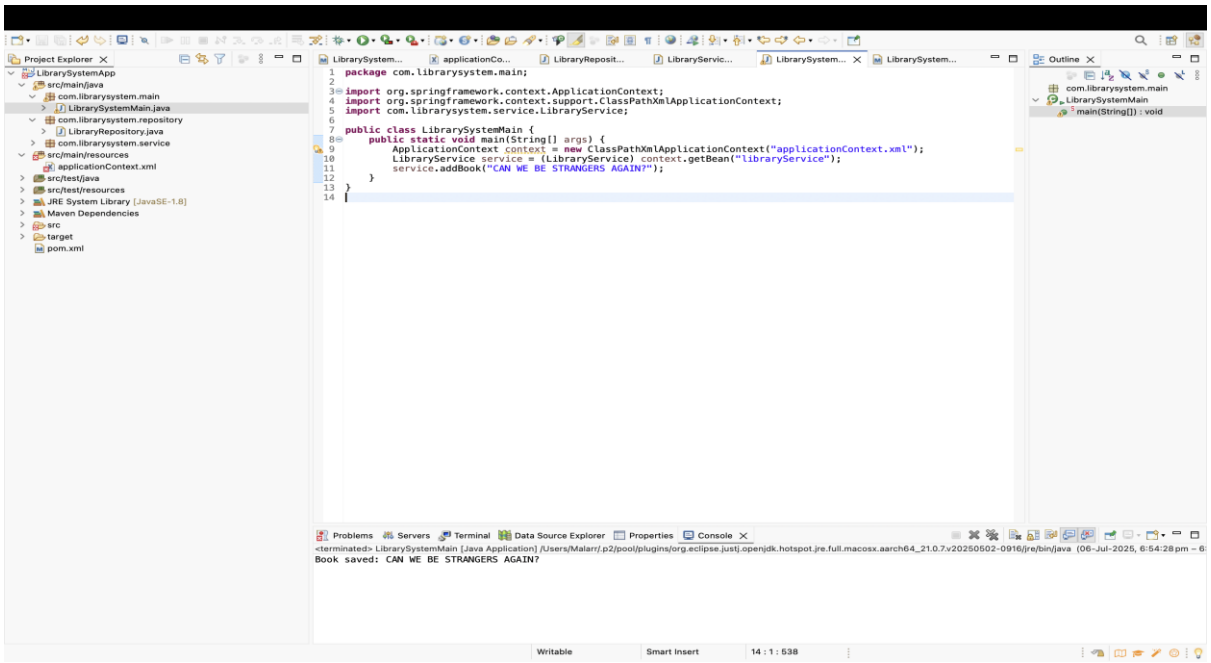
OUTPUT FOR THE HANDS-ON

FILE NAME: Spring Core_Maven

EXERCISE –1: Configuring a Basic Spring Application



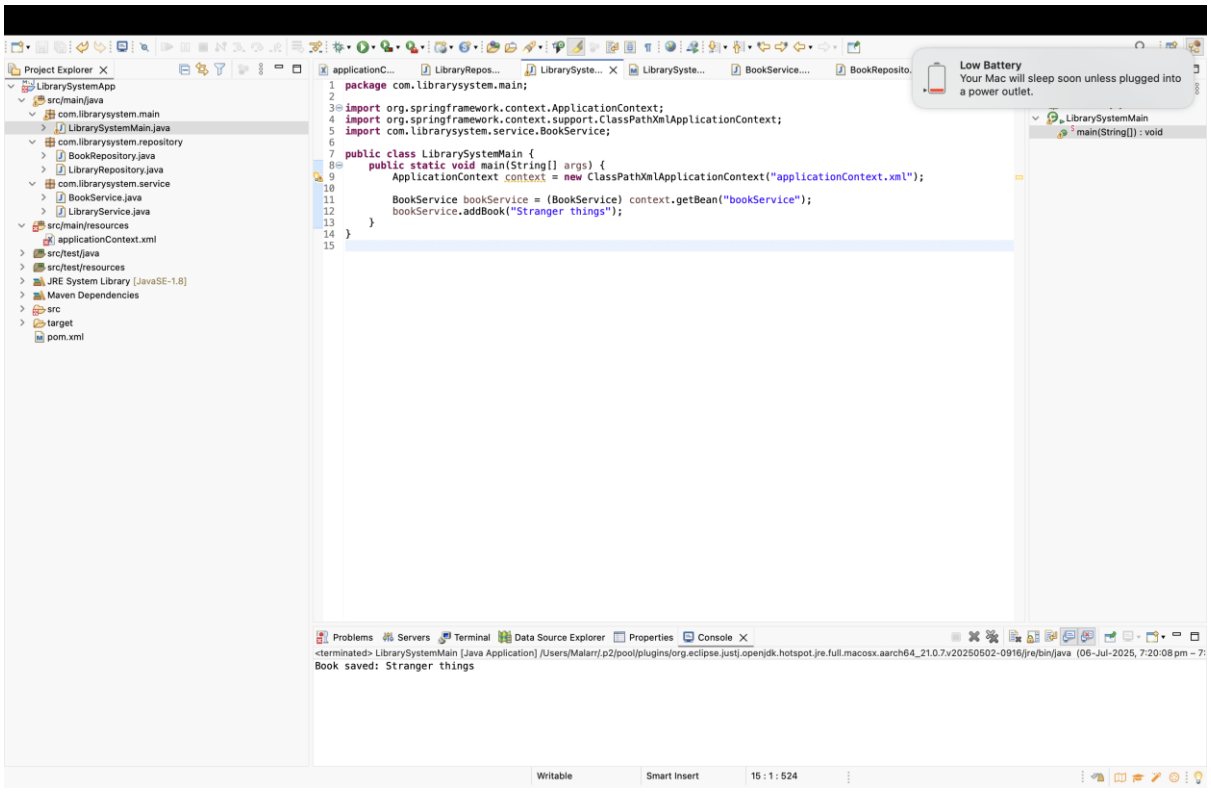
- **Spring Framework**: A Java framework that supports loose coupling using Dependency Injection and aspect-oriented programming.

