

Gradle Practical task

Practical task

1. Install required software locally (latest version of Gradle, Java).
2. Go to <https://github.com/spring-projects/spring-petclinic>, fork it, and clone the forked repo.
3. Check what tasks are available for the project.
4. Run all available project tests.
5. Build the project and run it, and verify it's available on the localhost in the browser.
6. Perform the cleanup.
7. Explore gradle-related files. Identify which gradle file defines the project name and change it. Build the project again and verify the new project name is being used (you need to find .jar files).
8. Create an additional custom task, which depends on the build task (so by calling this task the build and test tasks will also be executed). It should open the browser with generated test results.
9. Add the dynamic versioning to your project using the commonly used axion-release-plugin ([GitHub - allegro/axion-release-plugin: Gradle release & version management plugin.](#)). Check the [Version your project \(Gradle best practice tip #5\)](#) to find the tutorial on how to do this.
10. Check the new available commands after the plugin addition. Using these new commands, check the current project version. Then add and commit some changes to the project and make the project release. Check the current version one more time and git tags available. Note the difference between SNAPSHOT and release versions.
11. Perform the cleanup.

Hint: you may need the following documentation while working on the practice task:

- [Authoring Tasks](#)
- [The Java Plugin](#)
- [Version your project \(Gradle best practice tip #5\)](#)
- [Gradle task to open a url in the default browser - Stack Overflow](#)

1. Install required software locally (latest version of Gradle, Java).

```
• 06:52:23 adrw@olek-desktop-pc gradle-practical-task ±|main|→ java -version
openjdk version "17.0.14" 2025-01-21
OpenJDK Runtime Environment (build 17.0.14+7-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 17.0.14+7-Ubuntu-124.04, mixed mode, sharing)
• 06:52:28 adrw@olek-desktop-pc gradle-practical-task ±|main|→ gradle --version

-----
Gradle 8.13
-----

Build time:    2025-02-25 09:22:14 UTC
Revision:     073314332697ba45c16c0a0ce1891fa6794179ff

Kotlin:       2.0.21
Groovy:       3.0.22
Ant:          Apache Ant(TM) version 1.10.15 compiled on August 25 2024
Launcher JVM: 17.0.14 (Ubuntu 17.0.14+7-Ubuntu-124.04)
Daemon JVM:   /usr/lib/jvm/java-17-openjdk-amd64 (no JDK specified, using current Java home)
OS:           Linux 6.8.0-52-generic amd64

❖ 06:52:30 adrw@olek-desktop-pc gradle-practical-task ±|main|→
```

3. Check what tasks are available for the project.

```

● 06:53:54 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew tasks --all

> Task :tasks

-----
Tasks runnable from root project 'spring-petclinic'
-----

Application tasks
-----
bootRun - Runs this project as a Spring Boot application.
bootTestRun - Runs this project as a Spring Boot application using the test runtime classpath.

Build tasks
-----
aotClasses - Assembles aot classes.
aotTestClasses - Assembles aot test classes.
assemble - Assembles the outputs of this project.
bootBuildImage - Builds an OCI image of the application using the output of the bootJar task
bootJar - Assembles an executable jar archive containing the main classes and their dependencies.
build - Assembles and tests this project.
buildDependents - Assembles and tests this project and all projects that depend on it.
buildNeeded - Assembles and tests this project and all projects it depends on.
classes - Assembles main classes.
clean - Deletes the build directory.
collectReachabilityMetadata - Obtains native reachability metadata for the runtime classpath configuration
jar - Assembles a jar archive containing the classes of the 'main' feature.
metadataCopy - Copies metadata collected from tasks instrumented with the agent into target directories
nativeCompile - Compiles a native image for the main binary
nativeRun - Executes the main native binary
nativeTestCompile - Compiles a native image for the test binary
resolveMainClassName - Resolves the name of the application's main class.
resolveTestMainClassName - Resolves the name of the application's test main class.
testClasses - Assembles test classes.

Build Setup tasks
-----
init - Initializes a new Gradle build.
updateDaemonJvm - Generates or updates the Gradle Daemon JVM criteria.
wrapper - Generates Gradle wrapper files.

Documentation tasks
-----
javadoc - Generates Javadoc API documentation for the 'main' feature.

Help tasks
-----
buildEnvironment - Displays all buildscript dependencies declared in root project 'spring-petclinic'.
dependencies - Displays all dependencies declared in root project 'spring-petclinic'.
dependencyInsight - Displays the insight into a specific dependency in root project 'spring-petclinic'.
dependencyManagement - Displays the dependency management declared in root project 'spring-petclinic'.
help - Displays a help message.
javaToolchains - Displays the detected java toolchains.
outgoingVariants - Displays the outgoing variants of root project 'spring-petclinic'

