Gradle Assignment

1. Add a gradle dependency and its related repository url.

Solution

File: build.gradle

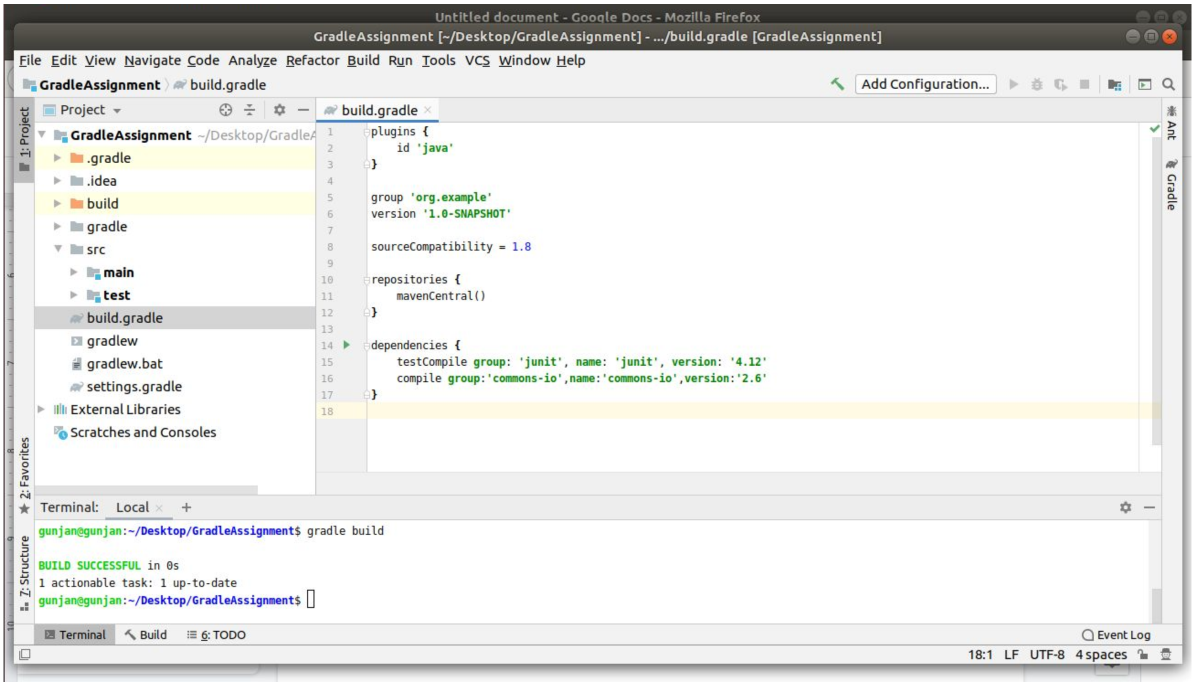
```
plugins {
  id 'java'
}


group 'org.example'
version '1.0-SNAPSHOT'


sourceCompatibility = 1.8


repositories {
  mavenCentral()
}


dependencies {
  testCompile group: 'junit', name: 'junit', version: '4.12'
  compile group:'commons-io',name:'commons-io',version:'2.6'
}
```


Untitled document - Google Docs - Mozilla Firefox
GradleAssignment [~/Desktop/GradleAssignment] - .../build.gradle [GradleAssignment]
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
GradleAssignment 〉 build.gradle
Add Configuration...
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GradleAssignment ~/Desktop/GradleA
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gradle
src
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test
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gradlew
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settings.gradle
External Libraries
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build.gradle
Ant
Gradle
1: Project
2: Favorites
7: Structure
Terminal: Local +
Terminal
Build
6: TODO
Event Log
18:1 LF UTF-8 4 spaces

```
plugins {
    id 'java'
}

group 'org.example'
version '1.0-SNAPSHOT'

sourceCompatibility = 1.8

repositories {
    mavenCentral()
}

dependencies {
    testCompile group: 'junit', name: 'junit', version: '4.12'
    compile group:'commons-io',name:'commons-io',version:'2.6'
}
```

```
gunjan@gunjan:~/Desktop/GradleAssignment$ gradle build

BUILD SUCCESSFUL in 0s
1 actionable task: 1 up-to-date
gunjan@gunjan:~/Desktop/GradleAssignment$
```

2. Using java plugin, make changes in the manifest to make the jar executable. Using java -jar JAR_NAME, the output should be printed as "Hello World"

Solution

File: build.gradle

```
plugins {
   id 'java'
}


group 'org.example'
version '1.0-SNAPSHOT'


sourceCompatibility = 1.8


repositories {
   mavenCentral()
}


dependencies {
   testCompile group: 'junit', name: 'junit', version: '4.12'
   compile group:'commons-io',name:'commons-io',version:'2.6'
}
```

```
// Question 2

// Change in manifest file and make the jar executable


jar {

  manifest{

      attributes 'Main-Class': 'Question2'

  }

}
```

File: Question2.java

Code:

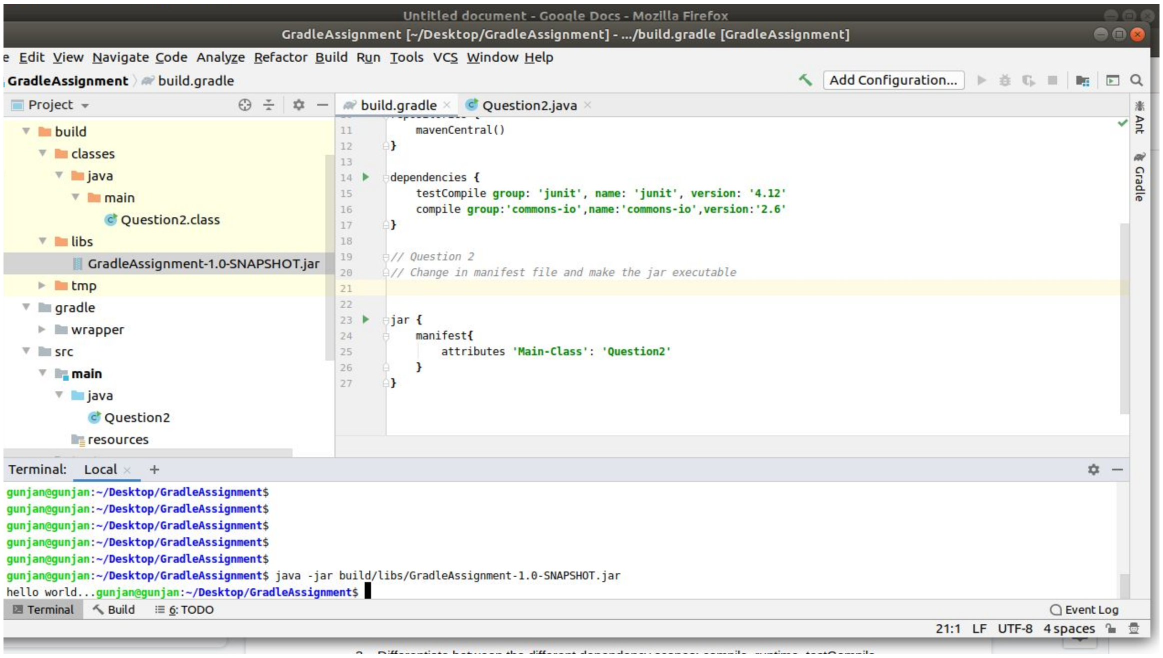
```
public class Question2 {

  public static void main(String[] args) {

      System.out.print("hello world...");

  }

}
```



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GradleAssignment [~/Desktop/GradleAssignment] - .../build.gradle [GradleAssignment]
e Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
GradleAssignment
build.gradle
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wrapper
src
main
java
Question2
resources
build.gradle
Question2.java
Ant
Gradle
Terminal:
Local
Terminal
Build
6: TODO
Event Log
21:1 LF UTF-8 4 spaces

```
    mavenCentral()
}

dependencies {
    testCompile group: 'junit', name: 'junit', version: '4.12'
    compile group:'commons-io',name:'commons-io',version:'2.6'
}

// Question 2
// Change in manifest file and make the jar executable


jar {
    manifest{
        attributes 'Main-Class': 'Question2'
    }
}
```

```
gunjan@gunjan:~/Desktop/GradleAssignment$
gunjan@gunjan:~/Desktop/GradleAssignment$
gunjan@gunjan:~/Desktop/GradleAssignment$
gunjan@gunjan:~/Desktop/GradleAssignment$
gunjan@gunjan:~/Desktop/GradleAssignment$
gunjan@gunjan:~/Desktop/GradleAssignment$ java -jar build/libs/GradleAssignment-1.0-SNAPSHOT.jar
hello world...gunjan@gunjan:~/Desktop/GradleAssignment$
```

3. Differentiate between the different dependency scopes: compile, runtime, testCompile, testRuntime using different dependencies being defined in your build.gradle.

Solution:

build.gradle

Dependency configuration is nothing but defines a set of dependencies. We can use this feature to declare external dependencies, which you want to download from the web. This defines the following different standard configurations.

- **Compile** − The dependencies required to compile the production source of the project.