- **Bean**: An object managed by the Spring IoC container.

- **applicationContext.xml**: A configuration file where Spring beans are declared and wired.

- **Maven**: A build automation tool used to manage project dependencies and structure.

Exercise 2: Implementing Dependency Injection



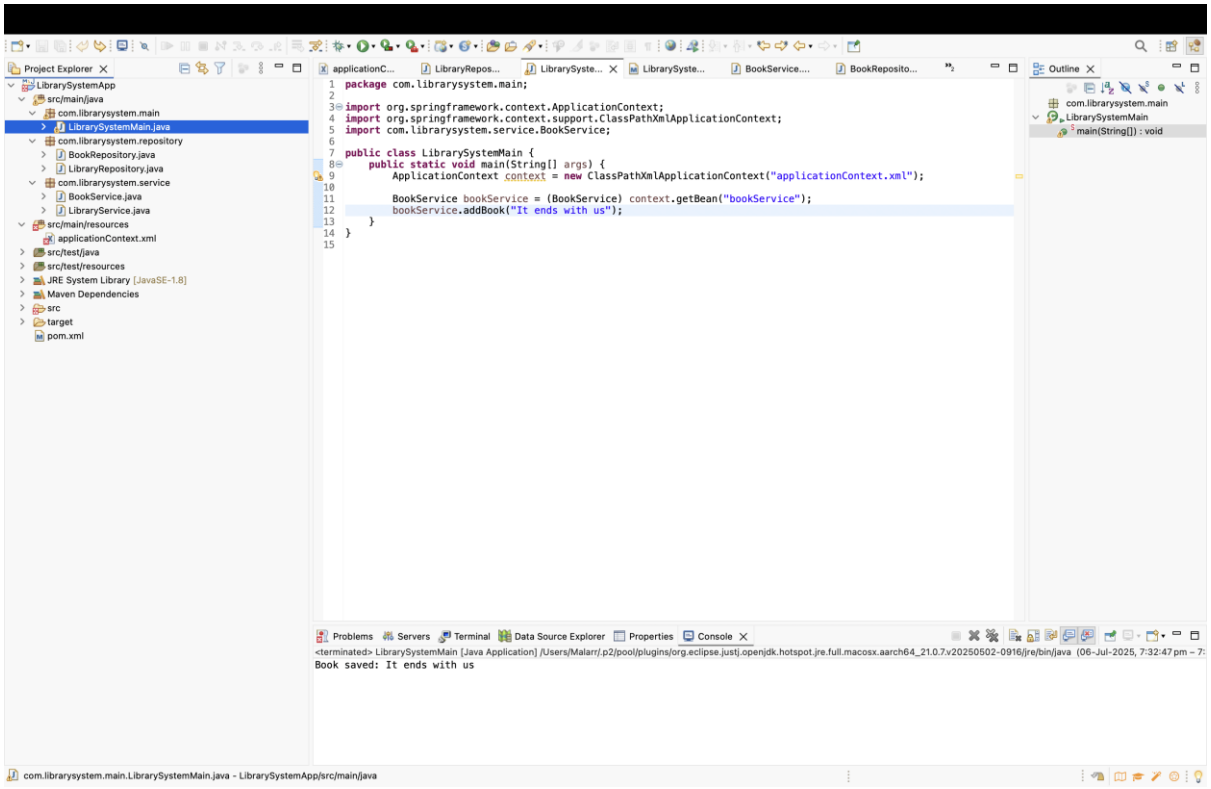
- **Dependency Injection (DI)**: A design pattern where one object's dependencies are provided by an external source (like Spring).