```

4. Run all available project tests.

```

● 07:07:27 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew test

> Task :processTestAot
19:07:34.709 [main] INFO org.springframework.test.context.aot.TestClassScanner -- Scanning t
all packages in classpath roots [/home/adrwal/praca-grid/gradle-practical-task/build/classe
19:07:35.045 [main] INFO org.springframework.test.context.support.AnnotationConfigContextLoa
ect default configuration classes for test class [org.springframework.samples.petclinic.MySql
IntegrationTests does not declare any static, non-private, non-final, nested classes annotat
19:07:35.073 [main] INFO org.testcontainers.images.PullPolicy -- Image pull policy will be p
olicy()
19:07:35.075 [main] INFO org.testcontainers.utility.ImageNameSubstitutor -- Image name subst
by: DefaultImageNameSubstitutor (composite of 'ConfigurationFileImageNameSubstitutor' and '
utor')
19:07:35.192 [main] INFO org.springframework.boot.test.context.SpringBootTestContextBootstr
Configuration org.springframework.samples.petclinic.PetClinicApplication for test class org.
etclinic.MySqlIntegrationTests
19:07:35.244 [main] INFO org.springframework.test.context.support.AnnotationConfigContextLo

l-3 - Shutdown initiated...
2025-02-27T19:08:18.087+01:00 INFO 337081 --- [ionShutdownHook] com.zaxxer.hikari.HikariData
l-3 - Shutdown completed.
2025-02-27T19:08:18.095+01:00 INFO 337081 --- [ionShutdownHook] j.LocalContainerEntityManage
PA EntityManagerFactory for persistence unit 'default'
2025-02-27T19:08:18.096+01:00 INFO 337081 --- [ionShutdownHook] com.zaxxer.hikari.HikariData
l-4 - Shutdown initiated...
2025-02-27T19:08:18.096+01:00 INFO 337081 --- [ionShutdownHook] com.zaxxer.hikari.HikariData
l-4 - Shutdown completed.
2025-02-27T19:08:18.097+01:00 INFO 337081 --- [ionShutdownHook] o.s.b.w.e.tomcat.GracefulShu
g graceful shutdown. Waiting for active requests to complete
2025-02-27T19:08:18.098+01:00 INFO 337081 --- [tomcat-shutdown] o.s.b.w.e.tomcat.GracefulShu
shutdown complete

BUILD SUCCESSFUL in 49s
8 actionable tasks: 8 executed
● 07:08:18 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ █

```

5. Build the project and run it, and verify it's available on the localhost in the browser

07:08:18 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew build

> Task :processAot



:: Built with Spring Boot :: 3.4.2

```
2025-02-27T19:08:59.666+01:00 INFO 341814 --- [           main] o.s.s.petclinic.PetClinicApplication : 
PetClinicApplication using Java 17.0.14 with PID 341814 (/home/adrwal/praca-grid/gradle-practical-task/build
java/main started by adrwal in /home/adrwal/praca-grid/gradle-practical-task)
2025-02-27T19:08:59.669+01:00 INFO 341814 --- [           main] o.s.s.petclinic.PetClinicApplication : 
profile set, falling back to 1 default profile: "default"
2025-02-27T19:09:00.394+01:00 INFO 341814 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : 
ping Spring Data JPA repositories in DEFAULT mode.
2025-02-27T19:09:00.492+01:00 INFO 341814 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : 
Spring Data repository scanning in 89 ms. Found 2 JPA repository interfaces.
```

> Task :compileAotJava

Note: Some input files use unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.

