\Users\jta8\libreta-contactos\src\main\resources
[INFO]
[INFO] --- compiler:3.8.0:compile (default-compile) @ libreta-contactos ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 4 source files to C:\Users\jta8\libreta-contactos\target\classes
[INFO]
[INFO] --- assembly:3.0.0:single (default-cli) @ libreta-contactos ---
[INFO] Building jar: C:\Users\jta8\libreta-contactos\target\libreta-contactos-1.0-SNAPSHOT-jar-with-dependencies.jar
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 1.716 s
[INFO] Finished at: 2024-03-15T23:31:25+01:00
[INFO]
jta8_RIDEKTOP-BTCTIPP7 MINGW64 ~/libreta-contactos
$ java -jar "C:\Users\jta8\libreta-contactos\target\libreta-contactos-1.0-SNAPSHOT-jar-with-dependencies.jar" add "Juan Garcia Perez" 65432145
nombre: Juan Garcia Perez telefono: 65432145, nombre: Juan Garcia Perez telefono: 65432145
jta8_RIDEKTOP-BTCTIPP7 MINGW64 ~/libreta-contactos
$
```

7. Genere el javadoc de la aplicación:

mvn javadoc:javadoc

```
MINGW64/C:/Users/jta8/libreta-contactos
jta8_RIDEKTOP-BTCTIPP7 MINGW64 ~/libreta-contactos
no: 65432145
$ mvn javadoc:javadoc
[INFO] Scanning for projects...
[INFO]
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-javadoc-plugin/maven-metadata.xml
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-javadoc-plugin/maven-metadata.xml (3.4 kB at 5.4 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-javadoc-plugin/3.6.3/maven-javadoc-plugin-3.6.3.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-javadoc-plugin/3.6.3/maven-javadoc-plugin-3.6.3.pom (22 kB at 432 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-javadoc-plugin/3.6.3/maven-javadoc-plugin-3.6.3.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-javadoc-plugin/3.6.3/maven-javadoc-plugin-3.6.3.jar (310 kB at 4.0 MB/s)
[INFO]
[INFO] -----< org.pr2:libreta-contactos >-----
[INFO] Building libreta-contactos 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] >>> javadoc:3.6.3:javadoc (default-cli) > generate-sources @ libreta-contactos >>>
[INFO]
[INFO] <<< javadoc:3.6.3:javadoc (default-cli) < generate-sources @ libreta-contactos <<<
[INFO]
[INFO] --- javadoc:3.6.3:javadoc (default-cli) @ libreta-contactos ---
[INFO]
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/reporting/maven-reporting-api/3.1.1/maven-reporting-api-3.1.1.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/reporting/maven-reporting-api/3.1.1/maven-reporting-api-3.1.1.pom (3.6 kB at 251 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/doxia/doxia-sink-api/1.11.1/doxia-sink-api-1.11.1.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/doxia/doxia-sink-api/1.11.1/doxia-sink-api-1.11.1.pom (1.6 kB at 113 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/doxia/doxia/1.11.1/doxia-1.11.1.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/doxia/doxia/1.11.1/doxia-1.11.1.pom (18 kB at 1.1 MB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/doxia/doxia-logging-api/1.11.1/doxia-logging-api-1.11.1.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/doxia/doxia-logging-api/1.11.1/doxia-logging-api-1.11.1.pom (1.6 kB at 53 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-archiver/3.6.1/maven-archiver-3.6.1.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-archiver/3.6.1/maven-archiver-3.6.1.pom (6.1 kB at 66 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-components/40/maven-shared-components-40.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-components/40/maven-shared-components-40.pom (3.2 kB at 201 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-archiver/4.8.0/plexus-archiver-4.8.0.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-archiver/4.8.0/plexus-archiver-4.8.0.pom (6.1 kB at 436 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-io/3.4.1/plexus-io-3.4.1.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-io/3.4.1/plexus-io-3.4.1.pom (6.0 kB at 74 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-i18n/1.13.0/plexus-i18n-1.13.0.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-i18n/1.13.0/plexus-i18n-1.13.0.pom (7.0 kB at 635 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/58/commons-parent-58.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/58/commons-parent-58.pom (83 kB at 2.7 MB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.23.0/commons-compress-1.23.0.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.23.0/commons-compress-1.23.0.pom (22 kB at 683 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/56/commons-parent-56.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/56/commons-parent-56.pom (82 kB at 1.3 MB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/com/github/luben/zstd-jni/1.5.5-1/zstd-jni-1.5.5-1.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/com/github/luben/zstd-jni/1.5.5-1/zstd-jni-1.5.5-1.pom (1.9 kB at 55 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-invoker/3.2.0/maven-invoker-3.2.0.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-invoker/3.2.0/maven-invoker-3.2.0.pom (5.2 kB at 207 kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-components/35/maven-shared-components-35.pom
```

Ejercicio 24. Acceda a la siguiente página Web y lea el inventario de arquetipos disponibles para Maven:

<https://maven.apache.org/archetypes/index.html>

Ejercicio 25. Cree un proyecto para una aplicación Web y compruebe su funcionamiento:

mvn archetype:generate -DgroupId=org.pr2 -DartifactId=web-simple -

DarchetypeArtifactId=maven-archetype-webapp -DarchetypeVersion

=1.4 -DinteractiveMode=false

cd web-simple/

mvn package

firefox target/web-simple/index.jsp &