- **Setter Injection**: Dependencies are passed using setter methods — supported in XML configuration.

- **IoC Container**: Spring's core feature that creates and manages beans and their dependencies.

- **Wiring Beans**: Connecting two beans in Spring so that one can use the other

Exercise 4: Creating and Configuring a Maven Project



- **Maven Project**: A project managed using Maven, typically following a standard directory structure.

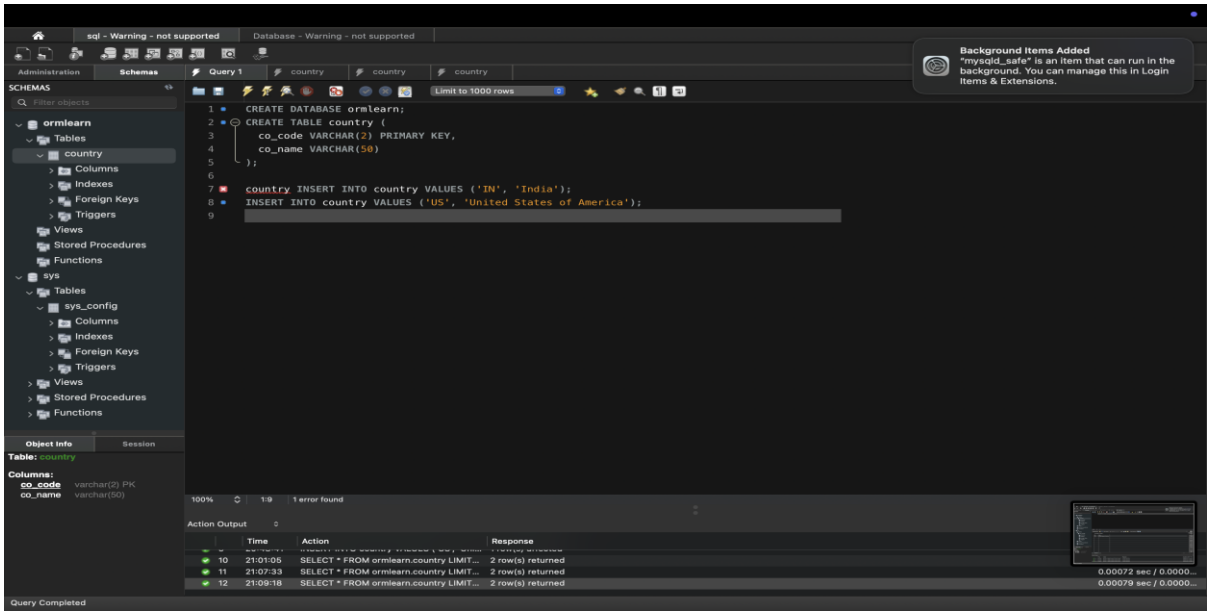
- **pom.xml**: The file where all dependencies, plugins, and project info are defined in a Maven project.