BUILD SUCCESSFUL in 9s

20 actionable tasks: 12 executed, 8 up-to-date

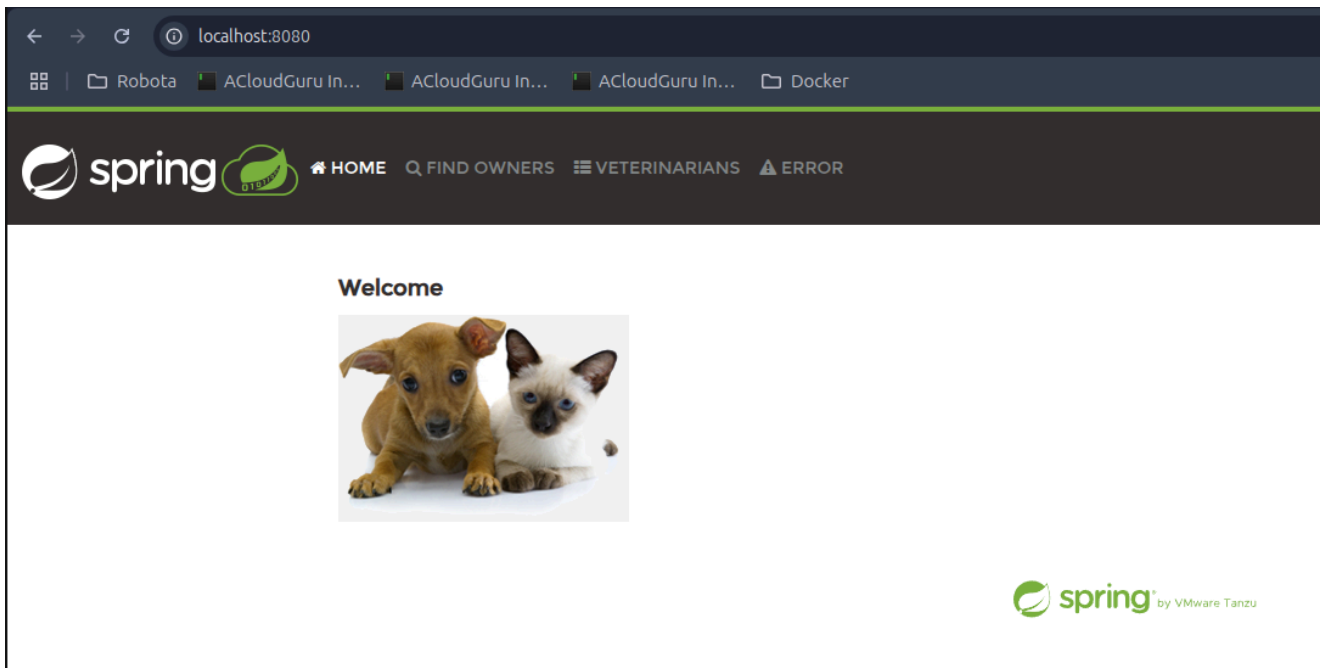
07:09:07 adrwal@olek-desktop-pc gradle-practical-task ±|main|→

07:09:07 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ java -jar ./build/libs/spring-petclinic-3.4.0.jar



:: Built with Spring Boot :: 3.4.2

```
2025-02-27T19:09:44.773+01:00 INFO 344003 --- [           main] o.s.s.petclinic.PetClinicApplication : Starting
PetClinicApplication v3.4.0 using Java 17.0.14 with PID 344003 (/home/adrwal/praca-grid/gradle-practical-task/build/
ibs/spring-petclinic-3.4.0.jar started by adrwal in /home/adrwal/praca-grid/gradle-practical-task)
2025-02-27T19:09:44.777+01:00 INFO 344003 --- [           main] o.s.s.petclinic.PetClinicApplication : No activ
profile set, falling back to 1 default profile: "default"
2025-02-27T19:09:45.593+01:00 INFO 344003 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstr
```



6. Perform the cleanup

```
07:10:44 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew clean
BUILD SUCCESSFUL in 609ms
1 actionable task: 1 executed
07:10:46 adrwal@olek-desktop-pc gradle-practical-task ±|main|→
```

