



## CA - Experiment 4 - Practical Exercise: Build and Run a Java Application with Maven, Migrate the Same Application to Gradle

### 🎯 Part 1: Create and Build a Java Application with Maven

#### 🛠 Step 1: Create a Maven Project in IntelliJ IDEA

##### 1. Open IntelliJ IDEA

- Launch IntelliJ IDEA and click on **File → New → Project**. 🌟

##### 2. Select Maven

- In the **New Project** window, choose **Maven** from the options on the left.
- Check **Create from archetype** and select **maven-archetype-quickstart**.
- Click **Next**. 🚀

##### 3. Enter Project Details

- GroupId:** com.example
- ArtifactId:** MVNGRDLDEMO
- Click **Next** and then **Finish**. ✨

##### 4. Wait for IntelliJ to Load Dependencies

- IntelliJ will automatically download the Maven dependencies, so just relax for a moment. 😊

#### 📝 Step 2: Update `pom.xml` to Add Build Plugin

To compile and package your project into a `.jar` file, you need to add the **Maven Compiler** and **Jar** plugins. 🔧

##### 1. Open the `pom.xml` file. 📄

##### 2. Add the following inside the `<project>` tag:

```

1 <build>
2   <plugins>
3     <!-- Compiler Plugin -->
4     <plugin>
5       <groupId>org.apache.maven.plugins</groupId>
6       <artifactId>maven-compiler-plugin</artifactId>
7       <version>3.8.1</version>
8       <configuration>
9         <source>1.8</source>
10        <target>1.8</target>

```

```

11      </configuration>
12    </plugin>
13
14    <!-- Jar Plugin -->
15    <plugin>
16      <groupId>org.apache.maven.plugins</groupId>
17      <artifactId>maven-jar-plugin</artifactId>
18      <version>3.2.0</version>
19      <configuration>
20        <archive>
21          <manifest>
22            <mainClass>com.example.App</mainClass>
23          </manifest>
24        </archive>
25      </configuration>
26    </plugin>
27  </plugins>
28 </build>
29

```



### Step 3: Build and Run the Maven Project

#### 1. Open IntelliJ IDEA Terminal

Press **Alt + F12** to open the terminal.

#### 2. Compile and Package the Project

Run the following commands to build the project:

```

1 mvn clean compile
2 mvn package
3

```

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#### 3. Locate the JAR File

After running the above, your `.jar` file will be located at:

```

1 D:\Idea Projects\MVNGRDLDEMO\target\MVNGRDLDEMO-1.0-SNAPSHOT.jar
2

```

#### 4. Run the JAR File

To run the generated JAR file, use:

```

1 java -jar target\MVNGRDLDEMO-1.0-SNAPSHOT.jar
2

```

## Part 2: Migrate Maven Project to Gradle

### Step 1: Initialize Gradle in Your Project

#### 1. Open Terminal in IntelliJ IDEA

Make sure you're in the project directory:

```

1 cd "D:\Idea Projects\MVNGRDLDEMO"
2

```

## 2. Run Gradle Init Command

Execute the following command to migrate your Maven project to Gradle:

```
1 gradle init --type pom  
2
```

This command will convert your Maven `pom.xml` into a Gradle `build.gradle` file. 🎉

## 🛠 Step 2: Review and Update `build.gradle`

1. **Open** `build.gradle` in IntelliJ IDEA.
2. Ensure the following configurations are correct:

```
1 plugins {  
2     id 'java'  
3 }  
4  
5 group = 'com.example'  
6 version = '1.0-SNAPSHOT'  
7  
8 repositories {  
9     mavenCentral()  
10 }  
11  
12 dependencies {  
13     testImplementation 'junit:junit:4.13.2'  
14 }  
15  
16 jar {  
17     manifest {  
18         attributes(  
19             'Main-Class': 'com.example.App'  
20         )  
21     }  
22 }  
23
```



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## 🛠 Step 3: Build and Run the Gradle Project

### 1. Clean and Build the Project

To clean and build your Gradle project, run:

```
1 gradle clean build  
2
```

### 2. Run the Generated JAR File

Now, run the generated JAR file using:

```
1 java -jar build/libs/MVNGRDLDEMO-1.0-SNAPSHOT.jar  
2
```

## 🎉 Conclusion

Congratulations! You have successfully: