**Hands on 1**

**Spring Data JPA - Quick Example  
  
Queries:**

SHOW DATABASES;

CREATE TABLE country (

code VARCHAR(2) PRIMARY KEY,

name VARCHAR(50)

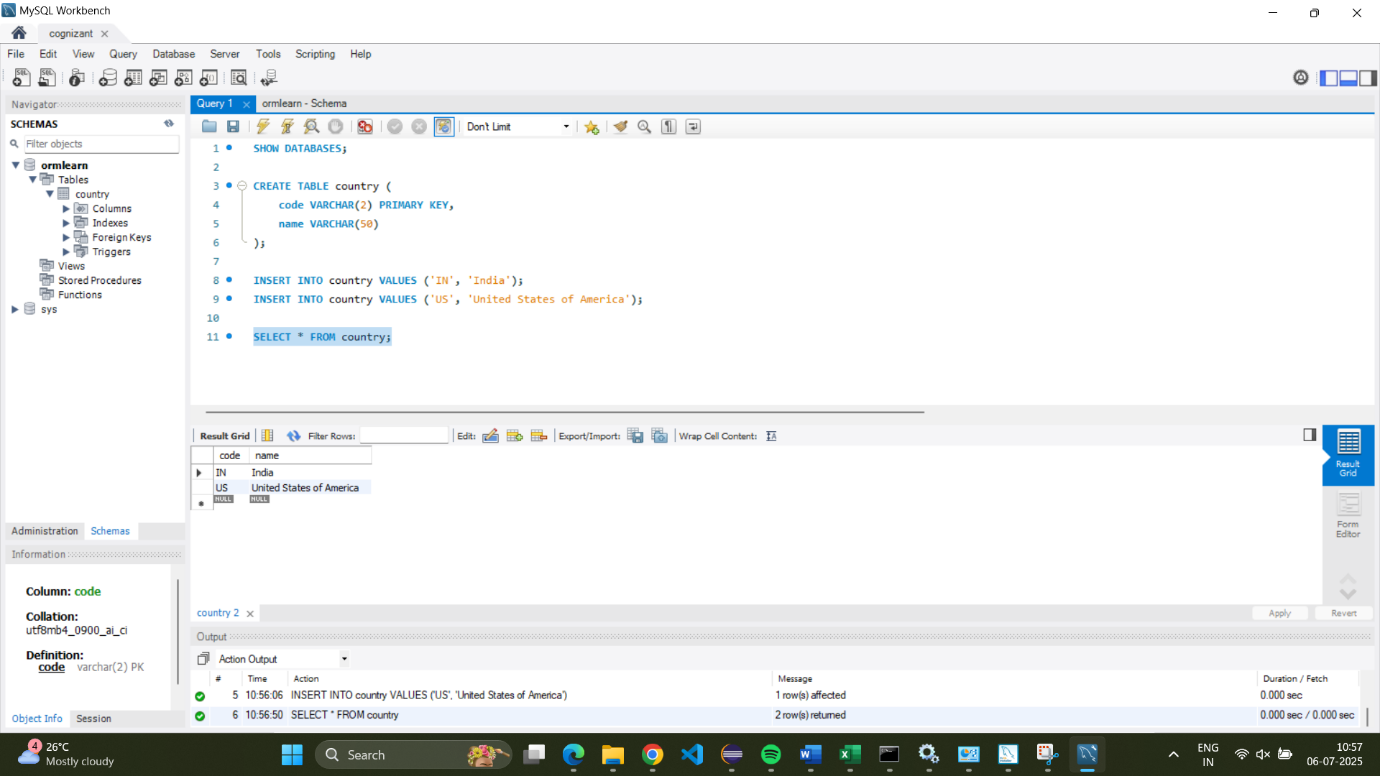
);

INSERT INTO country VALUES ('IN', 'India');

INSERT INTO country VALUES ('US', 'United States of America');

SELECT \* FROM country;

**Output:**

****

**Code:**

application.properties

# Spring Framework and application logs

logging.level.org.springframework=info

logging.level.com.cognizant=debug

# Hibernate logs for displaying executed SQL, input, and output

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 configuration

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=TaRuN@29

# \u2705 Updated Hibernate dialect for Spring Boot 3.x and Hibernate 6+

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

# Hibernate schema validation

spring.jpa.hibernate.ddl-auto=validate

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 = "code")

private String code;

*@Column*(name = "name")

private String name;

// Getters and setters

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;

