**Hands on 5**

**Implement services for managing Country**

1. Country.java

package com.cognizant.orm\_learn.model;

import jakarta.persistence.Column;

import jakarta.persistence.Entity;

import jakarta.persistence.Id;

import jakarta.persistence.Table;

@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 + "]";

    }

}

1. CountryRepository.java

package com.cognizant.orm\_learn.repository;

import java.util.List;

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

import com.cognizant.orm\_learn.model.Country;

public interface CountryRepository extends JpaRepository<Country, String> {

List<Country> findByNameContainingIgnoreCase(String keyword);

}

1. CountryService.java

package com.cognizant.orm\_learn.service;

import java.util.List;

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

import org.springframework.stereotype.Service;

import org.springframework.transaction.annotation.Transactional;

import com.cognizant.orm\_learn.model.Country;

import com.cognizant.orm\_learn.repository.CountryRepository;

@Service

public class CountryService {

    @Autowired

    private CountryRepository countryRepository;

    @Transactional

    public List<Country> getAllCountries() {

        return countryRepository.findAll();

    }

    @Transactional

    public Country findCountryByCode(String code) throws Exception {

        return countryRepository.findById(code)

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

    }

    @Transactional

    public void addCountry(Country country) {

        countryRepository.save(country);

    }

    @Transactional

    public void updateCountry(String code, String name) throws Exception {

        Country country = findCountryByCode(code);

        country.setName(name);

        countryRepository.save(country);

    }

    @Transactional

    public void deleteCountry(String code) {

        countryRepository.deleteById(code);

    }

    @Transactional

    public List<Country> findCountriesByName(String keyword) {

        return countryRepository.findByNameContainingIgnoreCase(keyword);

    }

}

1. OrmLearnApplication.java

package com.cognizant.orm\_learn;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.context.ApplicationContext;

import com.cognizant.orm\_learn.model.Country;

import com.cognizant.orm\_learn.service.CountryService;

@SpringBootApplication

public class OrmLearnApplication {

    public static void main(String[] args) throws Exception {

        ApplicationContext context = SpringApplication.run(OrmLearnApplication.class, args);

        CountryService service = context.getBean(CountryService.class);

        System.out.println("== All Countries ==");

        service.getAllCountries().forEach(System.out::println);

        System.out.println("== Add Country ==");

        Country newC = new Country();

        newC.setCode("ZZ");

        newC.setName("Zanadia");

        service.addCountry(newC);

        System.out.println("== Find ZZ ==");

        System.out.println(service.findCountryByCode("ZZ"));

        System.out.println("== Update ZZ ==");

        service.updateCountry("ZZ", "Zanzibar");

        System.out.println(service.findCountryByCode("ZZ"));

        System.out.println("== Search name contains 'land' ==");

        service.findCountriesByName("land").forEach(System.out::println);

        System.out.println("== Delete ZZ ==");

        service.deleteCountry("ZZ");

    }

}

1. Application.properties

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

spring.datasource.username=root

spring.datasource.password=root

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

spring.jpa.hibernate.ddl-auto=validate

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

logging.level.org.hibernate.SQL=debug

1. Output:

A screenshot of a computer program

AI-generated content may be incorrect.

== All Countries ==

2025-07-06T08:14:54.805+05:30 DEBUG 15440 --- [ restartedMain] org.hibernate.SQL : select c1\_0.co\_code,c1\_0.co\_name from country c1\_0

Country [code=AD, name=Andorra]

Country [code=AE, name=United Arab Emirates]

Country [code=AF, name=Afghanistan]

Country [code=AG, name=Antigua and Barbuda]

Country [code=AI, name=Anguilla]

Country [code=AL, name=Albania]

Country [code=AM, name=Armenia]

Country [code=AO, name=Angola]

Country [code=AQ, name=Antarctica]

Country [code=AR, name=Argentina]

Country [code=AS, name=American Samoa]

Country [code=AT, name=Austria]

Country [code=AU, name=Australia]

Country [code=AW, name=Aruba]

Country [code=AX, name=Åland Islands]

Country [code=AZ, name=Azerbaijan]

Country [code=BA, name=Bosnia and Herzegovina]

Country [code=BB, name=Barbados]

Country [code=BD, name=Bangladesh]

Country [code=BE, name=Belgium]

Country [code=BF, name=Burkina Faso]

Country [code=BG, name=Bulgaria]

Country [code=BH, name=Bahrain]

Country [code=BI, name=Burundi]

Country [code=BJ, name=Benin]