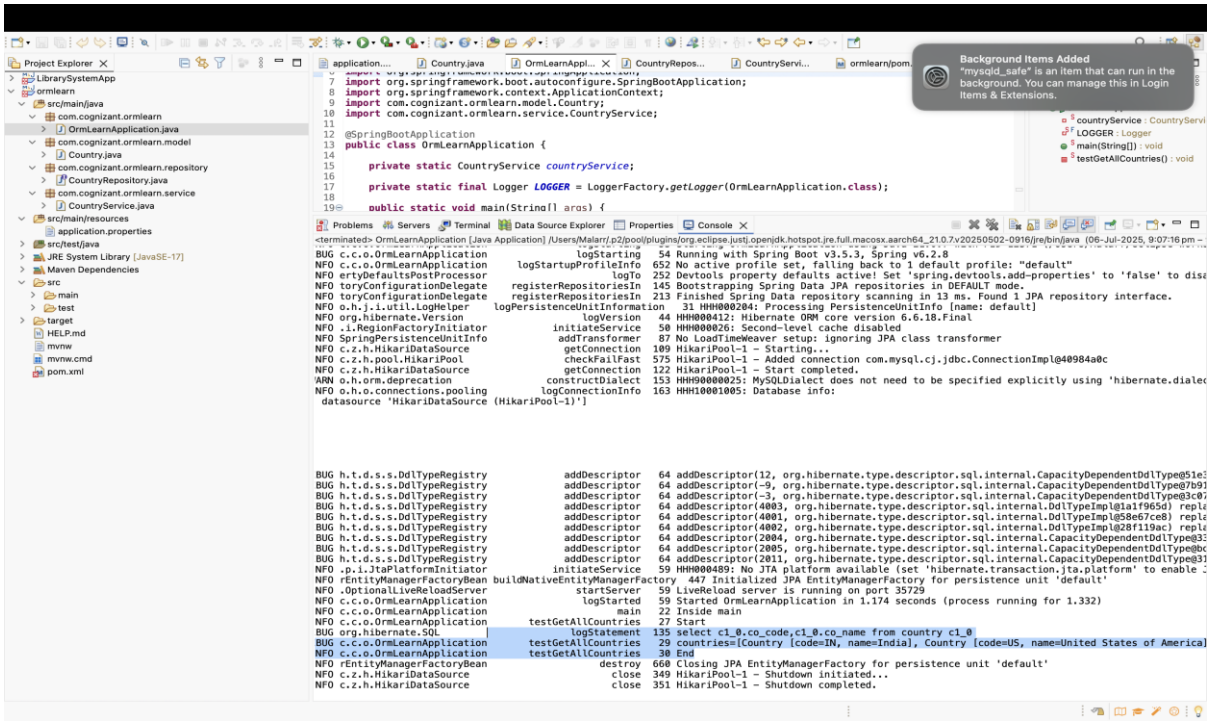
- **Spring Context**: A module that provides the ApplicationContext for managing beans and lifecycle.

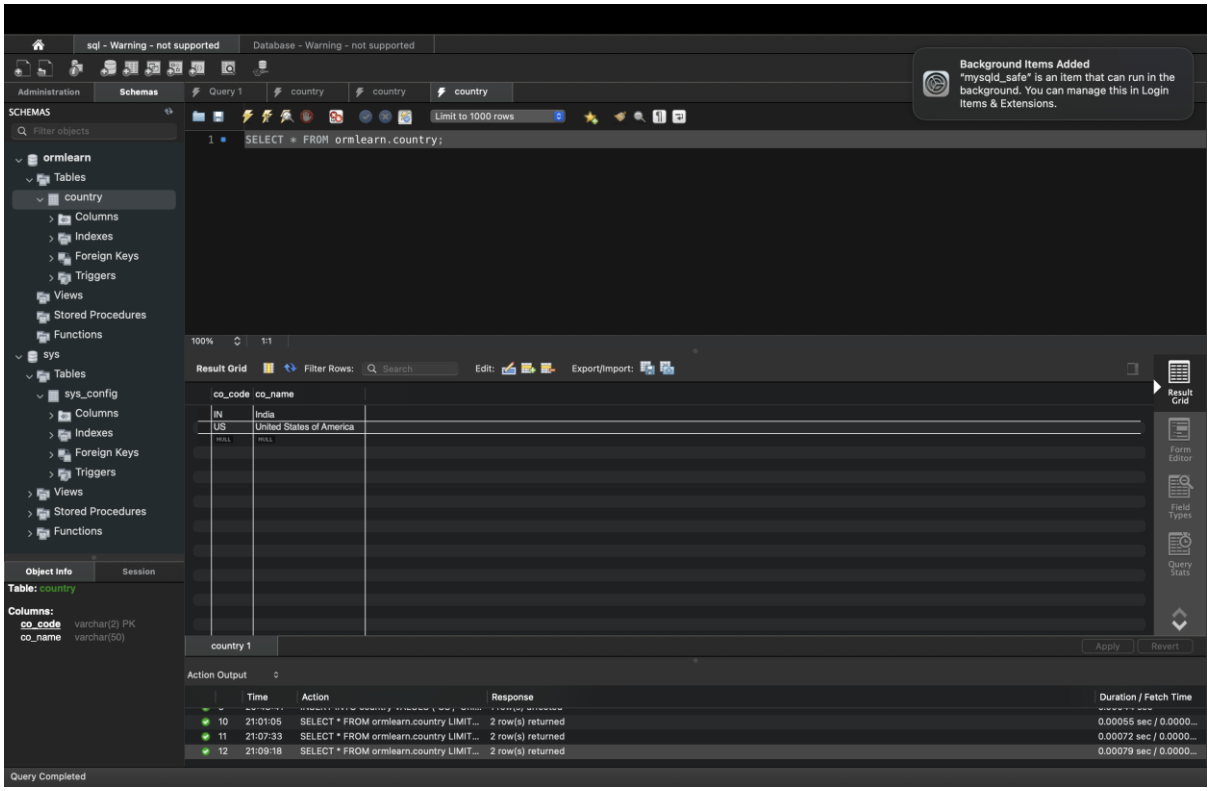
- **Maven Compiler Plugin**: A plugin that lets you specify Java version compatibility

FILE NAME : 1. spring-data-jpa-handson

1.Spring Data JPA - Quick Example :


Background Items Added
"mysqld_safe" is an item that can run in the background. You can manage this in Login Items & Extensions.
CREATE DATABASE ormlearn;
CREATE TABLE country (
co_code VARCHAR(2) PRIMARY KEY,
co_name VARCHAR(50)
);
country INSERT INTO country VALUES ('IN', 'India');
INSERT INTO country VALUES ('US', 'United States of America');
Action Output
Query Completed

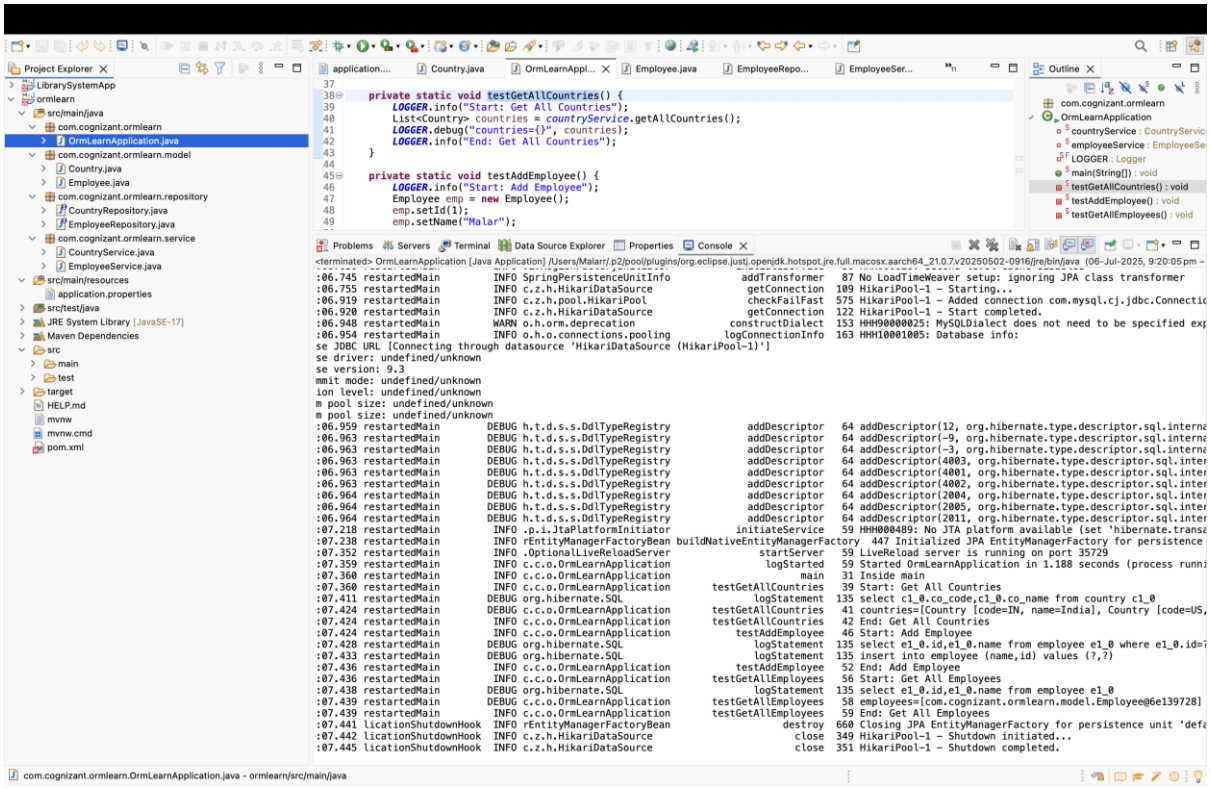

Background Items Added
"mysqld_safe" is an item that can run in the background. You can manage this in Login Items & Extensions.
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.context.ApplicationContext;
import com.cognizant.ormlearn.model.Country;
import com.cognizant.ormlearn.service.CountryService;
@SpringBootApplication
public class OrmLearnApplication {
private static CountryService countryService;
private static final Logger LOGGER = LoggerFactory.getLogger(OrmLearnApplication.class);
public static void main(String[] args) {
BUG c.c.o.OrmLearnApplication logStarting 54 Running with Spring Boot v3.5.3, Spring v6.2.8
NFO c.c.o.OrmLearnApplication logStartupProfileInfo 652 No active profile set, falling back to 1 default profile: "default"
NFO o.hibernate.Version logVersion 44 HHH000412: Hibernate ORM core version 6.6.18.Final
NFO SpringPersistenceUnitInfo addTransformer 87 No LoadTimeWeaver setup: ignoring JPA class transformer
NFO c.z.h.HikariDataSource getConnection 109 HikariPool-1 - Starting...
NFO c.z.h.pool.HikariPool checkFailFast 575 HikariPool-1 - Added connection com.mysql.cj.jdbc.ConnectionImpl@40984a0c
NFO c.z.h.HikariDataSource getConnection 122 HikariPool-1 - Start completed.
NFO o.hibernate.SQL logStatement 135 select c1_0.co_code,c1_0.co_name from country c1_0
BUG c.c.o.OrmLearnApplication testGetAllCountries 29 countries=[Country [code=IN, name=India], Country [code=US, name=United States of America]
NFO c.c.o.OrmLearnApplication testGetAllCountries 30 End
NFO c.z.h.HikariDataSource close 349 HikariPool-1 - Shutdown initiated...
NFO c.z.h.HikariDataSource close 351 HikariPool-1 - Shutdown completed.

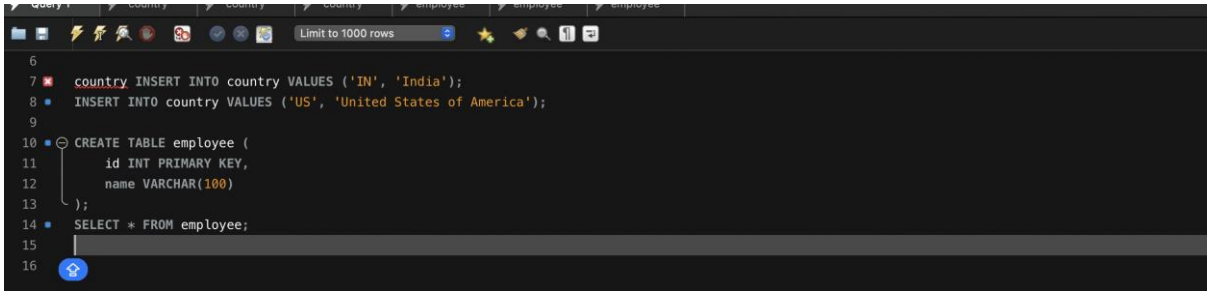


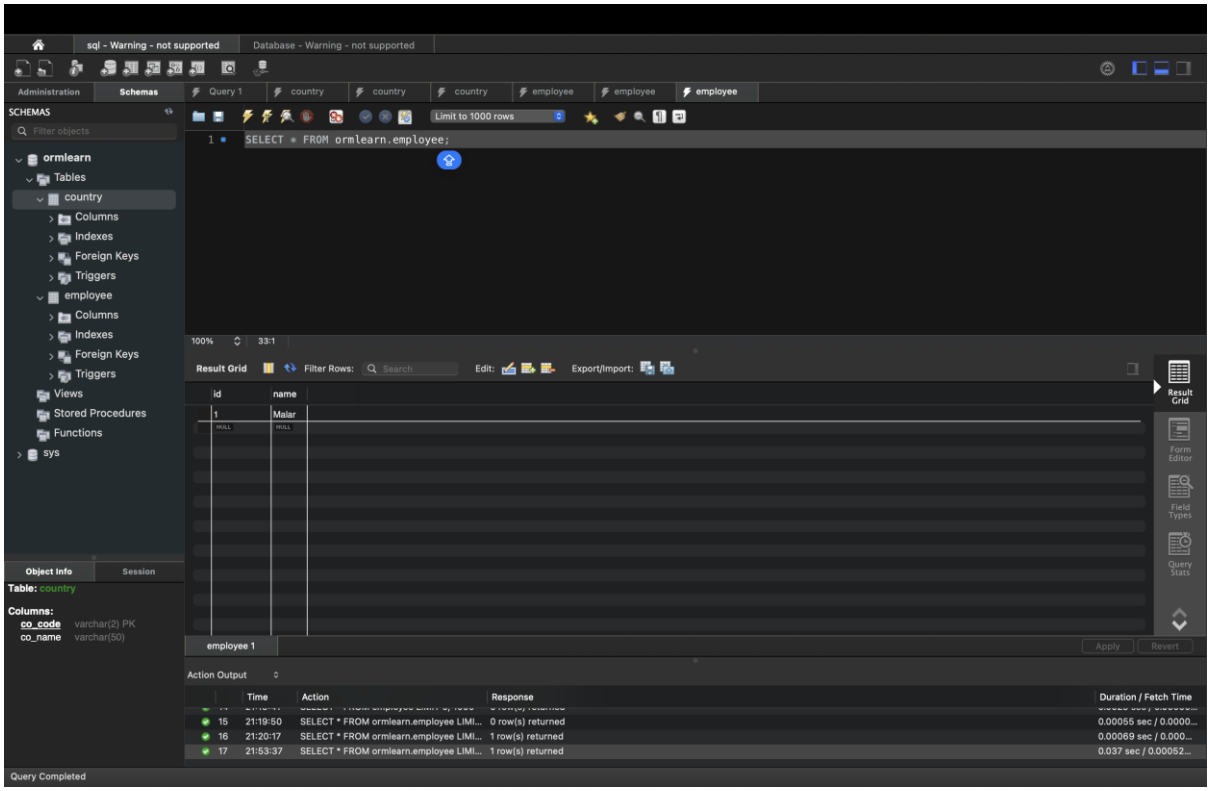
A Spring Boot project that uses **Spring Data JPA** to access and display a list of countries from a MySQL database.

- Uses @Entity, @Id, @Table, @Column annotations
- Fetches country records using findAll() method
- Outputs result to console using SLF4J Logger

2. Difference between JPA, Hibernate and Spring Data JPA :


Project Explorer
LibrarySystemApp
ormlearn
src/main/java
com.cognizant.ormlearn
OrmLearnApplication.java
com.cognizant.ormlearn.model
Country.java
Employee.java
com.cognizant.ormlearn.repository
CountryRepository.java
EmployeeRepository.java
com.cognizant.ormlearn.service
CountryService.java
EmployeeService.java
src/main/resources
application.properties
src/test/java
JRE System Library [JavaSE-17]
Maven Dependencies
src
main
test
target
HELP.md
mvnw
mvnw.cmd
pom.xml
application....
Country.java
OrmLearnAppl...
Employee.java
EmployeeRepo...
EmployeeSer...
37
38 private static void testGetAllCountries() {
39 LOGGER.info("Start: Get All Countries");
40 List<Country> countries = countryService.getAllCountries();
41 LOGGER.debug("countries={}", countries);
42 LOGGER.info("End: Get All Countries");
43 }
44
45 private static void testAddEmployee() {
46 LOGGER.info("Start: Add Employee");
47 Employee emp = new Employee();
48 emp.setId(1);
49 emp.setName("Malar");
Outline
com.cognizant.ormlearn
OrmLearnApplication
countryService : CountryServic
employeeService : EmployeeSe
LOGGER : Logger
main(String[]) : void
testGetAllCountries() : void
testAddEmployee() : void
testGetAllEmployees() : void
Problems
Servers
Terminal
Data Source Explorer
Properties
Console
<terminated> OrmLearnApplication [Java Application] /Users/Malarr/.p2/pool/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.macosx.aarch64_21.0.7.v20250502-0916/jre/bin/java (06-Jul-2025, 9:20:05 pm –
:06.745 restartedMain INFO SpringPersistenceUnitInfo addTransformer 87 No LoadTimeWeaver setup: ignoring JPA class transformer
:06.755 restartedMain INFO c.z.h.HikariDataSource getConnection 109 HikariPool-1 – Starting...
:06.919 restartedMain INFO c.z.h.pool.HikariPool checkFailFast 575 HikariPool-1 – Added connection com.mysql.cj.jdbc.Connectio
:06.920 restartedMain INFO c.z.h.HikariDataSource getConnection 122 HikariPool-1 – Start completed.
:06.948 restartedMain WARN o.h.orm.deprecation constructDialect 153 HHH90000025: MySQLDialect does not need to be specified exp
:06.954 restartedMain INFO o.h.o.connections.pooling logConnectionInfo 163 HHH10001005: Database info:
se JDBC URL [Connecting through datasource 'HikariDataSource (HikariPool-1)']
se driver: undefined/unknown
se version: 9.3
mmit mode: undefined/unknown
ion level: undefined/unknown
m pool size: undefined/unknown
m pool size: undefined/unknown
:06.959 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(12, org.hibernate.type.descriptor.sql.interna
:06.963 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(-9, org.hibernate.type.descriptor.sql.interna
:06.963 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(-3, org.hibernate.type.descriptor.sql.interna
:06.963 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(4003, org.hibernate.type.descriptor.sql.inter
:06.963 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(4001, org.hibernate.type.descriptor.sql.inter
:06.963 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(4002, org.hibernate.type.descriptor.sql.inter
:06.964 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(2004, org.hibernate.type.descriptor.sql.inter
:06.964 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(2005, org.hibernate.type.descriptor.sql.inter
:06.964 restartedMain DEBUG h.t.d.s.s.DdlTypeRegistry addDescriptor 64 addDescriptor(2011, org.hibernate.type.descriptor.sql.inter
:07.218 restartedMain INFO .p.i.JtaPlatformInitiator initiateService 59 HHH000489: No JTA platform available (set 'hibernate.transa
:07.238 restartedMain INFO rEntityManagerFactoryBean buildNativeEntityManagerFactory 447 Initialized JPA EntityManagerFactory for persistence
:07.352 restartedMain INFO .OptionalLiveReloadServer startServer 59 LiveReload server is running on port 35729
:07.359 restartedMain INFO c.c.o.OrmLearnApplication logStarted 59 Started OrmLearnApplication in 1.188 seconds (process runni
:07.360 restartedMain INFO c.c.o.OrmLearnApplication main 31 Inside main
:07.360 restartedMain INFO c.c.o.OrmLearnApplication testGetAllCountries 39 Start: Get All Countries
:07.411 restartedMain DEBUG org.hibernate.SQL logStatement 135 select c1_0.co_code,c1_0.co_name from country c1_0
:07.424 restartedMain DEBUG c.c.o.OrmLearnApplication testGetAllCountries 41 countries=[Country [code=IN, name=India], Country [code=US,
:07.424 restartedMain INFO c.c.o.OrmLearnApplication testGetAllCountries 42 End: Get All Countries
:07.424 restartedMain INFO c.c.o.OrmLearnApplication testAddEmployee 46 Start: Add Employee
:07.428 restartedMain DEBUG org.hibernate.SQL logStatement 135 select e1_0.id,e1_0.name from employee e1_0 where e1_0.id=
:07.433 restartedMain DEBUG org.hibernate.SQL logStatement 135 insert into employee (name,id) values (?,?)
:07.436 restartedMain INFO c.c.o.OrmLearnApplication testAddEmployee 52 End: Add Employee
:07.436 restartedMain INFO c.c.o.OrmLearnApplication testGetAllEmployees 56 Start: Get All Employees
:07.438 restartedMain DEBUG org.hibernate.SQL logStatement 135 select e1_0.id,e1_0.name from employee e1_0
:07.439 restartedMain DEBUG c.c.o.OrmLearnApplication testGetAllEmployees 58 employees=[com.cognizant.ormlearn.model.Employee@6e139728]
:07.439 restartedMain INFO c.c.o.OrmLearnApplication testGetAllEmployees 59 End: Get All Employees
:07.441 licationShutdownHook INFO rEntityManagerFactoryBean destroy 660 Closing JPA EntityManagerFactory for persistence unit 'defa
:07.442 licationShutdownHook INFO c.z.h.HikariDataSource close 349 HikariPool-1 – Shutdown initiated...
:07.445 licationShutdownHook INFO c.z.h.HikariDataSource close 351 HikariPool-1 – Shutdown completed.
com.cognizant.ormlearn.OrmLearnApplication.java - ormlearn/src/main/java


Limit to 1000 rows
6
7 country INSERT INTO country VALUES ('IN', 'India');
8 INSERT INTO country VALUES ('US', 'United States of America');
9
10 CREATE TABLE employee (
11 id INT PRIMARY KEY,
12 name VARCHAR(100)
13);
14 SELECT * FROM employee;
15
16



A basic CRUD-enabled service using Spring Boot and Spring Data JPA to add and fetch employee records from a MySQL database.