}

// toString

*@Override*

public String toString() {

return "Country [code=" + code + ", name=" + name + "]";

}

}

CountryRepository.java

package com.cognizant.orm\_learn.repository;

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

import org.springframework.stereotype.Repository;

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

*@Repository*

public interface CountryRepository extends JpaRepository<Country, String> {

}

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();

}

}

OrmLearnApplication.java

package com.cognizant.orm\_learn;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

import org.springframework.context.ApplicationContext;

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

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

import java.util.List;

*@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();

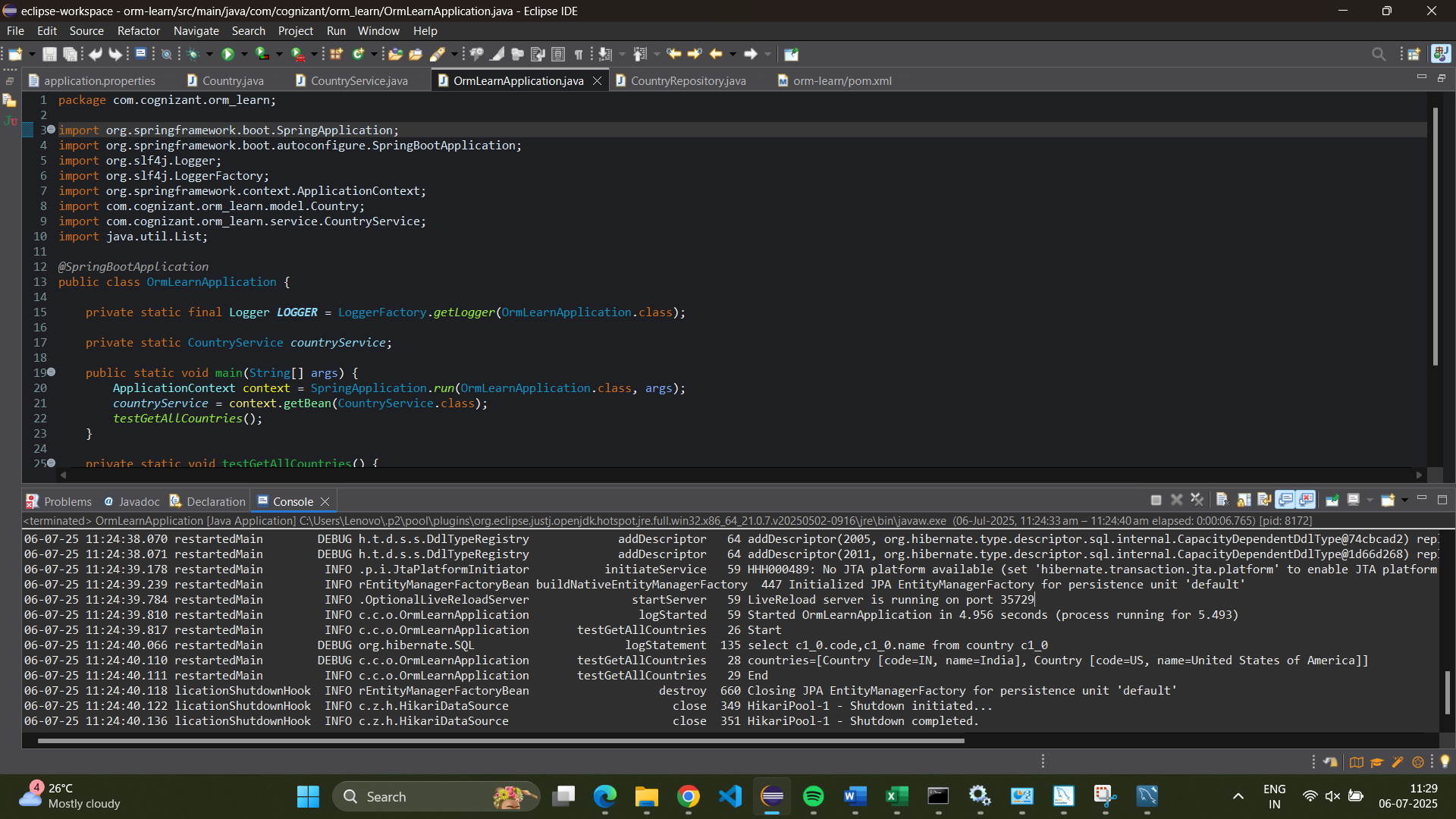
***LOGGER***.debug("countries={}", countries);