7. Explore gradle-related files. Identify which gradle file defines the project name and change it. Build the project again and verify the new project name is being used (you need to find .jar files).

```
settings.gradle M X
settings.gradle > ...
1 rootProject.name = 'changed-spring-petclinic'
2
```

```

07:12:42 adrwal@olek-desktop-pc gradle-practical-task ±|main x|→ ./gradlew build

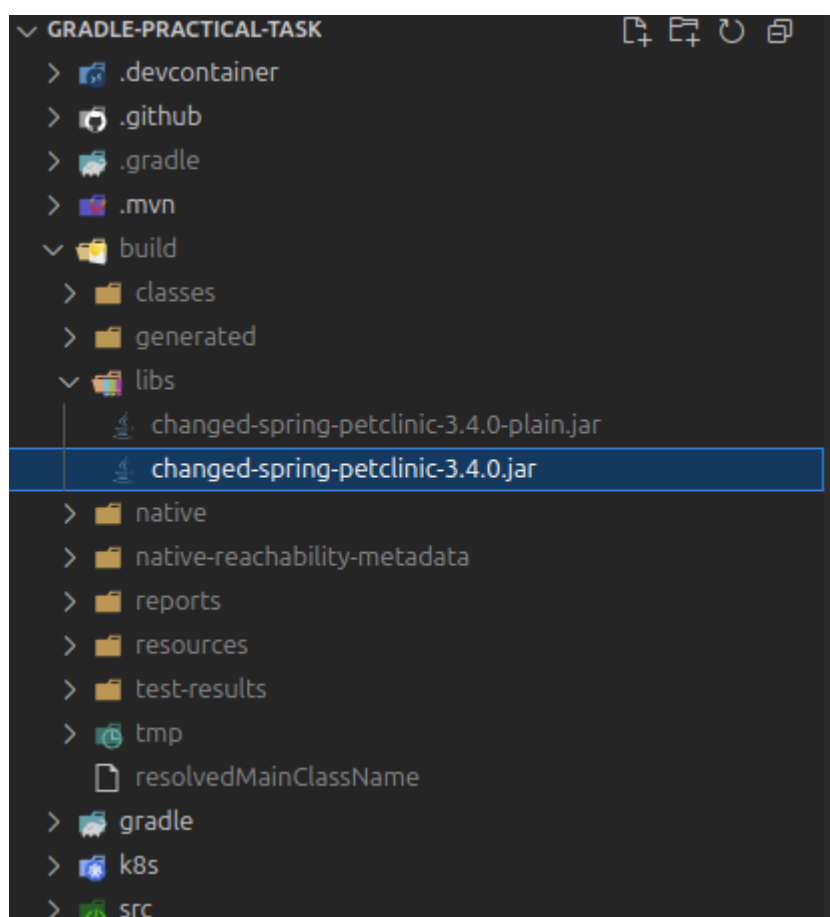
> Task :processAot

:: Built with Spring Boot :: 3.4.2

2025-02-27T19:12:51.092+01:00 INFO 353995 --- [main] o.s.s.petclinic.PetClinicApplication
2025-02-27T19:13:37.050+01:00 INFO 354567 --- [ionShutdownHook] j.LocalContainerEntityManagerF
y for persistence unit 'default'
2025-02-27T19:13:37.051+01:00 INFO 354567 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSo
ed...
2025-02-27T19:13:37.051+01:00 INFO 354567 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSo
ed.
2025-02-27T19:13:37.052+01:00 INFO 354567 --- [ionShutdownHook] o.s.b.w.e.tomcat.GracefulShutd
aiting for active requests to complete
2025-02-27T19:13:37.053+01:00 INFO 354567 --- [tomcat-shutdown] o.s.b.w.e.tomcat.GracefulShutd

BUILD SUCCESSFUL in 51s
20 actionable tasks: 20 executed
07:13:37 adrwal@olek-desktop-pc gradle-practical-task ±|main x|→

```



8. Create an additional custom task, which depends on the build task (so by calling this task the build and test tasks will also be executed). It should open the browser with generated test results.

```
66
67 tasks.register("openTestReport", Exec) {
68     dependsOn build
69
70     def htmlFile = "${project.buildDir}/reports/tests/test/index.html"
71     def system = System.getProperty('os.name').toLowerCase()
72
73     if (system.contains('windows')) {
74         commandLine 'cmd', '/c', 'start', htmlFile
75     } else if (system.contains('mac')) {
76         commandLine 'open', htmlFile
77     } else {
78         commandLine 'xdg-open', htmlFile
79     }
80 }
81
```

```
08:30:32 adrwal@olek-desktop-pc gradle-practical-task ±|main x|→ ./gradlew openTestReport

> Task :processAot

      ____
     / ___/
    /  /_  \
   /   /  /
  /_____/

:: Built with Spring Boot :: 3.4.2

2025-02-27T20:30:35.783+01:00 INFO 544892 --- [main] o.s.s.petclinic.PetClinicApplication : Starting PetClinicApplication
sing Java 17.0.14 with PID 544892 (/home/adrwal/praca-grid/gradle-practical-task/build/classes/java/main started by adrwal in /home/a
praca-grid/gradle-practical-task)
2025-02-27T20:30:35.785+01:00 INFO 544892 --- [main] o.s.s.petclinic.PetClinicApplication : No active profile set, fa
back to 1 default profile: "default"
2025-02-27T20:30:36.478+01:00 INFO 544892 --- [main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data
epositories in DEFAULT mode.
2025-02-27T20:30:36.572+01:00 INFO 544892 --- [main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repo
scanning in 88 ms. Found 2 JPA repository interfaces.

> Task :compileAotJava
Note: Some input files use unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.

> Task :openTestReport
Opening in existing browser session.

BUILD SUCCESSFUL in 9s
21 actionable tasks: 13 executed, 8 up-to-date
08:30:43 adrwal@olek-desktop-pc gradle-practical-task ±|main x|→
```