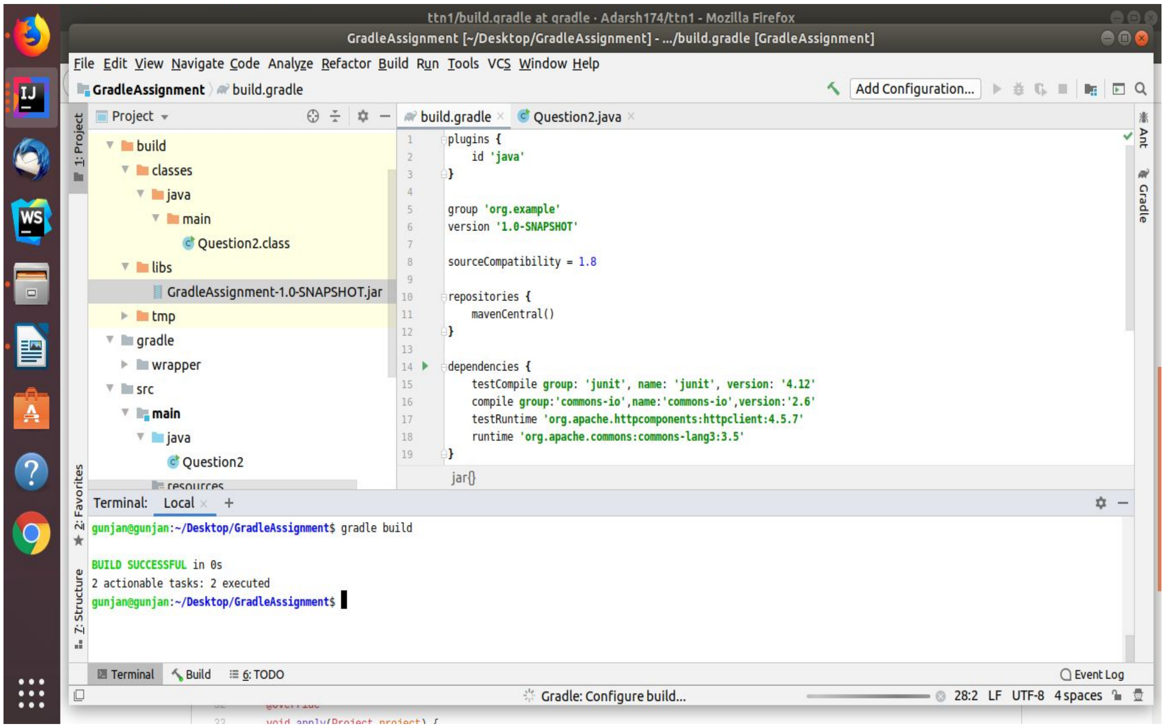
- **Runtime** − The dependencies required by the production classes at runtime. By default, also includes the compile time dependencies.

- **Test Compile** − The dependencies required to compile the test source of the project. By default, it includes compiled production classes and the compile time dependencies.

- **Test Runtime** − The dependencies required to run the tests. By default, it includes runtime and test compile dependencies.

```
plugins {
  id 'java'
}

group 'org.example'
version '1.0-SNAPSHOT'

sourceCompatibility = 1.8

repositories {
  mavenCentral()
}
```

```
dependencies {

   testCompile group: 'junit', name: 'junit', version: '4.12'

   compile group:'commons-io',name:'commons-io',version:'2.6'

   testRuntime 'org.apache.httpcomponents:httpclient:4.5.7'

   runtime 'org.apache.commons:commons-lang3:3.5'

}
```


ttn1/build.gradle at gradle · Adarsh174/ttn1 - Mozilla Firefox
GradleAssignment [~/Desktop/GradleAssignment] - .../build.gradle [GradleAssignment]
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
GradleAssignment 〉 build.gradle
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build
classes
java
main
Question2.class
libs
GradleAssignment-1.0-SNAPSHOT.jar
tmp
gradle
wrapper
src
main
java
Question2
resources
build.gradle
Question2.java
1: Project
2: Favorites
Z: Structure
Ant
Gradle
jar{}
Terminal: Local +
Terminal
Build
6: TODO
Event Log
Gradle: Configure build...
28:2 LF UTF-8 4 spaces

```
plugins {
    id 'java'
}

group 'org.example'
version '1.0-SNAPSHOT'

sourceCompatibility = 1.8

repositories {
    mavenCentral()
}

dependencies {
    testCompile group: 'junit', name: 'junit', version: '4.12'
    compile group:'commons-io',name:'commons-io',version:'2.6'
    testRuntime 'org.apache.httpcomponents:httpclient:4.5.7'
    runtime 'org.apache.commons:commons-lang3:3.5'
}
```

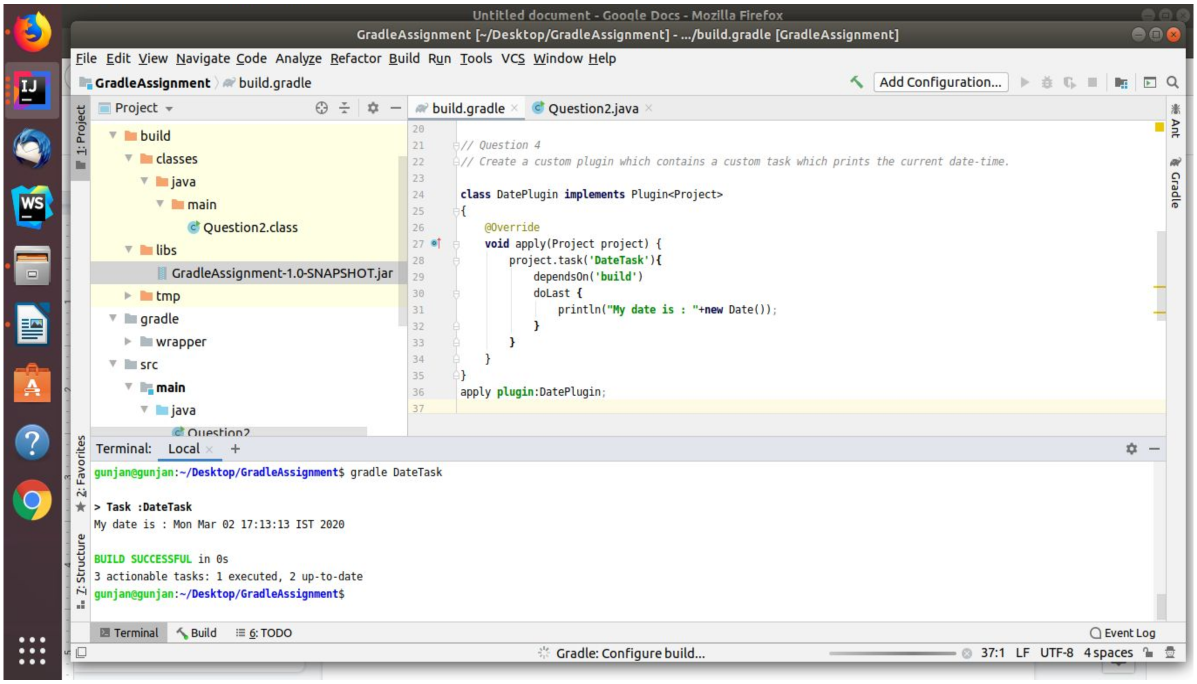
```
gunjan@gunjan:~/Desktop/GradleAssignment$ gradle build

BUILD SUCCESSFUL in 0s
2 actionable tasks: 2 executed
gunjan@gunjan:~/Desktop/GradleAssignment$
```

4. Create a custom plugin which contains a custom task which prints the current date-time. Using that plugin in your project, execute that task after the jar task executes.

Solution

File: build.gradle

```
plugins {
  id 'java'
}

group 'org.example'
version '1.0-SNAPSHOT'

sourceCompatibility = 1.8

repositories {
  mavenCentral()
}

dependencies {
  testCompile group: 'junit', name: 'junit', version: '4.12'
  compile group:'commons-io',name:'commons-io',version:'2.6'
  testRuntime 'org.apache.httpcomponents:httpclient:4.5.7'
  runtime 'org.apache.commons:commons-lang3:3.5'
}

// Question 4
// Create a custom plugin which contains a custom task which prints the current date-time.

class DatePlugin implements Plugin<Project>

{

  @Override

  void apply(Project project) {

      project.task('DateTask'){

          dependsOn('build')

          doLast {

              println("My date is : "+new Date());

          }

      }

  }

}

apply plugin:DatePlugin;
```



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java
main
Question2.class
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GradleAssignment-1.0-SNAPSHOT.jar
tmp
gradle
wrapper
src
main
java
Question2
build.gradle
Question2.java
1: Project
2: Favorites
Z: Structure
Ant
Gradle
Terminal: Local +
Terminal
Build
6: TODO
Event Log
Gradle: Configure build...
37:1 LF UTF-8 4 spaces

```
// Question 4
// Create a custom plugin which contains a custom task which prints the current date-time.

class DatePlugin implements Plugin<Project>
{
    @Override
    void apply(Project project) {
        project.task('DateTask'){
            dependsOn('build')
            doLast {
                println("My date is : "+new Date());
            }
        }
    }
}
apply plugin:DatePlugin;
```

```
gunjan@gunjan:~/Desktop/GradleAssignment$ gradle DateTask

> Task :DateTask
My date is : Mon Mar 02 17:13:13 IST 2020

BUILD SUCCESSFUL in 0s
3 actionable tasks: 1 executed, 2 up-to-date
gunjan@gunjan:~/Desktop/GradleAssignment$
```

5. Instead of using default source set, use src/main/javaCode1, src/main/javaCode2 to be taken as code source. Make sure that the JAR created contains files from both the directories and not from src/main/java.

Solution

File: build.gradle

```
plugins {
  id 'java'
}
sourceSets {
  main {
      java.srcDirs = ['src/main/javaCode1','src/main/javaCode2']
  }
}


jar {
  manifest{
      attributes 'Main-Class':'main/javaCode1/Javacode1'
      attributes 'Main-Class':'main/javaCode2/Javacode2'
  }
}
//sourceSets {
//    main {
//        java.srcDirs = ['src']
//    }
//}
group 'org.example'
version '1.0-SNAPSHOT'
```

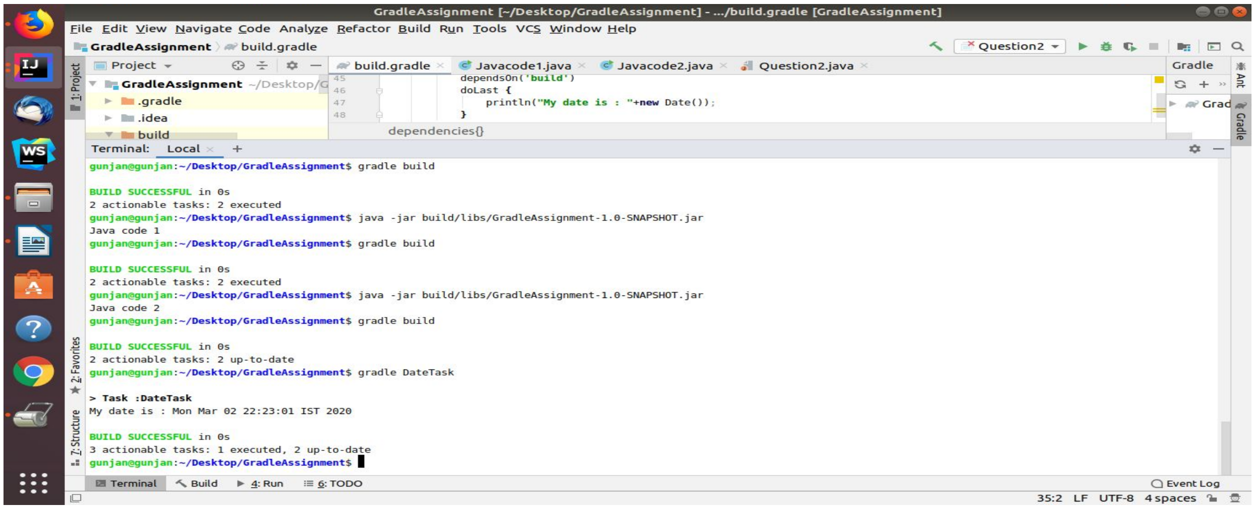
```
sourceCompatibility = 1.8


repositories {
  mavenCentral()
}


dependencies {
  testCompile group: 'junit', name: 'junit', version: '4.12'
  compile group:'commons-io',name:'commons-io',version:'2.6'
  testRuntime 'org.apache.httpcomponents:httpclient:4.5.7'
  runtime 'org.apache.commons:commons-lang3:3.5'
}
```

