

## Exercise 1: Employee Management System - Setup

Here's a breakdown of how to set up your Spring Boot project for the employee management system:

### 1. Initializing the Project:

There are multiple ways to create a Spring Boot project. Here are two common options:

- **Spring Initializr:** Visit <https://spring.io/quickstart> and fill in the details:
  - **Project Name:** EmployeeManagementSystem
  - **Dependencies:**
    - Spring Web
    - Spring Data JPA
    - H2 Database
    - Lombok
  - Click "Generate" and download the project as a ZIP file.
- **Spring CLI (Command Line Interface):** If you have Spring CLI installed, run the following command in your terminal:

Bash

```
spring init EmployeeManagementSystem --dependencies=web,data-jpa,h2,lombok
```

### 2. Adding Dependencies:

Both approaches will include the necessary dependencies in the `pom.xml` file. Make sure the following dependencies are present:

XML

```
<dependency>
```

```
<groupId>org.springframework.boot</groupId>
<artifactId>spring-boot-starter-data-jpa</artifactId>
</dependency>
<dependency>
  dependency>
  <groupId>org.projectlombok</groupId>
  <artifactId>lombok</artifactId>
</dependency>
```

### 3. Configuring Application Properties:

Create a file named `application.properties` in the `src/main/resources` directory.

Add the following configuration for the H2 database connection:

#### Properties

```
spring.datasource.url=jdbc:h2:mem:testdb
spring.datasource.driverClassName=org.h2.Driver
spring.datasource.username=sa
spring.datasource.password=password
spring.jpa.database-platform=org.hibernate.dialect.H2Dialect
```

#### Explanation:

- `spring.datasource.url`: This specifies the connection URL for the H2 database using the in-memory mode ("mem:testdb").
- `spring.datasource.driverClassName`: This defines the JDBC driver class for H2.
- `spring.datasource.username`: Username for the database (default "sa" for H2).
- `spring.datasource.password`: Password for the database (default "password" for H2).
- `spring.jpa.database-platform`: This tells Spring Data JPA which Hibernate dialect to use for H2.

This configuration sets up a basic Spring Boot application with the necessary dependencies for your employee management system using Spring Data JPA and H2 as the in-memory database.