Exercise: Spring Data JPA - Quick Example (Hibernate with MySQL)

Step 1: Create Project using Spring Initializr

I went to https://start.spring.io and filled the fields:

- Group: `com.cognizant`
- Artifact: `orm-learn`
- Description: Demo project for Spring Data JPA and Hibernate

Selected dependencies:

- Spring Boot DevTools
- Spring Data JPA
- MySQL Driver

Then I clicked **Generate** and downloaded the project zip. Extracted it and opened from Eclipse using File > Import > Maven > Existing Maven Project.

Step 2: Create Schema in MySQL

In MySQL client I ran:

create schema ormlearn;

Step 3: Modify application.properties

In `src/main/resources/application.properties` file, I pasted below content:

Logging

```
logging.level.org.springframework=info
logging.level.com.cognizant=debug
logging.level.org.hibernate.SQL=trace
logging.level.org.hibernate.type.descriptor.sql=trace

# Log pattern
logging.pattern.console=%d{dd-MM-yy} %d{HH:mm:ss.SSS} %-20.20thread %5p
%-25.25logger{25} %25M %4L %m%n

# Database settings
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=root

# Hibernate
spring.jpa.hibernate.ddl-auto=validate
spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.MySQL5Dialect
```

Step 4: Build the Project

In terminal I ran (I didn't use proxy though):

```
mvn clean package
```

Step 5: Add Log to Main Method

In `OrmLearnApplication.java` I added:

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;

@SpringBootApplication
public class OrmLearnApplication {

    private static final Logger LOGGER =
LoggerFactory.getLogger(OrmLearnApplication.class);

    public static void main(String[] args) {
        SpringApplication.run(OrmLearnApplication.class, args);
        LOGGER.info("Inside main");
```

```
    }
}
```

Ran the app and saw `Inside main` printed in logs.

Step 6: Create Table in MySQL

```
create table country (
  co_code varchar(2) primary key,
  co_name varchar(50)
);

insert into country values ('IN', 'India');
insert into country values ('US', 'United States of America');
```

Step 7: Create Country Entity

Created package `com.cognizant.ormlearn.model` and added `Country.java`:

```
package com.cognizant.ormlearn.model;

import javax.persistence.*;

@Entity
@Table(name = "country")
public class Country {

    @Id
    @Column(name = "co_code")
    private String code;

    @Column(name = "co_name")
    private String name;

    public String getCode() {
        return code;
    }
    public void setCode(String code) {
        this.code = code;
    }
```

```
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }

    @Override
    public String toString() {
        return "Country [code=" + code + ", name=" + name + "]";
    }
}
```

Step 8: Create Repository

Created `com.cognizant.ormlearn.repository` package and added:

```
package com.cognizant.ormlearn.repository;

import org.springframework.data.jpa.repository.JpaRepository;
import org.springframework.stereotype.Repository;
import com.cognizant.ormlearn.model.Country;

@Repository
public interface CountryRepository extends JpaRepository<Country, String> {

}
```

Step 9: Create Service

Made `com.cognizant.ormlearn.service` package and added:

```
package com.cognizant.ormlearn.service;

import java.util.List;

import javax.transaction.Transactional;

import org.springframework.beans.factory.annotation.Autowired;
```

```
import org.springframework.stereotype.Service;

import com.cognizant.ormlearn.model.Country;
import com.cognizant.ormlearn.repository.CountryRepository;

@Service
public class CountryService {

    @Autowired
    private CountryRepository countryRepository;

    @Transactional
    public List<Country> getAllCountries() {
        return countryRepository.findAll();
    }
}
```

Step 10: Test Inside Main Class

Back in `OrmLearnApplication.java`, added:

```
import com.cognizant.ormlearn.service.CountryService;
import com.cognizant.ormlearn.model.Country;
import java.util.List;
import org.springframework.context.ApplicationContext;

public class OrmLearnApplication {

    private static CountryService countryService;

    private static final Logger LOGGER =
LoggerFactory.getLogger(OrmLearnApplication.class);

    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");
    }
}
```

Output in Console

```
Inside main
Start
countries=[Country [code=IN, name=India], Country [code=US, name=United States of America]]
End
```