

LABO 1: SPRING BOOT

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CREATE PROJECT



Project

☒ Maven Project ☐ Gradle Project

Language

☒ Java ☐ Kotlin ☐ Groovy

Spring Boot

☐ 2.4.0 (SNAPSHOT) ☐ 2.4.0 (M2) ☐ 2.3.4 (SNAPSHOT) ☒ 2.3.3
☐ 2.2.10 (SNAPSHOT) ☐ 2.2.9 ☐ 2.1.17 (SNAPSHOT) ☐ 2.1.16

Project Metadata

Group

Artifact

Name

Description

Package name

Packaging ☒ Jar ☐ War

Java ☐ 14 ☒ 11 ☐ 8

Dependencies

[ADD DEPENDENCIES...](#) CTRL + B

Spring Boot DevTools

DEVELOPER TOOLS

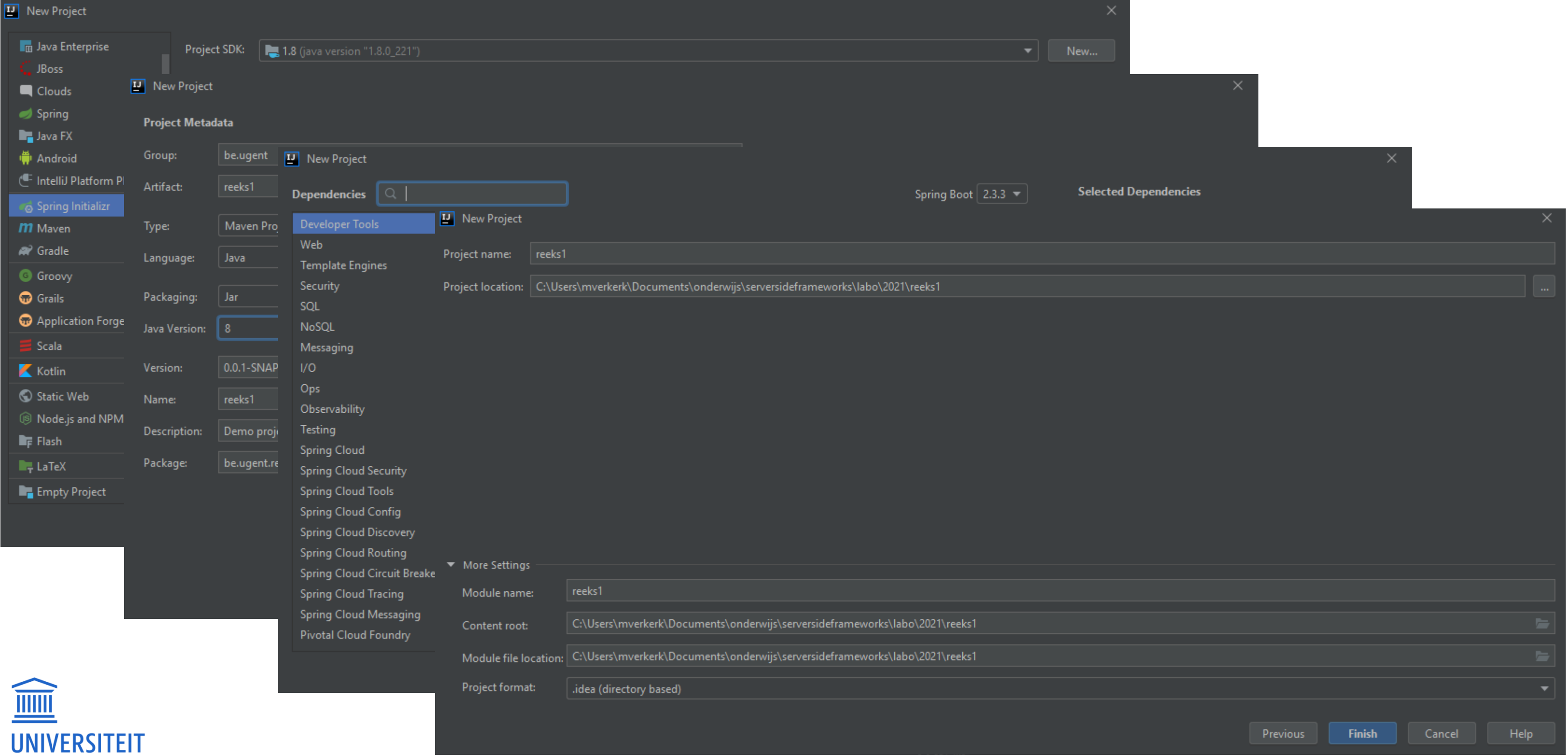
Provides fast application restarts, LiveReload, and configurations for enhanced development experience.