Aim: JAR created contains files from both the directories and not from src/main/java.

Now we have created the two packages **javaCode1** and **javaCode2** and in this we have two Javacode1.java and Javacode2.java.

Command:

build gradle


GradleAssignment [~/Desktop/GradleAssignment] - .../build.gradle [GradleAssignment]
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
GradleAssignment 〉 build.gradle
Question2
Project
GradleAssignment ~/Desktop/G
.gradle
.idea
build
build.gradle
Javacode1.java
Javacode2.java
Question2.java
Gradle
Grad
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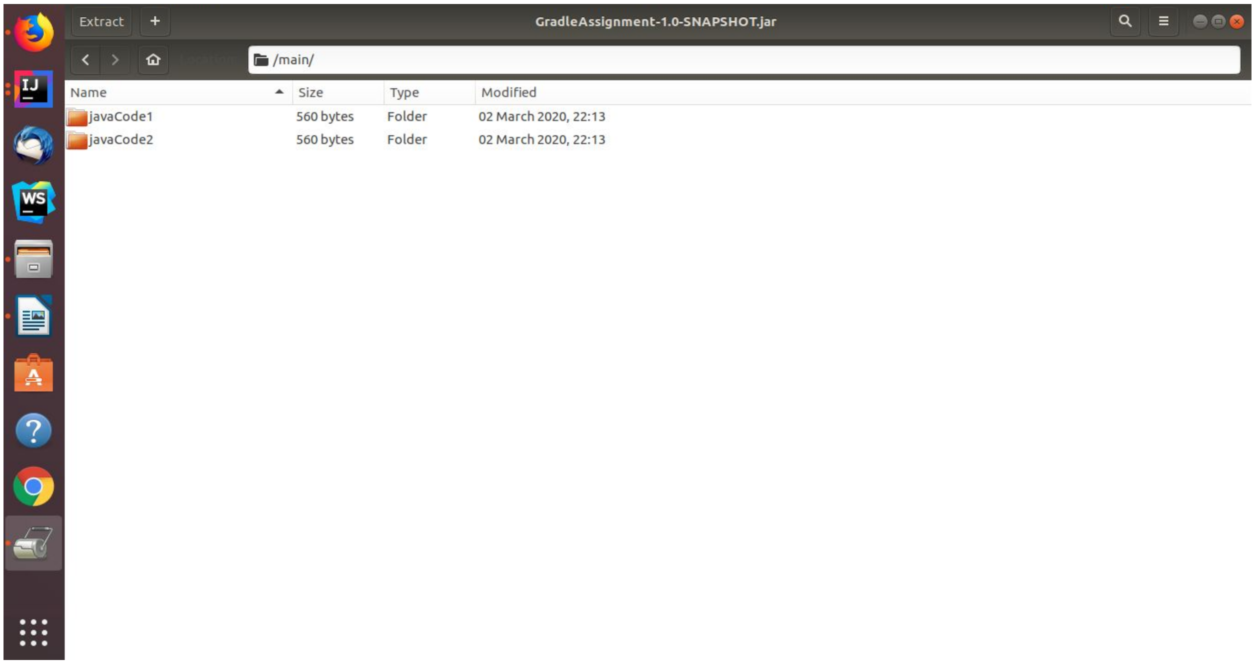
1: Project
2: Favorites
7: Structure
Terminal: Local +
Terminal
Build
4: Run
6: TODO
Event Log
35:2 LF UTF-8 4 spaces

```
        dependsOn('build')
        doLast {
            println("My date is : "+new Date());
        }
dependencies{}
```

```
gunjan@gunjan:~/Desktop/GradleAssignment$ gradle build

BUILD SUCCESSFUL in 0s
2 actionable tasks: 2 executed
gunjan@gunjan:~/Desktop/GradleAssignment$ java -jar build/libs/GradleAssignment-1.0-SNAPSHOT.jar
Java code 1
gunjan@gunjan:~/Desktop/GradleAssignment$ gradle build

BUILD SUCCESSFUL in 0s
2 actionable tasks: 2 executed
gunjan@gunjan:~/Desktop/GradleAssignment$ java -jar build/libs/GradleAssignment-1.0-SNAPSHOT.jar
Java code 2
gunjan@gunjan:~/Desktop/GradleAssignment$ gradle build

BUILD SUCCESSFUL in 0s
2 actionable tasks: 2 up-to-date
gunjan@gunjan:~/Desktop/GradleAssignment$ gradle DateTask

> Task :DateTask
My date is : Mon Mar 02 22:23:01 IST 2020

BUILD SUCCESSFUL in 0s
3 actionable tasks: 1 executed, 2 up-to-date
gunjan@gunjan:~/Desktop/GradleAssignment$ 
```



GradleAssignment-1.0-SNAPSHOT.jar

/main/

Name	Size	Type	Modified
javaCode1	560 bytes	Folder	02 March 2020, 22:13
javaCode2	560 bytes	Folder	02 March 2020, 22:13

6. Override the Gradle Wrapper task to install a different version of gradle. Make sure that the task written in Q4 also executes with it.