Country [code=BL, name=Saint Barthélemy]

Country [code=BM, name=Bermuda]

Country [code=BN, name=Brunei Darussalam]

Country [code=BO, name=Bolivia, Plurinational

State of]

Country [code=BQ, name=Bonaire, Sint Eustatius

and Saba]

Country [code=BR, name=Brazil]

Country [code=BS, name=Bahamas]

Country [code=BT, name=Bhutan]

Country [code=BV, name=Bouvet Island]

Country [code=BW, name=Botswana]

Country [code=BY, name=Belarus]

Country [code=BZ, name=Belize]

Country [code=CA, name=Canada]

Country [code=CC, name=Cocos (Keeling)

Islands]

Country [code=CD, name=Congo, the Democratic

Republic of the]

Country [code=CF, name=Central African

Republic]

Country [code=CG, name=Congo]

Country [code=CH, name=Switzerland]

Country [code=CI, name=Côte d'Ivoire]

Country [code=CK, name=Cook Islands]

Country [code=CL, name=Chile]

Country [code=CM, name=Cameroon]

Country [code=CN, name=China]

Country [code=CO, name=Colombia]

Country [code=CR, name=Costa Rica]

Country [code=CU, name=Cuba]

Country [code=CV, name=Cape Verde]

Country [code=CW, name=Curaçao]

Country [code=CX, name=Christmas Island]

Country [code=CY, name=Cyprus]

Country [code=CZ, name=Czech Republic]

Country [code=DE, name=Germany]

Country [code=DJ, name=Djibouti]

Country [code=DK, name=Denmark]

Country [code=DM, name=Dominica]

Country [code=DO, name=Dominican Republic]

Country [code=DZ, name=Algeria]

Country [code=EC, name=Ecuador]

Country [code=EE, name=Estonia]

Country [code=EG, name=Egypt]

Country [code=EH, name=Western Sahara]

Country [code=ER, name=Eritrea]

Country [code=ES, name=Spain]

Country [code=ET, name=Ethiopia]

Country [code=FI, name=Finland]

Country [code=FJ, name=Fiji]

Country [code=FK, name=Falkland Islands

(Malvinas)]

Country [code=FM, name=Micronesia, Federated

States of]

Country [code=FO, name=Faroe Islands]

Country [code=FR, name=France]

Country [code=GA, name=Gabon]

Country [code=GB, name=United Kingdom]

Country [code=GD, name=Grenada]

Country [code=GE, name=Georgia]

Country [code=GF, name=French Guiana]

Country [code=GG, name=Guernsey]

Country [code=GH, name=Ghana]

Country [code=GI, name=Gibraltar]

Country [code=GL, name=Greenland]

Country [code=GM, name=Gambia]

Country [code=GN, name=Guinea]

Country [code=GP, name=Guadeloupe]

Country [code=GQ, name=Equatorial Guinea]

Country [code=GR, name=Greece]

Country [code=GS, name=South Georgia and the

South Sandwich Islands]

Country [code=GT, name=Guatemala]

Country [code=GU, name=Guam]

Country [code=GW, name=Guinea-Bissau]

Country [code=GY, name=Guyana]

Country [code=HK, name=Hong Kong]

Country [code=HM, name=Heard Island and McDonald

Islands]

Country [code=HN, name=Honduras]

Country [code=HR, name=Croatia]

Country [code=HT, name=Haiti]

Country [code=HU, name=Hungary]

Country [code=ID, name=Indonesia]

Country [code=IE, name=Ireland]

Country [code=IL, name=Israel]

Country [code=IM, name=Isle of Man]

Country [code=IN, name=India]

Country [code=IO, name=British Indian Ocean

Territory]

Country [code=IQ, name=Iraq]

Country [code=IR, name=Iran, Islamic Republic

of]

Country [code=IS, name=Iceland]

Country [code=IT, name=Italy]

Country [code=JE, name=Jersey]

Country [code=JM, name=Jamaica]

Country [code=JO, name=Jordan]

Country [code=JP, name=Japan]

Country [code=KE, name=Kenya]

Country [code=KG, name=Kyrgyzstan]

Country [code=KH, name=Cambodia]

Country [code=KI, name=Kiribati]

Country [code=KM, name=Comoros]

Country [code=KN, name=Saint Kitts and Nevis]

Country [code=KP, name=Democratic People's

Republic of Korea]

Country [code=KR, name=Republic of Korea]

Country [code=KW, name=Kuwait]

Country [code=KY, name=Cayman Islands]

