**Exercise 1 : Spring Data JPA – Quick Example**

Spring Data JPA is a Spring-based abstraction built on top of JPA. It simplifies database access significantly by eliminating boilerplate code and reducing the need to write Data Access Objects manually.

Spring Data JPA is a part of the Spring ecosystem that makes working with relational databases much easier by providing a high-level abstraction over the Java Persistence API. It is built on top of JPA and Hibernate, allowing developers to perform common database operations without writing boilerplate code such as Data Access Objects or custom queries for simple tasks. Its Key Characteristics are:

* It uses interfaces like JpaRepository, CrudRepository, PagingAndSortingRepository.
* Automatically implements standard CRUD operations.
* Supports query methods by name and custom queries via @Query.
* Easily integrates with Spring Boot, making configuration minimal and application startup fast.

**Example:**

* We created an Eclipse project using Spring Initializr named **orm-learn**.
* It’s **src/main/resources/application.properties** is :-
* spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
* spring.datasource.url=jdbc:mysql://localhost:3306/ormlearn
* spring.datasource.username=root
* spring.datasource.password=1234
* spring.jpa.hibernate.ddl-auto=validate
* spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.MySQLDialect
* logging.level.org.springframework=info
* logging.level.com.cognizant=debug
* logging.level.org.hibernate.SQL=debug
* logging.level.org.hibernate.type.descriptor.sql=trace
* The MySQL schema is like this :-

**A screenshot of a computer

AI-generated content may be incorrect.**

* It’s main file looks like this :-
* package com.cognizant.ormlearn;
* import java.util.List;
* import org.slf4j.Logger;
* import org.slf4j.LoggerFactory;
* import org.springframework.boot.SpringApplication;
* 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 final Logger ***LOGGER*** = LoggerFactory.*getLogger*(OrmLearnApplication.class);
* private static CountryService *countryService*;
* public static void main(String[] args) {
* ApplicationContext context = SpringApplication.*run*(OrmLearnApplication.class, args);
* *countryService* = context.getBean(CountryService.class);
* *testGetAllCountries*();
* }
* private static void testGetAllCountries() {
* ***LOGGER***.info("Start");
* List<Country> countries = *countryService*.getAllCountries();
* ***LOGGER***.debug("Countries = {}", countries);
* ***LOGGER***.info("End");
* }
* }