For checking the version of gradle wrapper

./gradlew -version

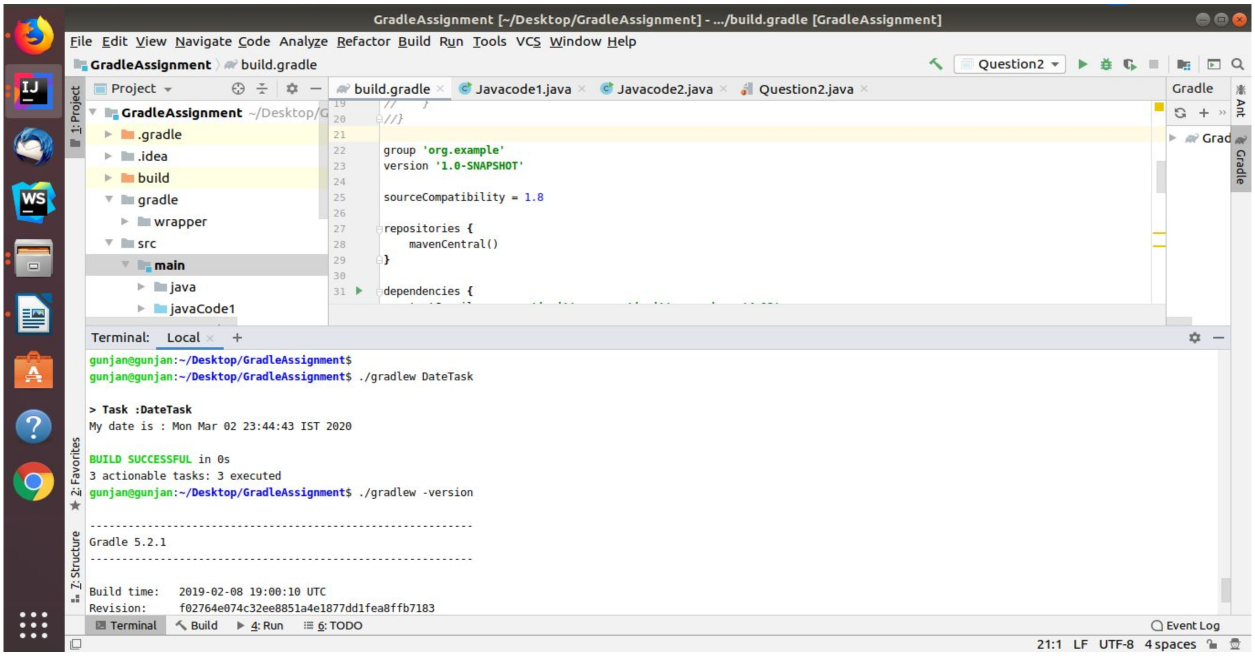
For install the gradle wrapper

gradle wrapper --gradle-version 4.5

For executing task

./gradlew DateTask

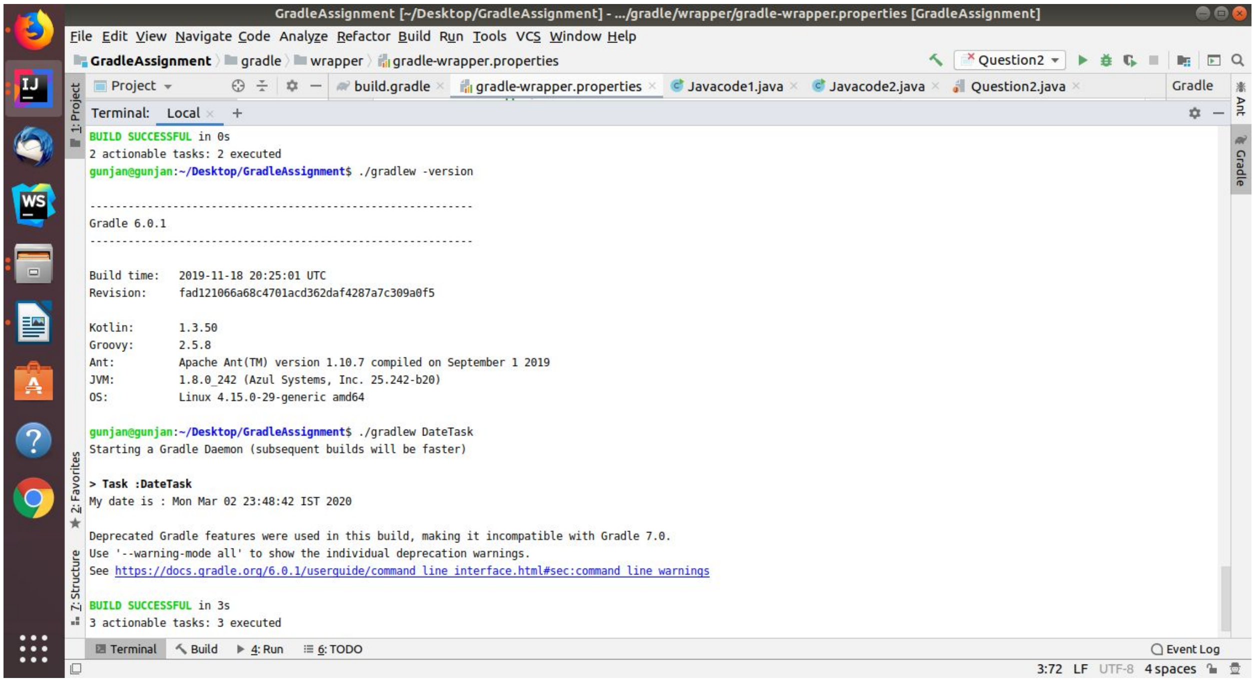
First **GradleWrapper** Version in my project is 5.2.1 and executing the task in Q4.



```
//    }
//}

group 'org.example'
version '1.0-SNAPSHOT'

sourceCompatibility = 1.8

repositories {
    mavenCentral()
}

dependencies {
```

```
gunjan@gunjan:~/Desktop/GradleAssignment$
gunjan@gunjan:~/Desktop/GradleAssignment$ ./gradlew DateTask

> Task :DateTask
My date is : Mon Mar 02 23:44:43 IST 2020

BUILD SUCCESSFUL in 0s
3 actionable tasks: 3 executed
gunjan@gunjan:~/Desktop/GradleAssignment$ ./gradlew -version

------------------------------------------------------------
Gradle 5.2.1
------------------------------------------------------------

Build time:   2019-02-08 19:00:10 UTC
Revision:     f02764e074c32ee8851a4e1877dd1fea8ffb7183
```

Now I am installing **GradleWrapper** Version 6.0.1 and executing the same task in Q4.



GradleAssignment [~/Desktop/GradleAssignment] - .../gradle/wrapper/gradle-wrapper.properties [GradleAssignment]
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
GradleAssignment 〉 gradle 〉 wrapper 〉 gradle-wrapper.properties
Question2