***LOGGER***.info("End");

}

}

**Output:**

****

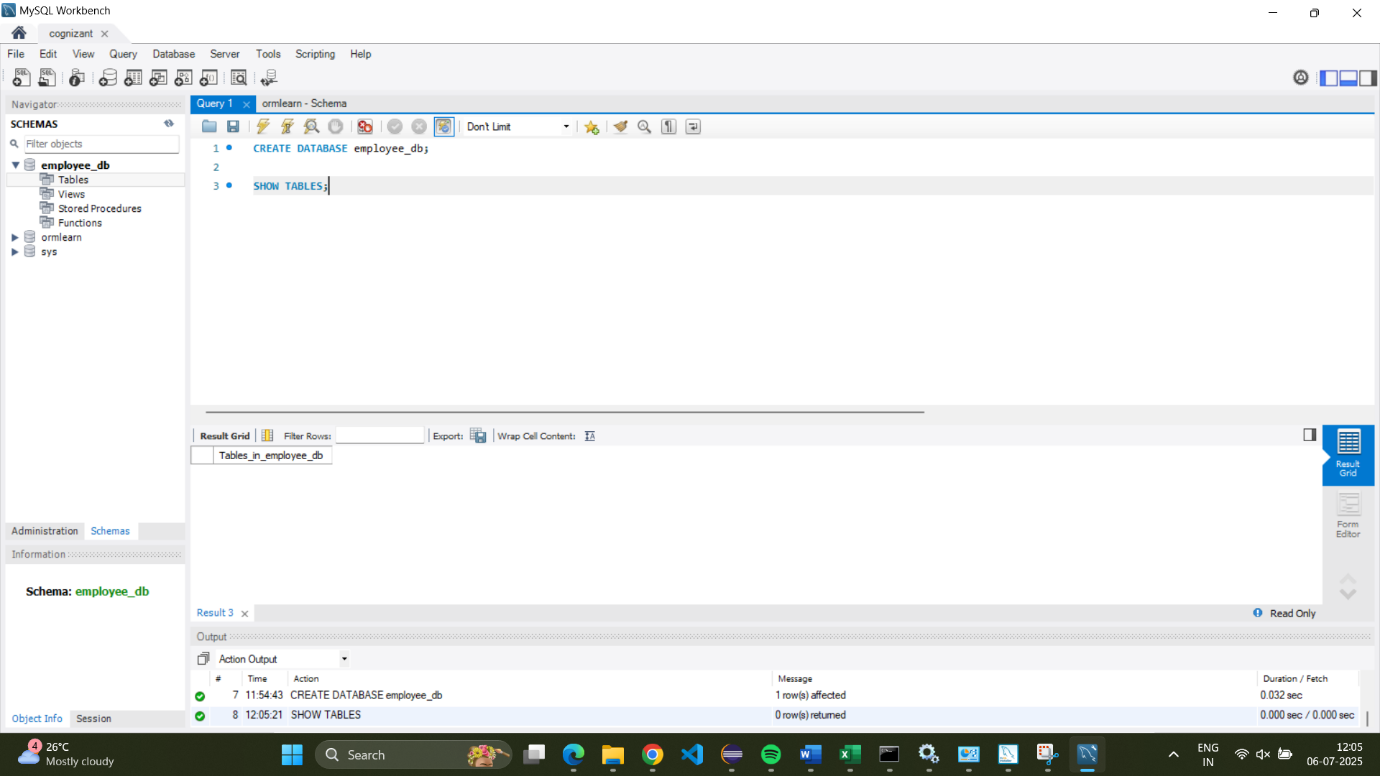
**Hands on 4**

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

CREATE DATABASE employee\_db;

SHOW TABLES;

**Output:**



**Code:**

application.properties

spring.application.name=employeeapp

# Database Configuration

spring.datasource.url=jdbc:mysql://localhost:3306/employee\_db

spring.datasource.username=root

spring.datasource.password=TaRuN@29

# JPA / Hibernate Settings

spring.jpa.hibernate.ddl-auto=update

spring.jpa.show-sql=true

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

# Optional but clean logging

logging.level.org.hibernate.SQL=DEBUG

logging.level.org.hibernate.type.descriptor.sql.BasicBinder=TRACE

Employee.java

package com.example.employeeapp.model;

import jakarta.persistence.\*;