Spring Web

WEB

Build web, including RESTful, applications using Spring MVC. Uses Apache Tomcat as the default embedded container.

CREATE PROJECT



PROJECT STRUCTURE

`@SpringBootApplication` is a convenience annotation that adds all of the following:

- `@Configuration`: Tags the class as a source of bean definitions for the application context.
- `@EnableAutoConfiguration`: Tells Spring Boot to start adding beans based on classpath settings, other beans, and various property settings. For example, if `spring-webmvc` is on the classpath, this annotation flags the application as a web application and activates key behaviors, such as setting up a `DispatcherServlet`.
- `@ComponentScan`: Tells Spring to look for other components, configurations, and services in the `com/example` package, letting it find the controllers.

pom.xml

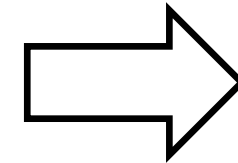
```
<dependencies>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
  </dependency>

  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-devtools</artifactId>
    <scope>runtime</scope>
    <optional>true</optional>
  </dependency>
</dependencies>
```

SPRING BOOT STARTER

- Multiple dependencies
- Auto-configured

```
<dependency>
  <groupId>org.springframework.boot</groupId>
  <artifactId>spring-boot-starter-web</artifactId>
</dependency>
```



```
<dependencies>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter</artifactId>
    <version>2.3.3.RELEASE</version>
    <scope>compile</scope>
  </dependency>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-json</artifactId>
    <version>2.3.3.RELEASE</version>
    <scope>compile</scope>
  </dependency>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-tomcat</artifactId>
    <version>2.3.3.RELEASE</version>
    <scope>compile</scope>
  </dependency>
  <dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-web</artifactId>
    <version>5.2.8.RELEASE</version>
    <scope>compile</scope>
  </dependency>
  <dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-webmvc</artifactId>
    <version>5.2.8.RELEASE</version>
    <scope>compile</scope>
  </dependency>
</dependencies>
```

DEPENDENCY INJECTION

```
@RestController
public class BlogController {
    private BlogPostDAOMemory postDAO;

    public BlogController(BlogPostDAOMemory postDAO) {
        this.postDAO = postDAO;
    }

    @GetMapping("/posts")
    public Collection<BlogPost> getPosts() {
        return postDAO.getAllPosts();
    }
}
```