```
MINGW64/C:/Users/jta8/web-simple
jta8_RDESKTOP-BTCLP77 MINGW64 ~
$ mvn archetype:generate -DgroupId=org.pr2 -DartifactId=web-simple -DarchetypeAr
tifactId=maven-archetype-webapp -DarchetypeVersion=1.4 -DinteractiveMode=false
[INFO] Scanning for projects...
[INFO]
[INFO] -----< org.apache.maven:standalone-pom >-----
[INFO] Building Maven Stub Project (No POM) 1
[INFO] -----[ pom ]-----
[INFO]
[INFO] >>> archetype:3.2.1:generate (default-cli) > generate-sources @ standalone
e-pom >>>
[INFO]
[INFO] <<< archetype:3.2.1:generate (default-cli) < generate-sources @ standalone
e-pom <<<
[INFO]
[INFO] --- archetype:3.2.1:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in batch mode
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/
archetypes/maven-archetype-webapp/1.4/maven-archetype-webapp-1.4.pom
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/a
rchetypes/maven-archetype-webapp/1.4/maven-archetype-webapp-1.4.pom (1.4 kB at 1
kB/s)
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/
archetypes/maven-archetype-webapp/1.4/maven-archetype-webapp-1.4.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/a
rchetypes/maven-archetype-webapp/1.4/maven-archetype-webapp-1.4.jar (6.8 kB at 3
.9 kB/s)
[INFO]
[INFO] Using following parameters for creating project from Archetype: maven-arc
hetype-webapp-1.4
[INFO]
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: web-simple
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: org.pr2
[INFO] Parameter: packageInPathFormat, Value: org/pr2
[INFO] Parameter: package, Value: org.pr2
[INFO] Parameter: groupId, Value: org.pr2
[INFO] Parameter: artifactId, Value: web-simple
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: C:\Users\jta8\web-simple
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 3.014 s
[INFO] Finished at: 2024-03-15T22:24:31+01:00
[INFO]
jta8_RDESKTOP-BTCLP77 MINGW64 ~
$ cd web-simple/
jta8_RDESKTOP-BTCLP77 MINGW64 ~/web-simple
$ mvn package
[INFO] Scanning for projects...
```

```
MINGW64/C:/Users/jta8/web-simple
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/
maven-archiver/3.2.0/maven-archiver-3.2.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/a
maven-archiver/3.2.0/maven-archiver-3.2.0.jar (24 kB at 741 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plex
us/plexus-archiver/3.6.0/plexus-archiver-3.6.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plex
us/plexus-io/3.0.1/plexus-io-3.0.1.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons
/commons-compress/1.16.1/commons-compress-1.16.1.jar
Downloaded from central: https://repo.maven.apache.org/maven2/com/thoughtworks/x
stream/xstream/1.4.10/xstream-1.4.10.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/objenesis/obj
genesis/2.6/objenesis-2.6.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plex
us/plexus-archiver/3.6.0/plexus-archiver-3.6.0.jar (191 kB at 6.2 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/xmlpull/xmlpull/1
.1.3.1/xmlpull-1.1.3.1.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plex
us/plexus-io/3.0.1/plexus-io-3.0.1.jar (74 kB at 1.6 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/xpp3/xpp3_min/1.1
.4c/xpp3_min-1.1.4c.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/objenesis/obje
genesis/2.6/objenesis-2.6.jar (36 kB at 884 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/s
hared/maven-mapping/3.0.0/maven-mapping-3.0.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/s
hared/maven-mapping/3.0.0/maven-mapping-3.0.0.jar (11 kB at 111 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/xmlpull/xmlpull/1
.1.3.1/xmlpull-1.1.3.1.jar (7.2 kB at 76 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/xpp3/xpp3_min/1.1
.4c/xpp3_min-1.1.4c.jar (25 kB at 265 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons
/commons-compress/1.16.1/commons-compress-1.16.1.jar (520 kB at 4.9 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/com/thoughtworks/x
stream/xstream/1.4.10/xstream-1.4.10.jar (590 kB at 4.8 MB/s)
[INFO] Packaging webapp
[INFO] Assembling webapp [web-simple] in [C:\Users\jta8\web-simple\target\web-s
imple]
[INFO] Processing war project
[INFO] Copying webapp resources [C:\Users\jta8\web-simple\src\main\webapp]
[INFO] Webapp assembled in [15 msecs]
[INFO] Building war: C:\Users\jta8\web-simple\target\web-simple.war
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 3.889 s
[INFO] Finished at: 2024-03-15T22:25:15+01:00
[INFO]
jta8_RDESKTOP-BTCLP77 MINGW64 ~/web-simple
$ firefox target/web-simple/index.jsp &
[1] 1095
bash: firefox: command not found
[1]_ Exit 127
jta8_RDESKTOP-BTCLP77 MINGW64 ~/web-simple
$
```