*@Entity*

*@Table*(name = "employee")

public class Employee {

*@Id*

*@GeneratedValue*(strategy = *GenerationType*.***IDENTITY***)

private Integer id;

*@Column*(nullable = false)

private String name;

private String department;

// Getters and setters

public Integer getId() {

return id;

}

public void setId(Integer id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getDepartment() {

return department;

}

public void setDepartment(String department) {

this.department = department;

}

// toString

*@Override*

public String toString() {

return "Employee [id=" + id + ", name=" + name + ", department=" + department + "]";

}

}

EmployeeRepository.java

package com.example.employeeapp.repository;

import com.example.employeeapp.model.Employee;

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

import org.springframework.stereotype.Repository;

*@Repository*

public interface EmployeeRepository extends JpaRepository<Employee, Integer> {

}

EmployeeService.java

package com.example.employeeapp.service;

import com.example.employeeapp.model.Employee;

import com.example.employeeapp.repository.EmployeeRepository;

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

import org.springframework.stereotype.Service;

import jakarta.transaction.Transactional;

import java.util.List;

*@Service*

public class EmployeeService {

*@Autowired*

private EmployeeRepository employeeRepository;

*@Transactional*

public void addEmployee(Employee employee) {

employeeRepository.save(employee);

}

public List<Employee> getAllEmployees() {

return employeeRepository.findAll();

}

}

EmployeeController.java

package com.example.employeeapp.controller;

import com.example.employeeapp.model.Employee;

import com.example.employeeapp.service.EmployeeService;

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

import org.springframework.web.bind.annotation.\*;

import java.util.List;

*@RestController*

*@RequestMapping*("/employees")

public class EmployeeController {

*@Autowired*

private EmployeeService employeeService;

// Add an employee

*@PostMapping*

public String addEmployee(*@RequestBody* Employee employee) {

employeeService.addEmployee(employee);

return "Employee added successfully!";

}

// Get all employees

*@GetMapping*

public List<Employee> getAllEmployees() {

return employeeService.getAllEmployees();

}

}

EmployeeappApplication.java

package com.example.employeeapp;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

*@SpringBootApplication*

public class EmployeeappApplication {

public static void main(String[] args) {

SpringApplication.*run*(EmployeeappApplication.class, args);