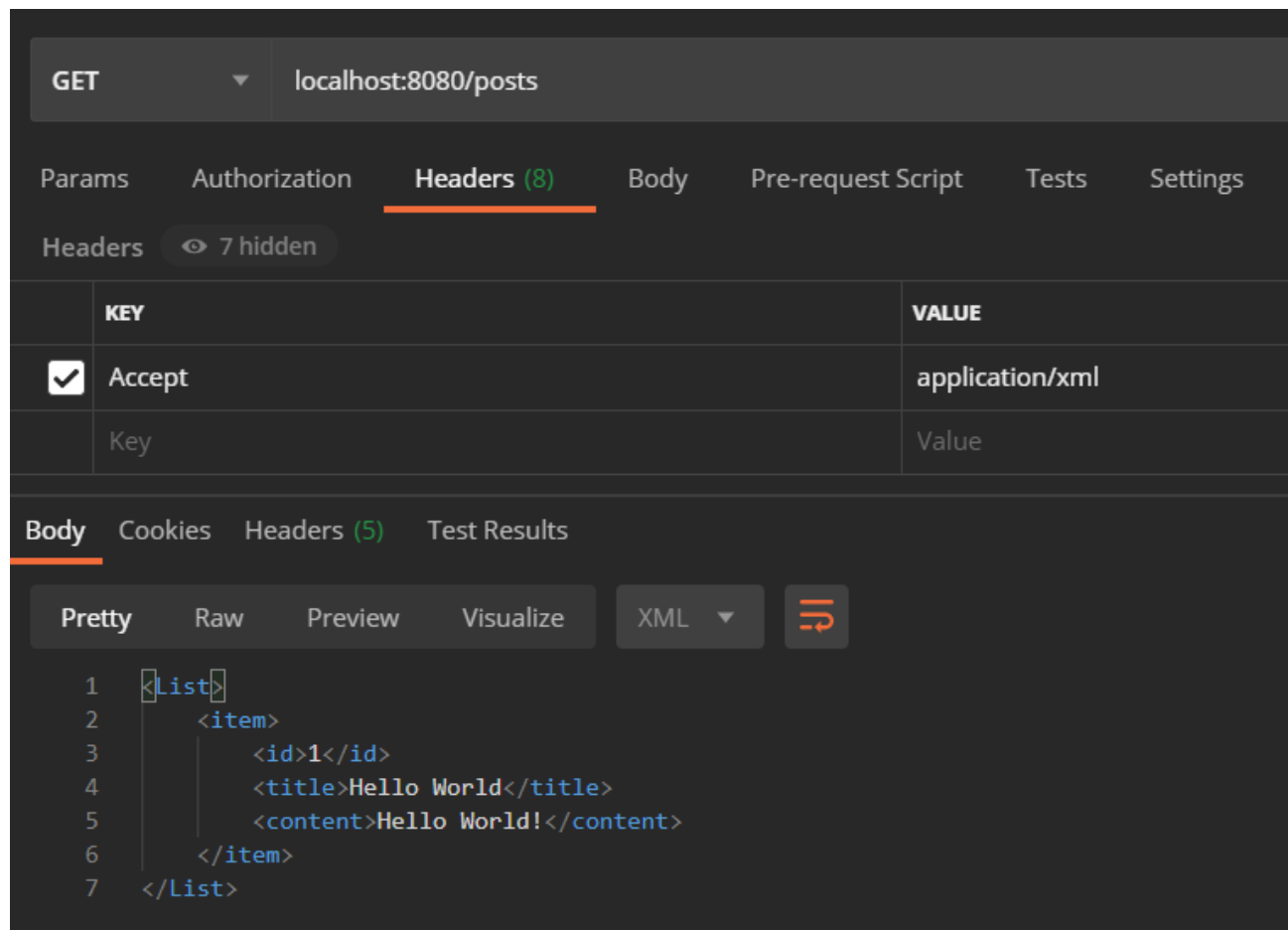
```
@RestController
public class BlogController {
    @Autowired
    private BlogPostDAOMemory postDAO;

    public BlogController() {}

    @GetMapping("/posts")
    public Collection<BlogPost> getPosts() {
        return postDAO.getAllPosts();
    }
}
```

JSON/XML ACCEPT HEADERS

- Json conversion default included (Jackson)
<https://codeboje.de/spring-mvc-rest-api-xml-response/>
- XML add *jackson-dataformat-xml* dependency
- Or use default JAXB but annotations are required



