

Lab Exercise 3**Software Engineering - Year - 3****Semester 1, 2018**

Lab Session: Maven and Spring Boot**Objective:** Learn to configure the development environment with Maven for a simple Java project and for a Spring Boot MicroService.

1. Checking Java version and setup the environment variables.

Check existing java version:

javac -version

If this is not working even though Java is installed, you need to configure the following environment variables.

JAVA_HOME: Path to the parent directory of the Java installation.**PATH:** Path to the 'bin' directory of the Java installation.

2. Setup Maven and configure the environment variables.

Maven is distributed as a zip file and can be configured at any place.

<http://redrockdigimark.com/apachemirror/maven/maven-3/3.3.9/binaries/apache-maven-3.3.9-bin.zip>

Configuring maven:

Following environment variables should be configured for working with maven.

MAVEN_HOME or **M2_HOME:** Path to the home directory of maven (root folder of extracted zip file).**PATH:** Path to the 'bin' directory of the extracted location.

Note: This require the Java environment configurations to be configured as a prerequisite.

Check whether maven is working:

mvn -v

3. Create a simple maven project with “quickstart” Maven Artifact.

4. Setting the manifest file for **.jar**

```
<build>
  <plugins>
    <plugin>
      <groupId>org.apache.maven.plugins</groupId>
      <artifactId>maven-jar-plugin</artifactId>
      <configuration>
        <archive>
          <manifest>
            <addClasspath>>true</addClasspath>
            <mainClass>com.mycompany.app.App</mainClass>
          </manifest>
        </archive>
      </configuration>
    </plugin>
  </plugins>
</build>
```

5. Implement and run a “Hello World” project with maven.

Use the main method of the application in the `App.java` file and write a simple print line statement.

```
System.out.println("Hello Maven");
```

Execute the following command in command line to compile and package the application.

mvn clean compile package

Execute the following command to run the application using the **jar** file.

java -jar <project_name>.jar (In the example the project_name is **my-app**)

6. Setting up a Spring-Boot Project.

- For setting up spring-boot projects main manifest setting is not needed and should be removed
- Setting the parent POM

```
<parent>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>1.5.2.RELEASE</version>
</parent>
```

- Setting spring-boot-starter-web dependency.

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

- Setting spring boot maven build plugin for support features

```
<build>
    <plugins>
        <plugin>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-maven-
plugin</artifactId>
        </plugin>
    </plugins>
</build>
```

7. Modify the main class to become a Spring Boot application.

8. Create a GET method named greeting which returns a simple String value “Hello !”.

9. Update the method so that it accepts a query parameter named ‘name’ and returns “Hello, {name}!”. Set a default value to that parameter.