



Lab 1 – Creating a Spring application

The purpose of this task is to demonstrate how to create and run a Spring application using the IntelliJ IDEA. The Spring Boot Maven project will be generated by Spring Initializr as it is the most efficient method of creating a Spring project and comes with an assigned project wizard.

Task 1

Step-by-step guide to create a new Spring Boot project:

1. Access the Spring Initializr at <https://start.spring.io/>
2. Select **Maven** project.
3. Select Spring Boot version 3.0.2.
4. Change the group to com.qa.
5. Add the five dependencies you can see in the image:

The screenshot shows the Spring Initializr web application interface. The interface is divided into several sections:

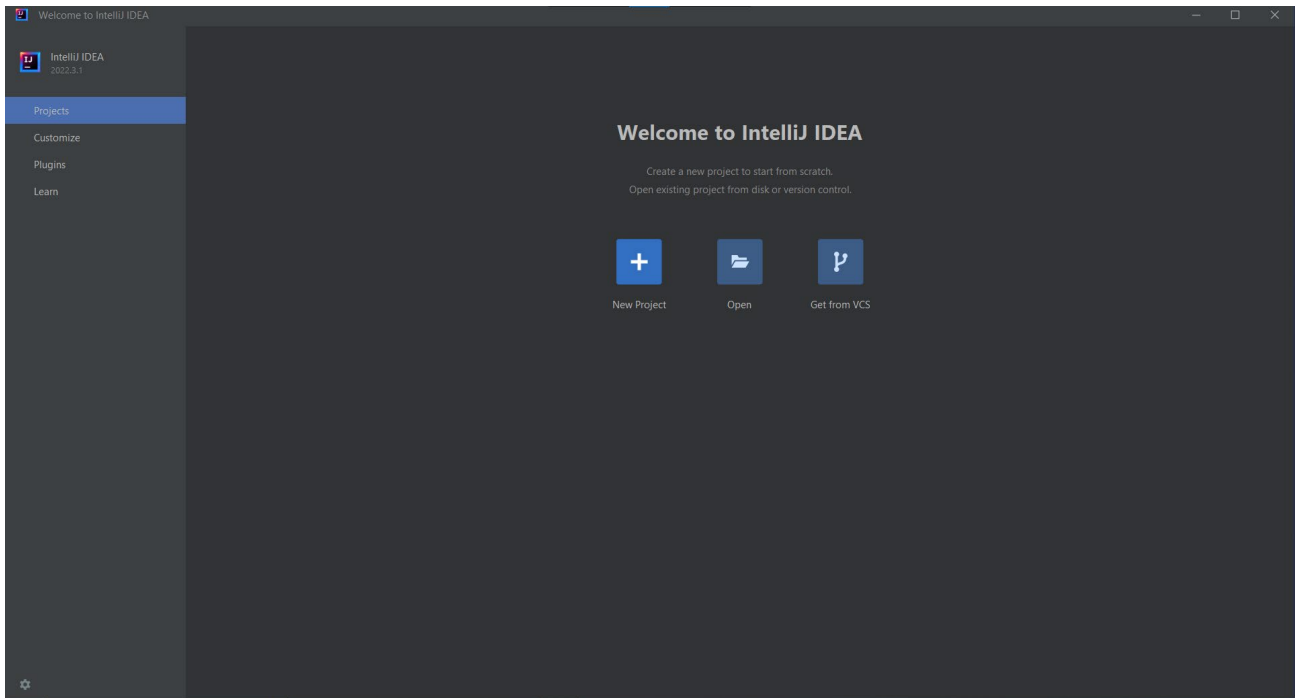
- Project:** Includes radio buttons for **Gradle - Groovy**, **Gradle - Kotlin**, and **Maven** (selected).
- Language:** Includes radio buttons for **Java** (selected), **Kotlin**, and **Groovy**.
- Spring Boot:** Includes radio buttons for **3.0.3 (SNAPSHOT)**, **3.0.2** (selected), **2.7.9 (SNAPSHOT)**, and **2.7.8**.
- Project Metadata:** Includes input fields for **Group** (com.qa), **Artifact** (demo), **Name** (demo), **Description** (Demo project for Spring Boot), and **Package name** (com.qa.demo).
- Packaging:** Includes radio buttons for **Jar** (selected) and **War**.
- Dependencies:** Includes a list of dependencies with checkboxes: **Spring Web** (WEB), **Spring Data JPA** (SQL), **H2 Database** (SQL), **Spring Boot DevTools** (DEVELOPER TOOLS), and **Spring Boot Actuator** (OPS).