GET localhost:8080/posts

Params Authorization Headers (8) Body Pre-request Script Tests Settings

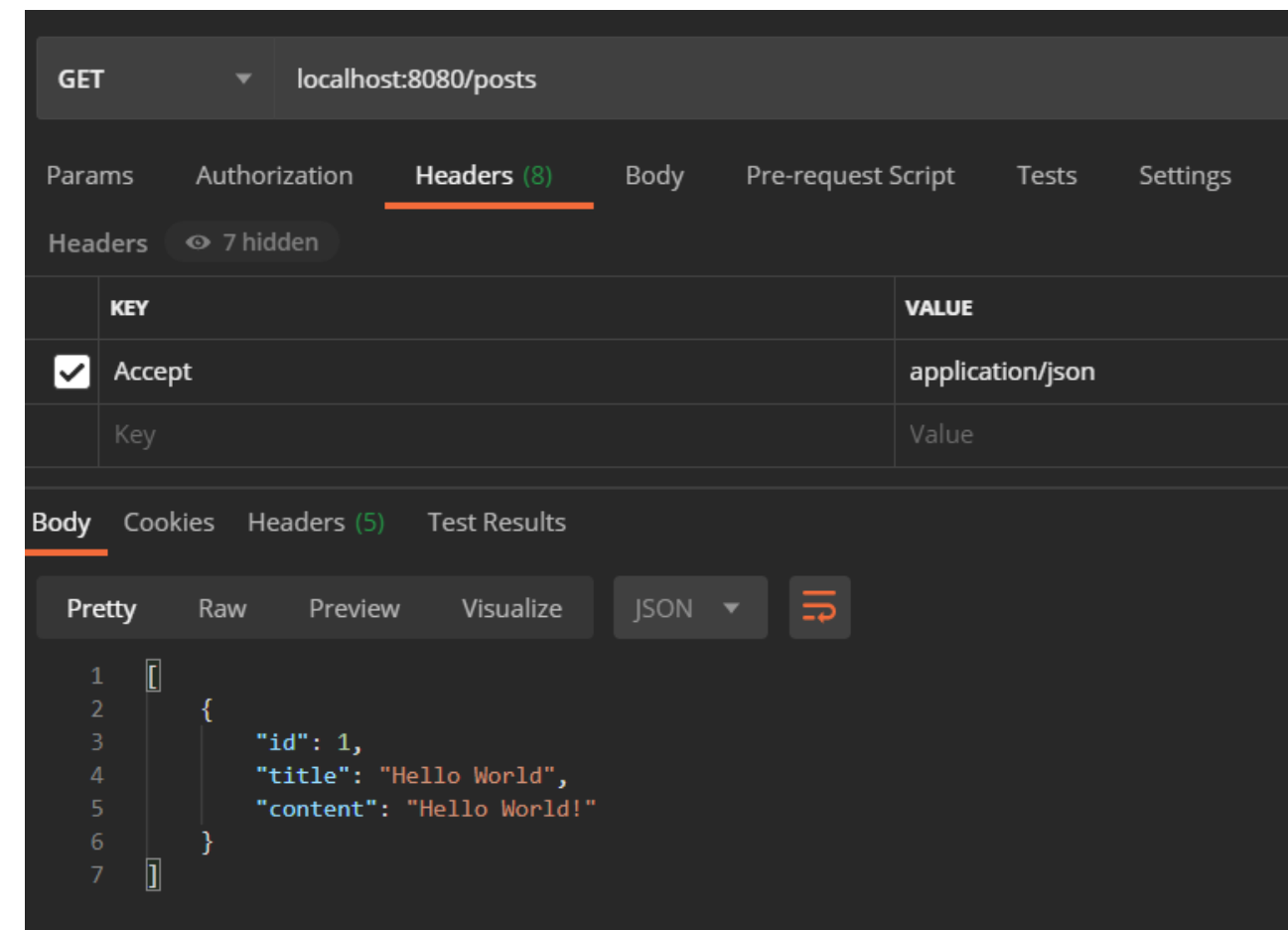
Headers 7 hidden

| KEY | VALUE |
|--------------------------------------------|-----------------|
| <input checked="" type="checkbox"/> Accept | application/xml |
| Key | Value |

Body Cookies Headers (5) Test Results

Pretty Raw Preview Visualize XML

```
1 <list>
2   <item>
3     <id>1</id>
4     <title>Hello World</title>
5     <content>Hello World!</content>
6   </item>
7 </list>
```



GET localhost:8080/posts

Params Authorization Headers (8) Body Pre-request Script Tests Settings

Headers 7 hidden

| KEY | VALUE |
|--------------------------------------------|------------------|
| <input checked="" type="checkbox"/> Accept | application/json |
| Key | Value |

Body Cookies Headers (5) Test Results

Pretty Raw Preview Visualize JSON

```
1 [
2   {
3     "id": 1,
4     "title": "Hello World",
5     "content": "Hello World!"
6   }
7 ]
```

CUSTOM ERROR HANDLING

```
/**
 * Provide the details of a blogPost with the given id. Throw PostNotFoundException if id doesn't exist.
 */
@GetMapping("/posts/{id}")
public BlogPost getPost(@PathVariable("id") long id) {
    return postDAO.getPost(id).orElseThrow(() -> new PostNotFoundException(id));
}
```

Controller

```
/**
 * Maps PostNotFoundException to a 404 Not Found HTTP status code.
 */
@ResponseStatus(HttpStatus.NOT_FOUND)
@ExceptionHandler(PostNotFoundException.class)
public void handleNotFound(Exception ex) {
    logger.warn("Exception is: " + ex.getMessage());
    // return empty 404
}
```

```
public class PostNotFoundException extends RuntimeException {
    public PostNotFoundException(Long id) {
        super("Could not find post with id=" + id);
    }
}
```


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