}

}

**Output:**

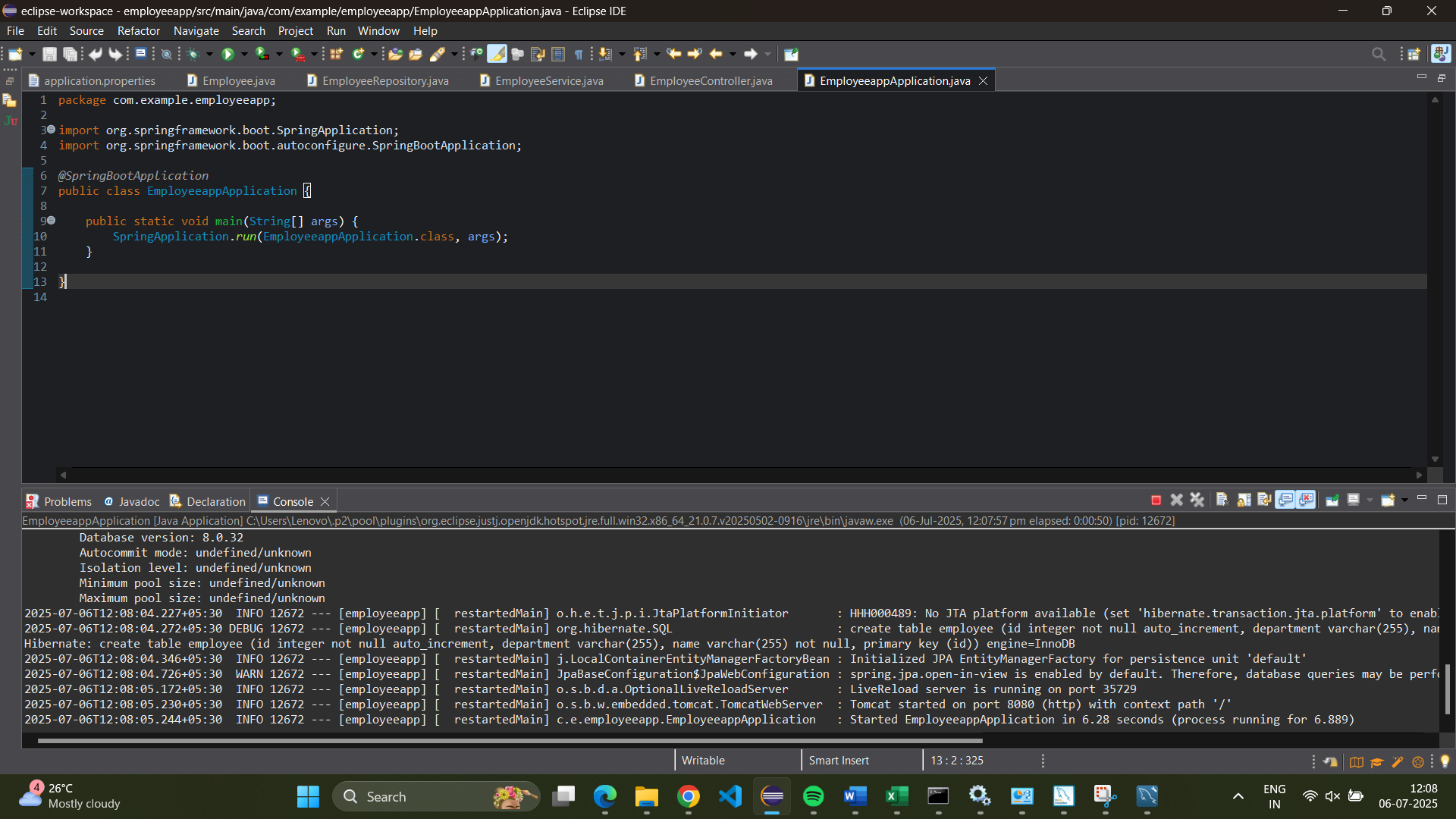
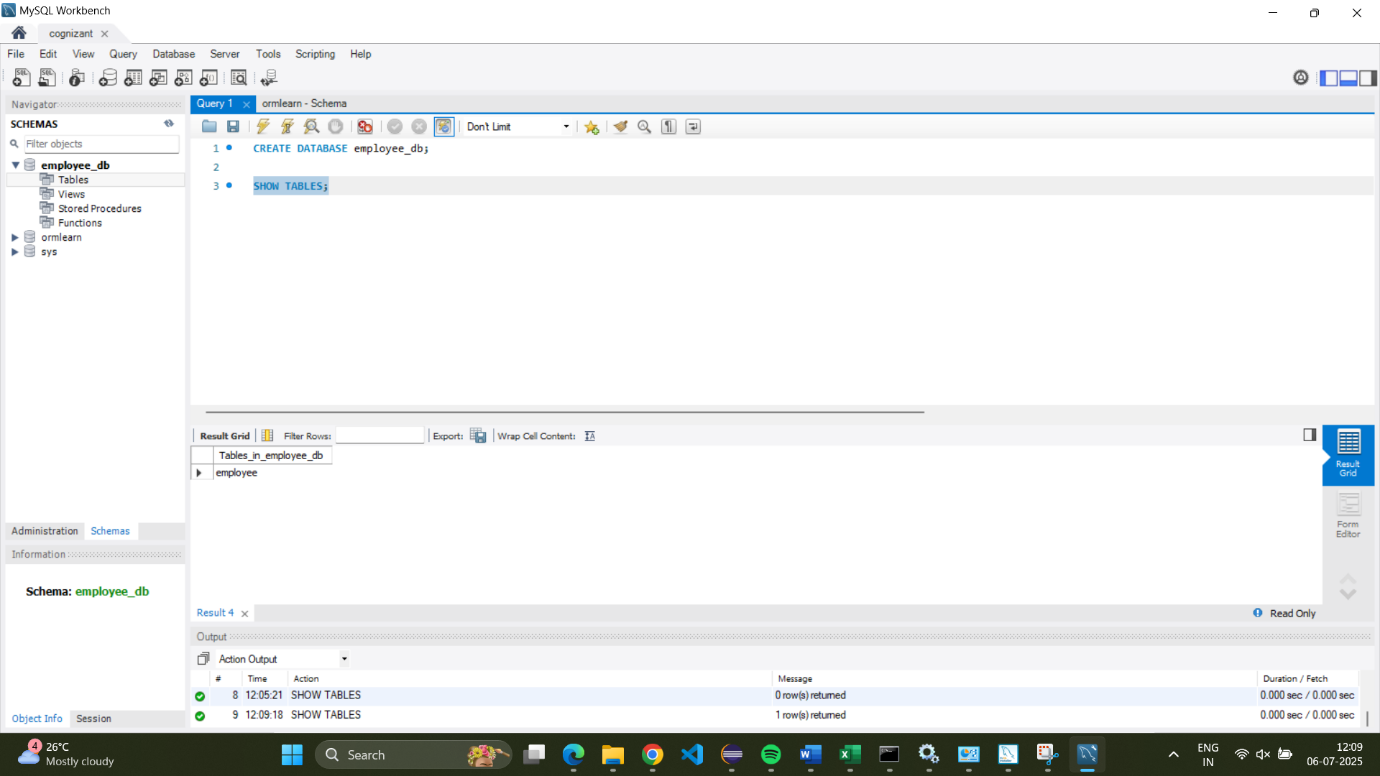