Test Summary

56	0	0	1.978s	100% successful
tests	failures	ignored	duration	

Packages

Classes

Package	Tests	Failures	Ignored	Duration	Success rate
org.springframework.samples.petclinic	6	0	0	0.999s	100%
org.springframework.samples.petclinic.model	1	0	0	0.023s	100%
org.springframework.samples.petclinic.owner	33	0	0	0.596s	100%
org.springframework.samples.petclinic.service	10	0	0	0.123s	100%
org.springframework.samples.petclinic.system	3	0	0	0.149s	100%
org.springframework.samples.petclinic.vet	3	0	0	0.088s	100%

9. Add the dynamic versioning to your project using the commonly used axion-release-plugin ([GitHub - allegro/axion-release-plugin: Gradle release & version management plugin.](#)). Check the [Version your project \(Gradle best practice tip #5\)](#) to find the tutorial on how to do this.

```

1  plugins {
2      id 'java'
3      id 'org.springframework.boot' version '3.4.2'
4      id 'io.spring.dependency-management' version '1.1.6'
5      id 'org.graalvm.buildtools.native' version '0.10.3'
6      id 'org.cyclonedx.bom' version '1.10.0'
7      id 'io.spring.javaformat' version '0.0.43'
8      id "io.spring.nohttp" version "0.0.11"
9      id("pl.allegro.tech.build.axion-release") version "1.18.7"
10 }
11
12 version = scmVersion.version
13
14 apply plugin: 'io.spring.nohttp'

```

```

● 09:10:36 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew currentVersion

> Task :currentVersion

Project version: 0.1.1-SNAPSHOT

BUILD SUCCESSFUL in 588ms
1 actionable task: 1 executed
❖ 09:10:46 adrwal@olek-desktop-pc gradle-practical-task ±|main|→

```

10. Check the new available commands after the plugin addition. Using these new commands, check the current project version. Then add and commit some changes to the project and make the project release. Check the current version one more time and git tags available. Note the difference between SNAPSHOT and release versions.

```

09:10:36 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew currentVersion

> Task :currentVersion

Project version: 0.1.1-SNAPSHOT

BUILD SUCCESSFUL in 588ms
1 actionable task: 1 executed
09:10:46 adrwal@olek-desktop-pc gradle-practical-task ±|main|→

```

```

09:11:04 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ git add .
09:11:10 adrwal@olek-desktop-pc gradle-practical-task ±|main x|→ git commit -m "changed gradle settings"
[main d01c46f] changed gradle settings
1 file changed, 1 deletion(-)
09:11:12 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 298 bytes | 298.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To github.com:adrwalGD/gradle-practical-task.git
17a331b..d01c46f main -> main
09:11:17 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ git commit -m "updated settings.gradle" ^C
09:11:25 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew release

> Task :verifyRelease
Looking for uncommitted changes..
Checking if branch is ahead of remote..
Checking for snapshot versions..

> Task :release
Creating tag: v0.1.1
Pushing all to remote: origin

BUILD SUCCESSFUL in 3s
2 actionable tasks: 2 executed

```

```

09:11:35 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew currentVersion

> Task :currentVersion

Project version: 0.1.1

BUILD SUCCESSFUL in 568ms
1 actionable task: 1 executed

```

```

0.0.1
v0.1.0
v0.1.1
(END)

```

11. Perform the cleanup.

● 09:13:59 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ ./gradlew clean

BUILD SUCCESSFUL in 626ms

1 actionable task: 1 executed

❖ 09:14:03 adrwal@olek-desktop-pc gradle-practical-task ±|main|→ █