Country [code=KZ, name=Kazakhstan]

Country [code=LA, name=Lao People's Democratic

Republic]

Country [code=LB, name=Lebanon]

Country [code=LC, name=Saint Lucia]

Country [code=LI, name=Liechtenstein]

Country [code=LK, name=Sri Lanka]

Country [code=LR, name=Liberia]

Country [code=LS, name=Lesotho]

Country [code=LT, name=Lithuania]

Country [code=LU, name=Luxembourg]

Country [code=LV, name=Latvia]

Country [code=LY, name=Libya]

Country [code=MA, name=Morocco]

Country [code=MC, name=Monaco]

Country [code=MD, name=Moldova, Republic of]

Country [code=ME, name=Montenegro]

Country [code=MF, name=Saint Martin (French

part)]

Country [code=MG, name=Madagascar]

Country [code=MH, name=Marshall Islands]

Country [code=MK, name=Macedonia, the Former

Yugoslav Republic of]

Country [code=ML, name=Mali]

Country [code=MM, name=Myanmar]

Country [code=MN, name=Mongolia]

Country [code=MO, name=Macao]

Country [code=MP, name=Northern Mariana

Islands]

Country [code=MQ, name=Martinique]

Country [code=MR, name=Mauritania]

Country [code=MS, name=Montserrat]

Country [code=MT, name=Malta]

Country [code=MU, name=Mauritius]

Country [code=MV, name=Maldives]

Country [code=MW, name=Malawi]

Country [code=MX, name=Mexico]

Country [code=MY, name=Malaysia]

Country [code=MZ, name=Mozambique]

Country [code=NA, name=Namibia]

Country [code=NC, name=New Caledonia]

Country [code=NE, name=Niger]

Country [code=NF, name=Norfolk Island]

Country [code=NG, name=Nigeria]

Country [code=NI, name=Nicaragua]

Country [code=NL, name=Netherlands]

Country [code=NO, name=Norway]

Country [code=NP, name=Nepal]

Country [code=NR, name=Nauru]

Country [code=NU, name=Niue]

Country [code=NZ, name=New Zealand]

Country [code=OM, name=Oman]

Country [code=PA, name=Panama]

Country [code=PE, name=Peru]

Country [code=PF, name=French Polynesia]

Country [code=PG, name=Papua New Guinea]

Country [code=PH, name=Philippines]

Country [code=PK, name=Pakistan]

Country [code=PL, name=Poland]

Country [code=PM, name=Saint Pierre and

Miquelon]

Country [code=PN, name=Pitcairn]

Country [code=PR, name=Puerto Rico]

Country [code=PS, name=Palestine, State of]

Country [code=PT, name=Portugal]

Country [code=PW, name=Palau]

Country [code=PY, name=Paraguay]

Country [code=QA, name=Qatar]

Country [code=RE, name=Réunion]

Country [code=RO, name=Romania]

Country [code=RS, name=Serbia]

Country [code=RU, name=Russian Federation]

Country [code=RW, name=Rwanda]

Country [code=SA, name=Saudi Arabia]

Country [code=SB, name=Solomon Islands]

Country [code=SC, name=Seychelles]

Country [code=SD, name=Sudan]

Country [code=SE, name=Sweden]

Country [code=SG, name=Singapore]

Country [code=SH, name=Saint Helena, Ascension

and Tristan da Cunha]

Country [code=SI, name=Slovenia]

Country [code=SJ, name=Svalbard and Jan Mayen]

Country [code=SK, name=Slovakia]

Country [code=SL, name=Sierra Leone]

Country [code=SM, name=San Marino]

Country [code=SN, name=Senegal]

Country [code=SO, name=Somalia]

Country [code=SR, name=Suriname]

Country [code=SS, name=South Sudan]

Country [code=ST, name=Sao Tome and Principe]

Country [code=SV, name=El Salvador]

Country [code=SX, name=Sint Maarten (Dutch

part)]

Country [code=SY, name=Syrian Arab Republic]

Country [code=SZ, name=Swaziland]

Country [code=TC, name=Turks and Caicos

Islands]

Country [code=TD, name=Chad]

Country [code=TF, name=French Southern

Territories]

Country [code=TG, name=Togo]

Country [code=TH, name=Thailand]

Country [code=TJ, name=Tajikistan]

Country [code=TK, name=Tokelau]

Country [code=TL, name=Timor-Leste]

Country [code=TM, name=Turkmenistan]

Country [code=TN, name=Tunisia]

