**1.Spring Data JPA - Quick Example**

**MySql:**

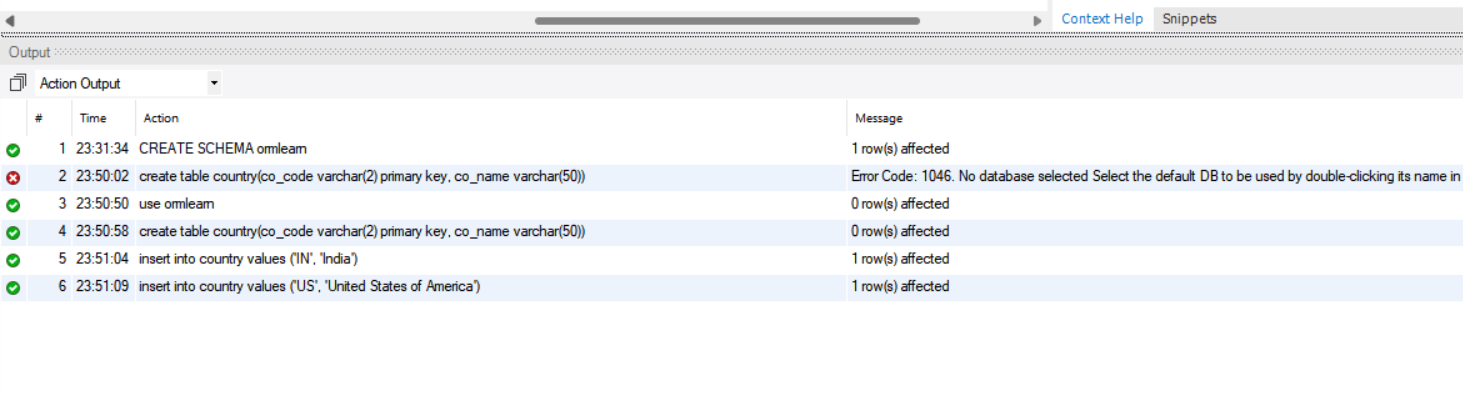
CREATE SCHEMA ormlearn;

use ormlearn;

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');



**ormApplication.java**

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");

}

}

model.Country.java

package com.cognizant.ormlearn.model;

import jakarta.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 + "]";

}

}

**Repository.CountryRepository.java**

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> {

}

**Service.CountryService.java**

package com.cognizant.ormlearn.service;

import java.util.List;

import jakarta.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();

