**Hands on 4**

**Difference between JPA, Hibernate and Spring Data**

**JPA**

1. Country.java

package com.example.springdatajpa.model;

import jakarta.persistence.Entity;

import jakarta.persistence.Id;

@Entity

public class Country {

    @Id

    private String code;

    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;

    }

}

1. Application.properties

spring.datasource.url=jdbc:h2:mem:testdb

spring.datasource.driverClassName=org.h2.Driver

spring.datasource.username=root

spring.datasource.password=root

spring.jpa.database-platform=org.hibernate.dialect.H2Dialect

spring.jpa.hibernate.ddl-auto=update

logging.level.org.hibernate.SQL=debug

1. SpringDataJpaApplication.java

package com.example.springdatajpa;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication

public class SpringDataJpaApplication {

    public static void main(String[] args) {

        SpringApplication.run(SpringDataJpaApplication.class, args);

    }

}

1. JpaRunner.java

package com.example.springdatajpa;

import com.example.springdatajpa.model.Country;

import com.example.springdatajpa.repository.CountryRepository;

import org.springframework.boot.CommandLineRunner;

import org.springframework.stereotype.Component;

@Component

public class JpaRunner implements CommandLineRunner {

    private final CountryRepository countryRepo;

    public JpaRunner(CountryRepository countryRepo) {

        this.countryRepo = countryRepo;

    }

    @Override

    public void run(String... args) throws Exception {

        Country c1 = new Country();

        c1.setCode("IN");

        c1.setName("India");

        Country c2 = new Country();

        c2.setCode("US");

        c2.setName("United States");

        countryRepo.save(c1);

        countryRepo.save(c2);

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

        countryRepo.findAll().forEach(c -> System.out.println(c.getCode() + " - " + c.getName()));

        System.out.println("== Search by name containing 'Uni' ==");

        countryRepo.findByNameContainingIgnoreCase("uni").forEach(c -> System.out.println(c.getCode() + " - " + c.getName()));

    }

}

1. CountryRepository.java

package com.example.springdatajpa.repository;

import com.example.springdatajpa.model.Country;

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

import java.util.List;

public interface CountryRepository extends JpaRepository<Country, String> {

    List<Country> findByNameContainingIgnoreCase(String keyword);

}

1. Output:

A computer screen shot of text

AI-generated content may be incorrect.

2025-07-06T13:40:36.636+05:30 INFO 3504 --- [ main] c.e.s.SpringDataJpaApplication : Starting SpringDataJpaApplication using Java 24.0.1 with PID 3504 (M:\JPA2\spring-data-jpa\target\classes started by ksvis in M:\JPA2\spring-data-jpa)

2025-07-06T13:40:36.637+05:30 INFO 3504 --- [ main] c.e.s.SpringDataJpaApplication : No active profile set, falling back to 1 default profile: "default"

2025-07-06T13:40:36.949+05:30 INFO 3504 --- [ main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in DEFAULT mode.

2025-07-06T13:40:37.005+05:30 INFO 3504 --- [ main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 48 ms. Found 1 JPA repository interface.

2025-07-06T13:40:37.309+05:30 INFO 3504 --- [ main] o.hibernate.jpa.internal.util.LogHelper : HHH000204: Processing PersistenceUnitInfo [name: default]

2025-07-06T13:40:37.353+05:30 INFO 3504 --- [ main] org.hibernate.Version : HHH000412: Hibernate ORM core version 6.4.4.Final

2025-07-06T13:40:37.386+05:30 INFO 3504 --- [ main] o.h.c.internal.RegionFactoryInitiator : HHH000026: Second-level cache disabled

2025-07-06T13:40:37.609+05:30 INFO 3504 --- [ main] o.s.o.j.p.SpringPersistenceUnitInfo : No LoadTimeWeaver setup: ignoring JPA class transformer

2025-07-06T13:40:37.626+05:30 INFO 3504 --- [ main] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Starting...

2025-07-06T13:40:37.746+05:30 INFO 3504 --- [ main] com.zaxxer.hikari.pool.HikariPool : HikariPool-1 - Added connection conn0: url=jdbc:h2:mem:testdb user=ROOT

2025-07-06T13:40:37.747+05:30 INFO 3504 --- [ main] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Start completed.

2025-07-06T13:40:37.761+05:30 WARN 3504 --- [ main] org.hibernate.orm.deprecation : HHH90000025: H2Dialect does not need to be specified explicitly using 'hibernate.dialect' (remove the property setting and it will be selected by default)

2025-07-06T13:40:38.366+05:30 INFO 3504 --- [ main] o.h.e.t.j.p.i.JtaPlatformInitiator : HHH000489: No JTA platform available (set 'hibernate.transaction.jta.platform' to enable JTA platform integration)

2025-07-06T13:40:38.406+05:30 DEBUG 3504 --- [ main] org.hibernate.SQL : create table country (code varchar(255) not null, name varchar(255), primary key (code))

2025-07-06T13:40:38.411+05:30 INFO 3504 --- [ main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'default'

2025-07-06T13:40:38.713+05:30 INFO 3504 --- [ main] c.e.s.SpringDataJpaApplication : Started SpringDataJpaApplication in 2.486 seconds (process running for 2.784)

2025-07-06T13:40:38.753+05:30 DEBUG 3504 --- [ main] org.hibernate.SQL : select c1\_0.code,c1\_0.name from country c1\_0 where c1\_0.code=?

2025-07-06T13:40:38.773+05:30 DEBUG 3504 --- [ main] org.hibernate.SQL : insert into country (name,code) values (?,?)

2025-07-06T13:40:38.779+05:30 DEBUG 3504 --- [ main] org.hibernate.SQL : select c1\_0.code,c1\_0.name from country c1\_0 where c1\_0.code=?

2025-07-06T13:40:38.780+05:30 DEBUG 3504 --- [ main] org.hibernate.SQL : insert into country (name,code) values (?,?)

== All Countries ==

2025-07-06T13:40:38.825+05:30 DEBUG 3504 --- [ main] org.hibernate.SQL : select c1\_0.code,c1\_0.name from country c1\_0

IN - India

US - United States

== Search by name containing 'Uni' ==

2025-07-06T13:40:38.872+05:30 DEBUG 3504 --- [ main] org.hibernate.SQL : select c1\_0.code,c1\_0.name from country c1\_0 where upper(c1\_0.name) like upper(?) escape '\'

US - United States

2025-07-06T13:40:38.877+05:30 INFO 3504 --- [ionShutdownHook] j.LocalContainerEntityManagerFactoryBean : Closing JPA EntityManagerFactory for persistence unit 'default'

2025-07-06T13:40:38.879+05:30 INFO 3504 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Shutdown initiated...

2025-07-06T13:40:38.881+05:30 INFO 3504 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Shutdown completed.