Country [code=TO, name=Tonga]

Country [code=TR, name=Turkey]

Country [code=TT, name=Trinidad and Tobago]

Country [code=TV, name=Tuvalu]

Country [code=TW, name=Taiwan, Province of

China]

Country [code=TZ, name=Tanzania, United Republic

of]

Country [code=UA, name=Ukraine]

Country [code=UG, name=Uganda]

Country [code=UM, name=United States Minor

Outlying Islands]

Country [code=US, name=United States]

Country [code=UY, name=Uruguay]

Country [code=UZ, name=Uzbekistan]

Country [code=VA, name=Holy See (Vatican City

State)]

Country [code=VC, name=Saint Vincent and the

Grenadines]

Country [code=VE, name=Venezuela, Bolivarian

Republic of]

Country [code=VG, name=Virgin Islands,

British]

Country [code=VI, name=Virgin Islands, U.S.]

Country [code=VN, name=Viet Nam]

Country [code=VU, name=Vanuatu]

Country [code=WF, name=Wallis and Futuna]

Country [code=WS, name=Samoa]

Country [code=YE, name=Yemen]

Country [code=YT, name=Mayotte]

Country [code=ZA, name=South Africa]

Country [code=ZM, name=Zambia]

Country [code=ZW, name=Zimbabwe]

== Add Country ==

2025-07-06T08:14:55.069+05:30 DEBUG 15440 --- [ restartedMain] org.hibernate.SQL : select c1\_0.co\_code,c1\_0.co\_name from country c1\_0 where c1\_0.co\_code=?

2025-07-06T08:14:55.086+05:30 DEBUG 15440 --- [ restartedMain] org.hibernate.SQL : insert into country (co\_name,co\_code) values (?,?)

== Find ZZ ==

2025-07-06T08:14:55.120+05:30 DEBUG 15440 --- [ restartedMain] org.hibernate.SQL : select c1\_0.co\_code,c1\_0.co\_name from country c1\_0 where c1\_0.co\_code=?

Country [code=ZZ, name=Zanadia]

== Update ZZ ==

2025-07-06T08:14:55.133+05:30 DEBUG 15440 --- [ restartedMain] org.hibernate.SQL : select c1\_0.co\_code,c1\_0.co\_name from country c1\_0 where c1\_0.co\_code=?

2025-07-06T08:14:55.145+05:30 DEBUG 15440 --- [ restartedMain] org.hibernate.SQL : update country set co\_name=? where co\_code=?

2025-07-06T08:14:55.162+05:30 DEBUG 15440 --- [ restartedMain] org.hibernate.SQL : select c1\_0.co\_code,c1\_0.co\_name from country c1\_0 where c1\_0.co\_code=?

Country [code=ZZ, name=Zanzibar]

== Search name contains 'land' ==

2025-07-06T08:14:55.219+05:30 DEBUG 15440 --- [ restartedMain] org.hibernate.SQL : select c1\_0.co\_code,c1\_0.co\_name from country c1\_0 where upper(c1\_0.co\_name) like upper(?) escape '\\'

Country [code=AX, name=Åland Islands]

Country [code=BV, name=Bouvet Island]

Country [code=CC, name=Cocos (Keeling)

Islands]

Country [code=CH, name=Switzerland]

Country [code=CK, name=Cook Islands]

Country [code=CX, name=Christmas Island]

Country [code=FI, name=Finland]

Country [code=FK, name=Falkland Islands

(Malvinas)]

Country [code=FO, name=Faroe Islands]

Country [code=GL, name=Greenland]

Country [code=GS, name=South Georgia and the

South Sandwich Islands]

Country [code=HM, name=Heard Island and McDonald

Islands]

Country [code=IE, name=Ireland]

Country [code=IS, name=Iceland]

Country [code=KY, name=Cayman Islands]

Country [code=MH, name=Marshall Islands]

Country [code=MP, name=Northern Mariana

Islands]

Country [code=NF, name=Norfolk Island]

Country [code=NL, name=Netherlands]

Country [code=NZ, name=New Zealand]

Country [code=PL, name=Poland]

Country [code=SB, name=Solomon Islands]

Country [code=SZ, name=Swaziland]

Country [code=TC, name=Turks and Caicos

Islands]

Country [code=TH, name=Thailand]

Country [code=UM, name=United States Minor

Outlying Islands]

Country [code=VG, name=Virgin Islands,

British]

Country [code=VI, name=Virgin Islands, U.S.]

== Delete ZZ ==