At the bottom, there are three buttons: **GENERATE** (CTRL + G), **EXPLORE** (CTRL + SPACE), and **SHARE...**.

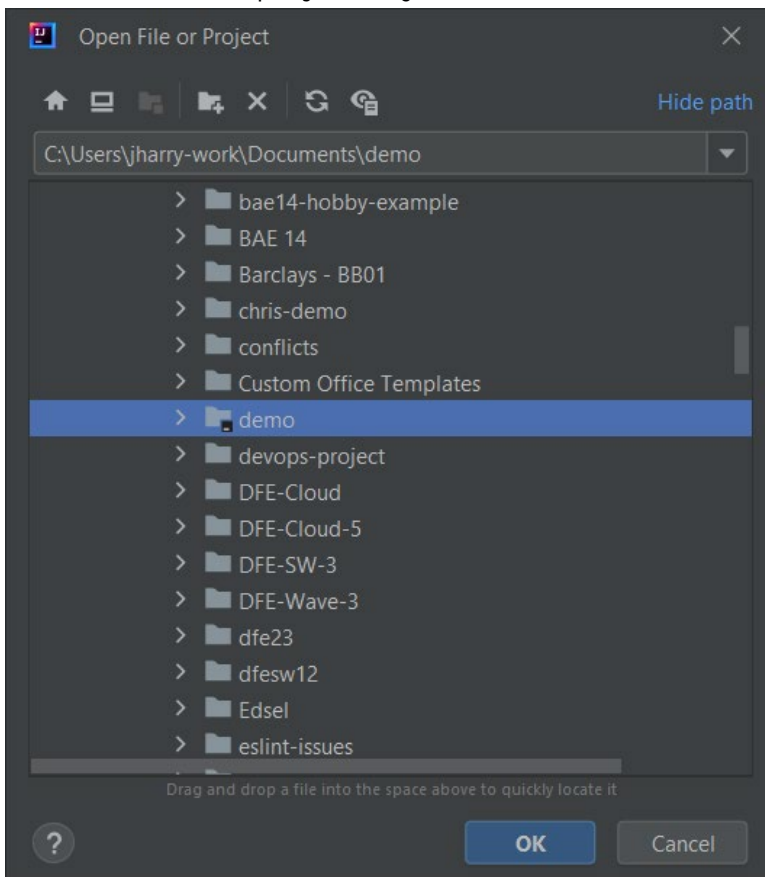
6. Click **Generate** to download the project as a zip.
7. Unzip the project into the Documents folder.