Project
build.gradle
gradle-wrapper.properties
Javacode1.java
Javacode2.java
Question2.java
Gradle
Ant
1: Project
2: Favorites
7: Structure
Terminal: Local +
Terminal
Build
4: Run
6: TODO
Event Log
3:72 LF UTF-8 4 spaces

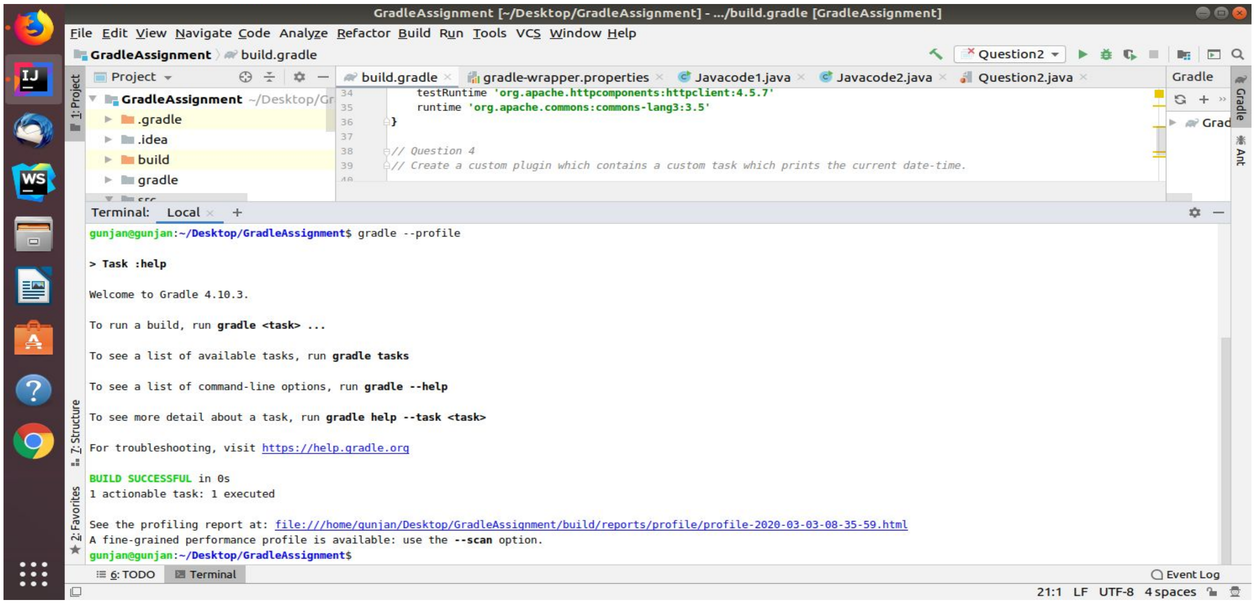
```
BUILD SUCCESSFUL in 0s
2 actionable tasks: 2 executed
gunjan@gunjan:~/Desktop/GradleAssignment$ ./gradlew -version

------------------------------------------------------------
Gradle 6.0.1
------------------------------------------------------------

Build time:   2019-11-18 20:25:01 UTC
Revision:     fad121066a68c4701acd362daf4287a7c309a0f5

Kotlin:       1.3.50
Groovy:       2.5.8
Ant:          Apache Ant(TM) version 1.10.7 compiled on September 1 2019
JVM:          1.8.0_242 (Azul Systems, Inc. 25.242-b20)
OS:           Linux 4.15.0-29-generic amd64

gunjan@gunjan:~/Desktop/GradleAssignment$ ./gradlew DateTask
Starting a Gradle Daemon (subsequent builds will be faster)

> Task :DateTask
My date is : Mon Mar 02 23:48:42 IST 2020

Deprecated Gradle features were used in this build, making it incompatible with Gradle 7.0.
Use '--warning-mode all' to show the individual deprecation warnings.
See https://docs.gradle.org/6.0.1/userguide/command_line_interface.html#sec:command_line_warnings

BUILD SUCCESSFUL in 3s
3 actionable tasks: 3 executed
```