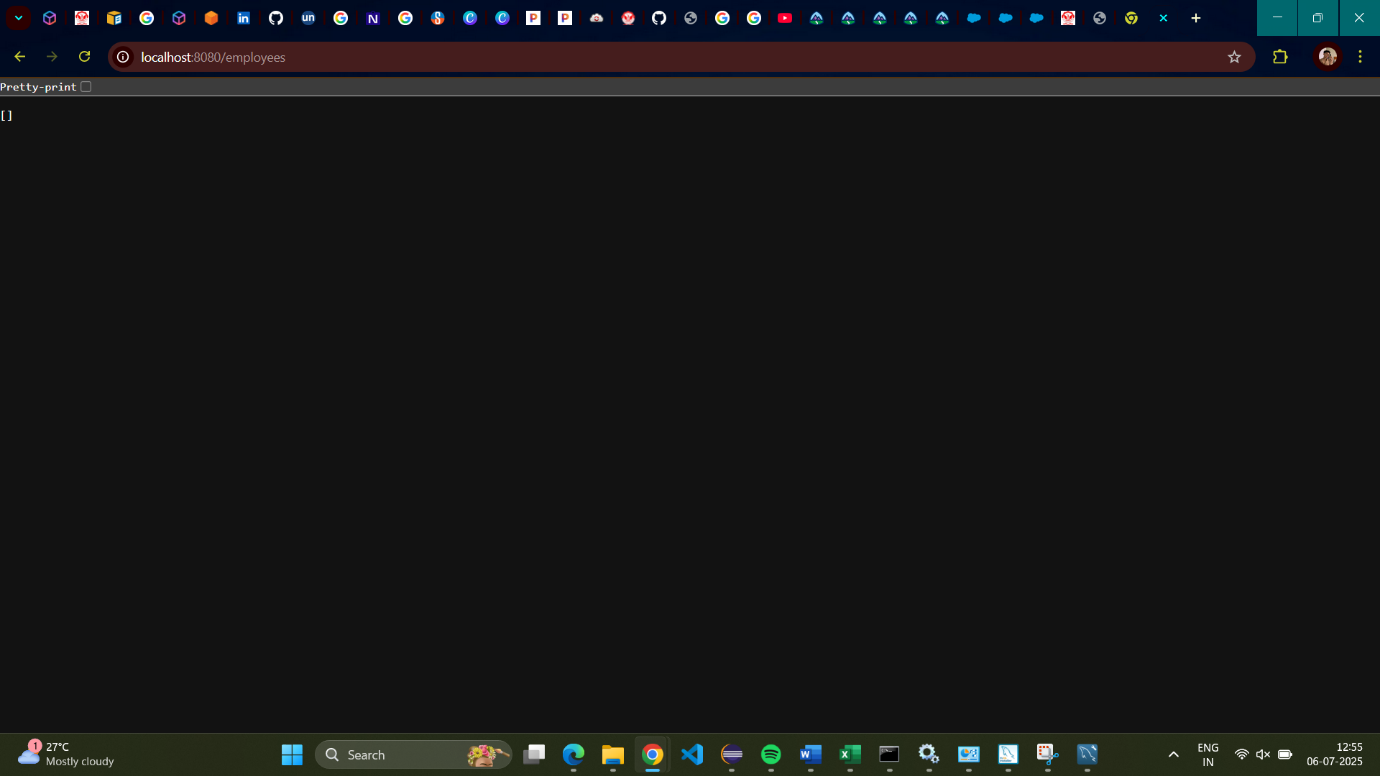
****

Table Created:

****

****