8. Open up IntelliJ and select **Open**.

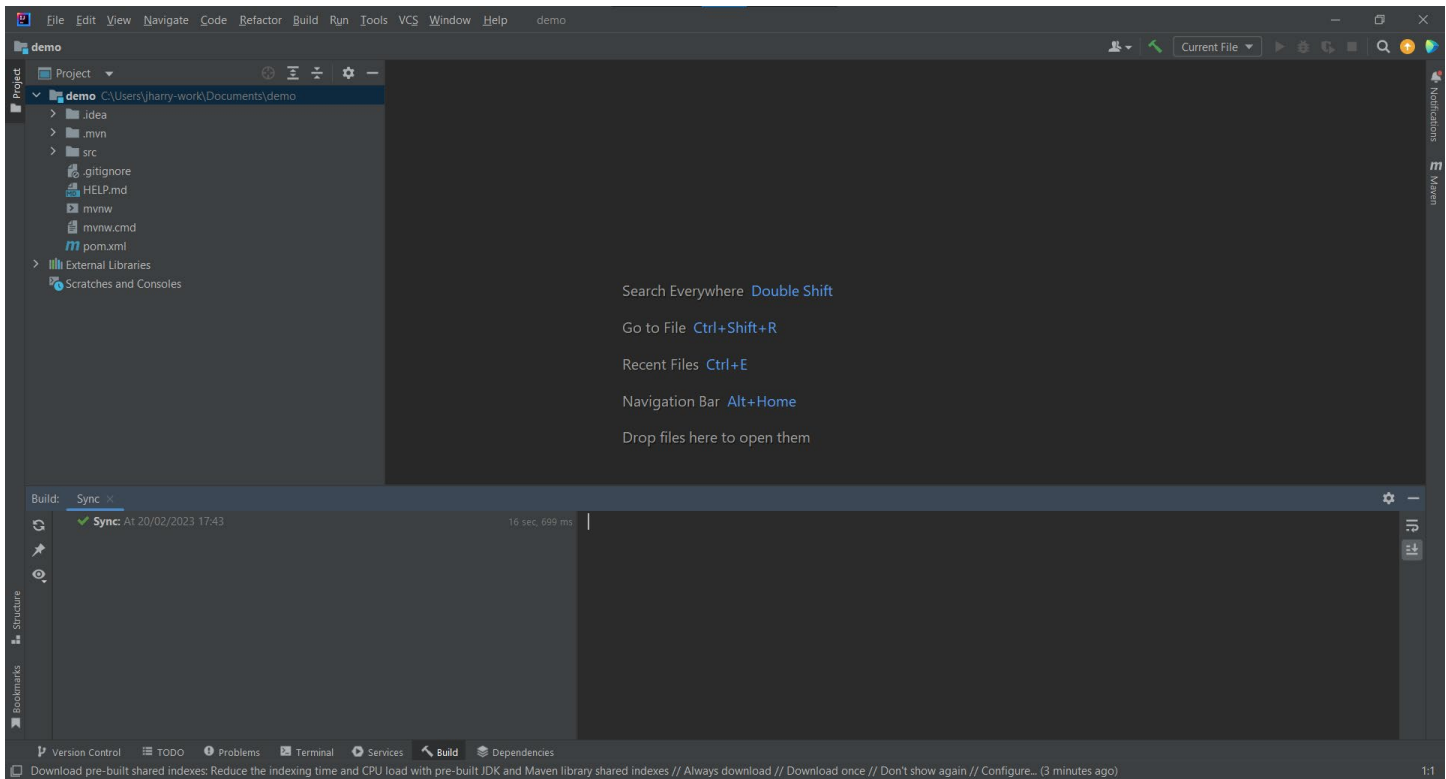


9. Select the **demo** project in your **Documents** folder.

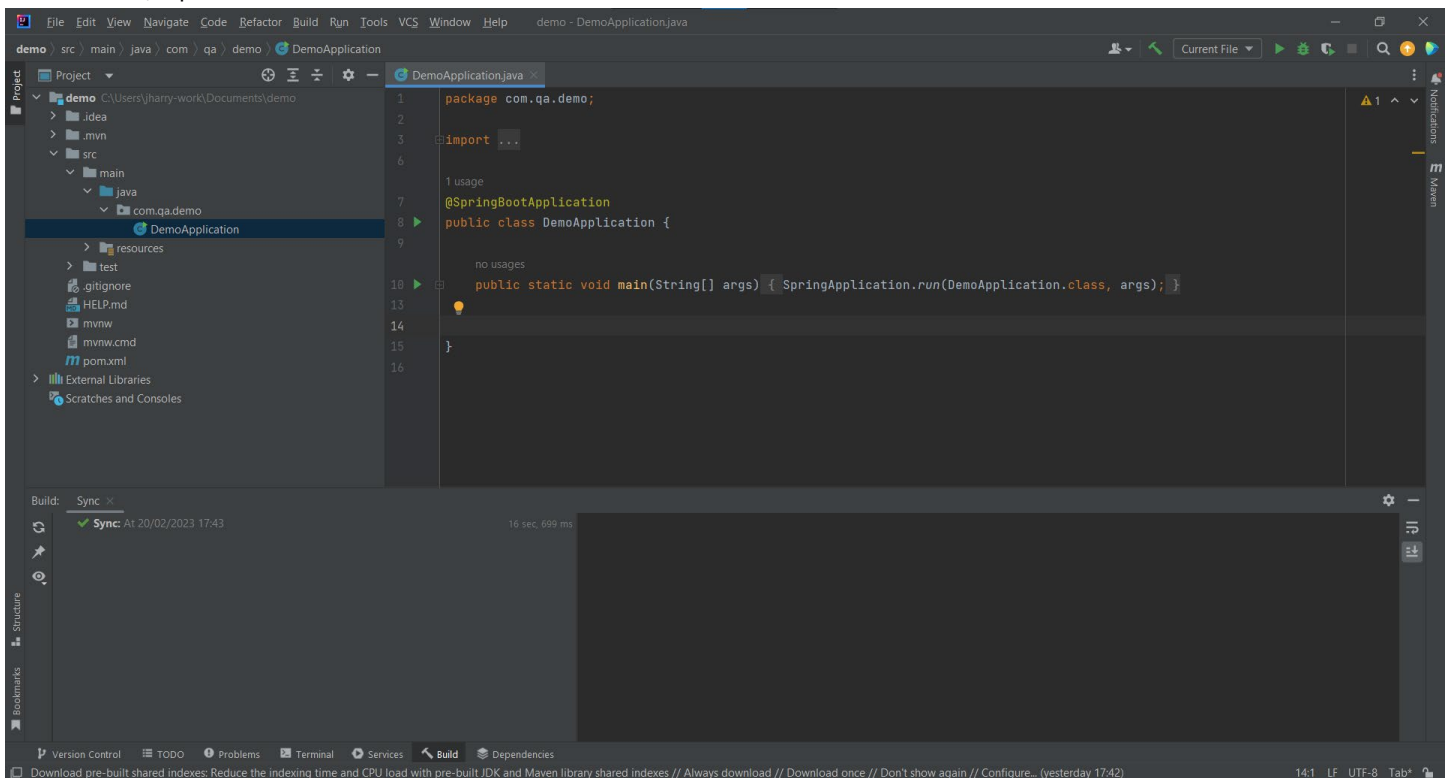




10. You should now see the project open in IntelliJ.



11. In IntelliJ, open the class with the **main** method.



12.



13. Paste this code into line 14:

```
@GetMapping("/hello")
    public String greeting() {
        return "Hello, World!";
    }
}
```

14. And this code above **@SpringBootApplication**:

@RestController

The screenshot shows an IDE window with the file `demo - DemoApplication.java` open. The code in the file is as follows:

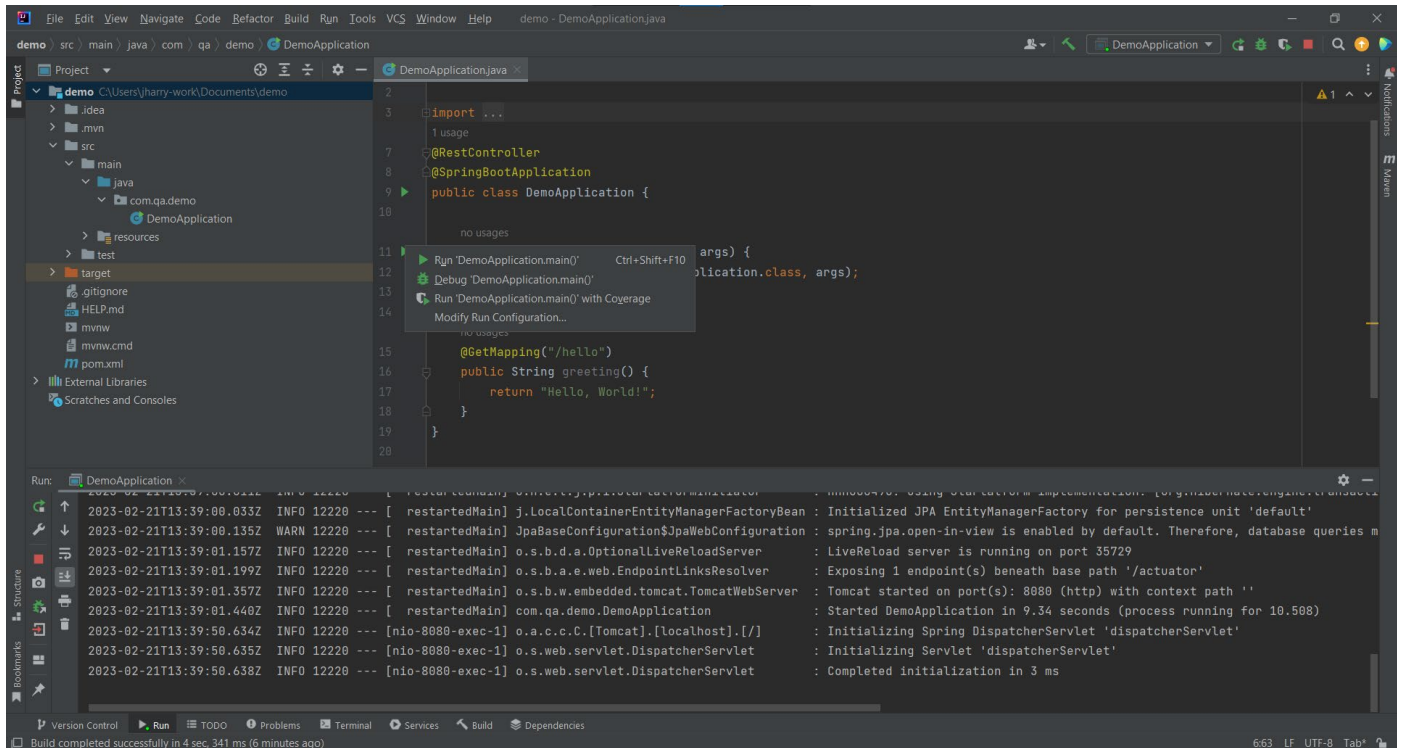
```
1 import ...
2
3 import ...
4     1 usage
5
6 @RestController
7
8 @SpringBootApplication
9
10 public class DemoApplication {
11
12     no usages
13     public static void main(String[] args) {
14         SpringApplication.run(DemoApplication.class, args);
15     }
16
17     no usages
18     @GetMapping("/hello")
19     public String greeting() {
20         return "Hello, World!";
21     }
22 }
23
24 }
```

The bottom of the screenshot shows the Run console output for the `DemoApplication` class. The output includes the following log messages:

```
2023-02-21T13:39:00.033Z INFO 12220 --- [ restartedMain] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'default'
2023-02-21T13:39:00.135Z WARN 12220 --- [ restartedMain] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by default. Therefore, database queries may
2023-02-21T13:39:01.157Z INFO 12220 --- [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is running on port 35729
2023-02-21T13:39:01.199Z INFO 12220 --- [ restartedMain] o.s.b.a.e.web.EndpointLinksResolver : Exposing 1 endpoint(s) beneath base path '/actuator'
2023-02-21T13:39:01.357Z INFO 12220 --- [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8080 (http) with context path ''
2023-02-21T13:39:01.440Z INFO 12220 --- [ restartedMain] com.qa.demo.DemoApplication : Started DemoApplication in 9.34 seconds (process running for 10.508)
2023-02-21T13:39:50.634Z INFO 12220 --- [nio-8080-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2023-02-21T13:39:50.635Z INFO 12220 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
2023-02-21T13:39:50.638Z INFO 12220 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : Completed initialization in 3 ms
```



15. Run the Spring app using the green play button in the gutter on line 10:



16. Once the app has started you should be able to see this message at <http://localhost:8080/hello>