}

}

**applicationproperties**

# Spring logs

logging.level.org.springframework=info

logging.level.com.cognizant=debug

# Hibernate logs

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

spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver

spring.datasource.url=jdbc:mysql://localhost:3306/ormlearn

spring.datasource.username=root

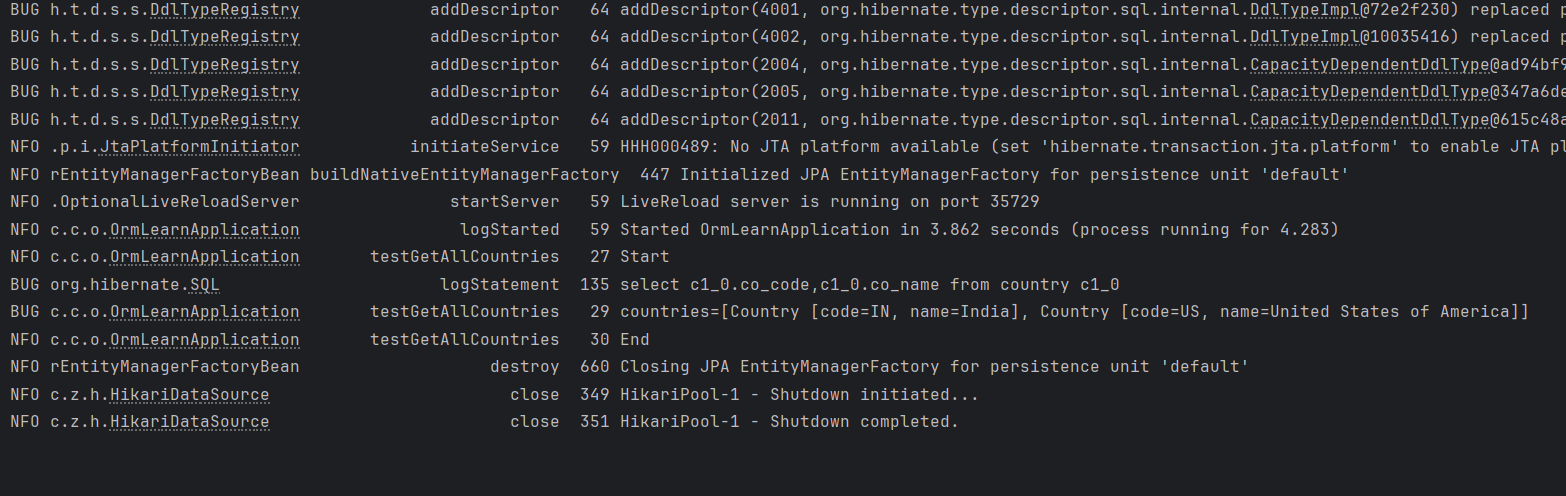
spring.datasource.password=GABB2004

# Hibernate

spring.jpa.hibernate.ddl-auto=validate

spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.MySQLDialect

**Output:**



**Implement services for managing Country**

**ormApplication.java**

package com.cognizant.ormlearn;

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.exception.CountryNotFoundException;

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);

try {

testCountryFeatures();

} catch (CountryNotFoundException e) {

LOGGER.error("Country not found", e);

}

}

private static void testCountryFeatures() throws CountryNotFoundException {

LOGGER.info("Start");

Country country = countryService.findCountryByCode("IN");

LOGGER.debug("Country found: {}", country);

Country newCountry = new Country("NP", "Nepal");

countryService.addCountry(newCountry);

LOGGER.debug("Added country: {}", newCountry);

countryService.updateCountry("NP", "Federal Democratic Republic of Nepal");

LOGGER.debug("Updated country: {}", countryService.findCountryByCode("NP"));

countryService.deleteCountry("NP");

LOGGER.debug("Deleted country with code NP");

LOGGER.debug("Countries containing 'an': {}", countryService.findCountriesByPartialName("an"));

LOGGER.info("End");

}

}

**CountryNotFoundException.java**

package com.cognizant.ormlearn.exception;

public class CountryNotFoundException extends Exception {

public CountryNotFoundException(String message) {

super(message);

}

}

**Country.java**

package com.cognizant.ormlearn.model;

import jakarta.persistence.\*;

@Entity

@Table(name = "country")

public class Country {

@Id

@Column(name = "co\_code")

private String code;

@Column(name = "co\_name")

private String name;

public Country() {

}

public Country(String code, String name) {

this.code = code;

this.name = 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 + "]";

}

}

**CountryService.java**

package com.cognizant.ormlearn.service;

import com.cognizant.ormlearn.exception.CountryNotFoundException;

import com.cognizant.ormlearn.model.Country;

import com.cognizant.ormlearn.repository.CountryRepository;

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

import org.springframework.stereotype.Service;

import org.springframework.transaction.annotation.Transactional;

import java.util.List;

@Service

public class CountryService {

@Autowired

private CountryRepository countryRepository;

@Transactional

public Country findCountryByCode(String code) throws CountryNotFoundException {

return countryRepository.findById(code)

.orElseThrow(() -> new CountryNotFoundException("Country code not found: " + code));

}

@Transactional

public void addCountry(Country country) {

countryRepository.save(country);

}

@Transactional

public void updateCountry(String code, String newName) throws CountryNotFoundException {

Country country = findCountryByCode(code);

country.setName(newName);

countryRepository.save(country);

}

@Transactional

public void deleteCountry(String code) throws CountryNotFoundException {

Country country = findCountryByCode(code);

countryRepository.delete(country);

}

@Transactional

public List<Country> findCountriesByPartialName(String partialName) {

return countryRepository.findByNameContainingIgnoreCase(partialName);

}

}

**CountryRepository.java**

package com.cognizant.ormlearn.repository;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.stereotype.Repository;

import java.util.List;

import com.cognizant.ormlearn.model.Country;

@Repository

public interface CountryRepository extends JpaRepository<Country, String> {

List<Country> findByNameContainingIgnoreCase(String name);

}

**Output:**