7. Run the gradle profile command and attach the resulting files.

```
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8"/>
<meta http-equiv="x-ua-compatible" content="IE=edge"/>
<title>Profile report</title>
<link href="css/base-style.css" rel="stylesheet" type="text/css"/>
<link href="css/style.css" rel="stylesheet" type="text/css"/>
<script src="js/report.js" type="text/javascript"></script>
</head>
<body>
<div id="content">
<h1>Profile report</h1>
<div id="header">
<p>Profiled build: help </p>
<p>Started on: 2020/03/03 - 08:35:59</p>
</div>
<div id="tabs">
<ul class="tabLinks">
<li>
<a href="#tab0">Summary</a>
</li>
<li>
<a href="#tab1">Configuration</a>
</li>
<li>
<a href="#tab2">Dependency Resolution</a>
</li>
<li>
<a href="#tab3">Task Execution</a>
</li>
</ul>
<div class="tab" id="tab0">
<h2>Summary</h2>
<table>
<thead>
<tr>
<th>Description</th>
<th class="numeric">Duration</th>
</tr>
</thead>
<tr>
<td>Total Build Time</td>
<td class="numeric">0.336s</td>
</tr>
<tr>
<td>Startup</td>
<td class="numeric">0.311s</td>
```

```
</tr>
<tr>
<td>Settings and BuildSrc</td>
<td class="numeric">0.002s</td>
</tr>
<tr>
<td>Loading Projects</td>
<td class="numeric">0s</td>
</tr>
<tr>
<td>Configuring Projects</td>
<td class="numeric">0.011s</td>
</tr>
<tr>
<td>Task Execution</td>
<td class="numeric">0.002s</td>
</tr>
</table>
</div>
<div class="tab" id="tab1">
<h2>Configuration</h2>
<table>
<thead>
<tr>
<th>Project</th>
<th class="numeric">Duration</th>
</tr>
</thead>
<tr>
<td>All projects</td>
<td class="numeric">0.011s</td>
</tr>
<tr>
<td>:</td>
<td class="numeric">0.011s</td>
</tr>
</table>
</div>
<div class="tab" id="tab2">
<h2>Dependency Resolution</h2>
<table>
<thead>
<tr>
<th>Dependencies</th>
<th class="numeric">Duration</th>
</tr>
</thead>
<tr>
<td>All dependencies</td>
<td class="numeric">0s</td>
```

```
</tr>
</table>
</div>
<div class="tab" id="tab3">
<h2>Task Execution</h2>
<table>
<thead>
<tr>
<th>Task</th>
<th class="numeric">Duration</th>
<th>Result</th>
</tr>
</thead>
<tr>
<td>:</td>
<td class="numeric">0.002s</td>
<td>(total)</td>
</tr>
<tr>
<td class="indentPath">:help</td>
<td class="numeric">0.002s</td>
<td></td>
</tr>
</table>
</div>
</div>
<div id="footer">
<p>
<div>
<label class="hidden" id="label-for-line-wrapping-toggle" for="line-wrapping-toggle">Wrap lines
<input id="line-wrapping-toggle" type="checkbox" autocomplete="off"/>
</label>
</div>Generated by
<a href="http://www.gradle.org">Gradle 4.10.3</a> at 3 Mar, 2020 8:35:59 AM</p>
</div>
</div>
</body>
</html>
```



```
    testRuntime 'org.apache.httpcomponents:httpclient:4.5.7'
    runtime 'org.apache.commons:commons-lang3:3.5'
}

// Question 4
// Create a custom plugin which contains a custom task which prints the current date-time.
```

```
gunjan@gunjan:~/Desktop/GradleAssignment$ gradle --profile

> Task :help

Welcome to Gradle 4.10.3.

To run a build, run gradle <task> ...

To see a list of available tasks, run gradle tasks

To see a list of command-line options, run gradle --help

To see more detail about a task, run gradle help --task <task>

For troubleshooting, visit https://help.gradle.org

BUILD SUCCESSFUL in 0s
1 actionable task: 1 executed

See the profiling report at: file:///home/gunjan/Desktop/GradleAssignment/build/reports/profile/profile-2020-03-03-08-35-59.html
A fine-grained performance profile is available: use the --scan option.
gunjan@gunjan:~/Desktop/GradleAssignment$
```