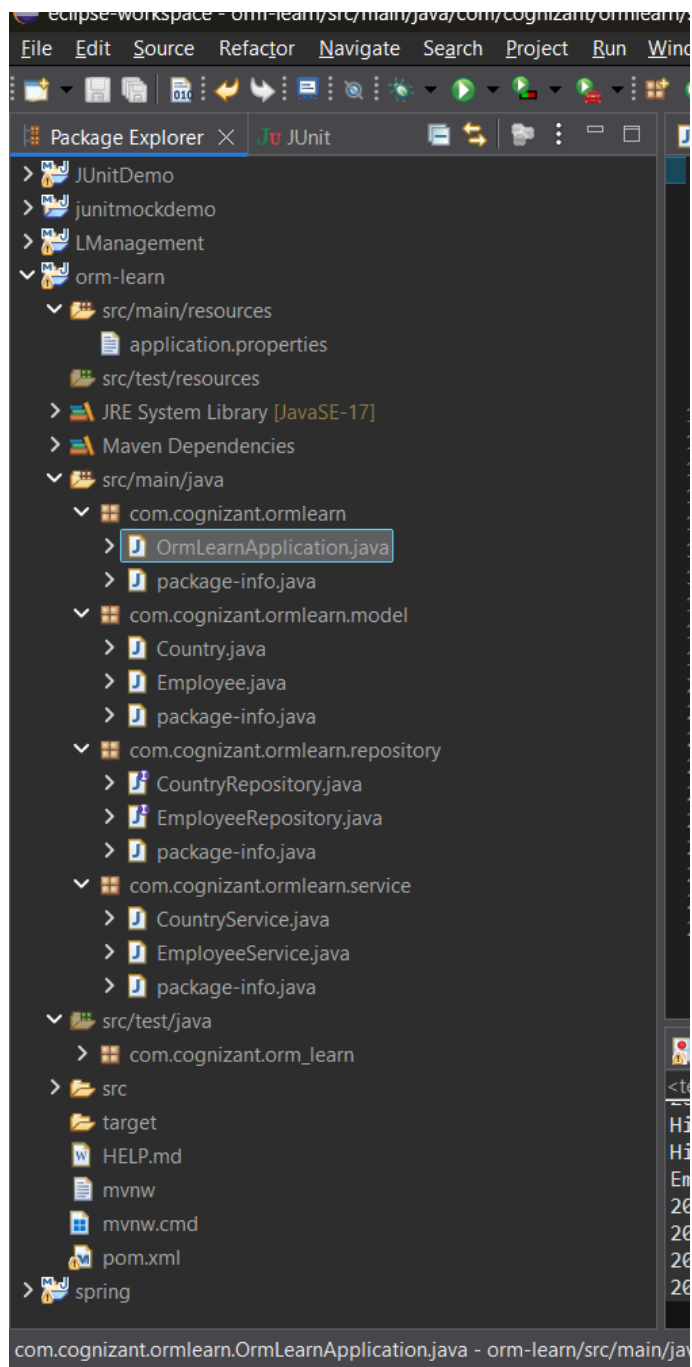


Spring Data JPA - Quick Example

FOLDER STRUCTURE



OrmLearnApplication.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);

        LOGGER.info("Inside main");

        countryService = context.getBean(CountryService.class);

        countryService.addSampleData();

        testGetAllCountries();

    }

    private static void testGetAllCountries() {

        LOGGER.info("Start");

        List<Country> countries = countryService.getAllCountries();

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

        LOGGER.info("End");

    }

}
```

Country.java

```
package com.cognizant.ormlearn.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;

    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 + "]\n";
}
}

```

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> {}

package com.cognizant.ormlearn.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.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();
}

@Transactional

public void addSampleData() {
    countryRepository.save(new Country("IN", "India"));
    countryRepository.save(new Country("US", "United States of America"));
}
}

```

CountryService.java

```

package com.cognizant.ormlearn.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.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();
    }

    @Transactional

    public void addSampleData() {

```

```

countryRepository.save(new Country("IN", "India"));

countryRepository.save(new Country("US", "United States of America"));
}
}

```

application.properties

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

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

```

H2 Database Configuration

```

spring.datasource.url=jdbc:h2:mem:ormlearn
spring.datasource.driver-class-name=org.h2.Driver
spring.datasource.username=sa
spring.datasource.password=

spring.jpa.database-platform=org.hibernate.dialect.H2Dialect
spring.jpa.hibernate.ddl-auto=create-drop

# H2 Console (Optional - for debugging in browser)
spring.h2.console.enabled=true
spring.h2.console.path=/h2-console

spring.datasource.url=jdbc:h2:mem:ormlearn;DB_CLOSE_DELAY=-1;DB_CLOSE_ON_EXIT=FALSE

```

pom.xml

```

<?xml version="1.0" encoding="UTF-8"?>

```

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
https://maven.apache.org/xsd/maven-4.0.0.xsd">

    <modelVersion>4.0.0</modelVersion>

    <parent>

        <groupId>org.springframework.boot</groupId>

        <artifactId>spring-boot-starter-parent</artifactId>

        <version>3.5.3</version>

        <relativePath/> <!-- lookup parent from repository -->

    </parent>

    <groupId>com.cognizant</groupId>

    <artifactId>orm-learn</artifactId>

    <version>0.0.1-SNAPSHOT</version>

    <name>orm-learn</name>

    <description>Demo project for Spring Data JPA and Hibernate</description>

    <url/>

    <licenses>

        <license/>

    </licenses>

    <developers>

        <developer/>

    </developers>

    <scm>

        <connection/>

        <developerConnection/>

        <tag/>

        <url/>

    </scm>
```

```
<properties>
    <java.version>17</java.version>
</properties>

<dependencies>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-jpa</artifactId>
</dependency>

<dependency>
    <groupId>com.h2database</groupId>
    <artifactId>h2</artifactId>
    <scope>runtime</scope>
</dependency>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter</artifactId>
</dependency>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-devtools</artifactId>
    <scope>runtime</scope>
</dependency>
</dependencies>

<build>

<plugins>

<plugin>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-maven-plugin</artifactId>
```


</plugin>

</plugins>

</build>

</project>

OUTPUT

```
eclipse-workspace - orm-team/pom.xml - Eclipse IDE
File Edit Navigate Search Project Run Window Help

# Problems Javadoc Declaration Console X
terminated - OrlLearnApplication (1) (Java Application) C:\Program Files\Java\jdk-17\bin\javaw.exe (Jul 7, 2025, 8:35:12 PM - 8:35:20 PM elapsed: 00007.260) [pid: 24196]

07-07-25 20:35:16.070 restartedMain INFO c.c.o.OrlLearnApplication logStartupProfileInfo 652 No active profile set, falling back to 1 default profile: "default"
07-07-25 20:35:16.137 restartedMain INFO ertyDefaultsPostProcessor logInfo 252 Devtools property defaults active! Set 'spring.devtools.add-properties' to 'false' to disable
07-07-25 20:35:16.681 restartedMain INFO toryConfigurationDelegate registerRepositoriesIn 145 Bootstrapping Spring Data JPA repositories in DEFAULT mode.
07-07-25 20:35:16.745 restartedMain INFO toryConfigurationDelegate registerRepositoriesIn 213 Finished Spring Data repository scanning in 52 ms. Found 1 JPA repository interface.
07-07-25 20:35:17.200 restartedMain INFO o.h.j.i.util.LogHelper logPersistenceUnitInformation 31 HH#000204: Processing PersistenceUnitInfo [name: default]
07-07-25 20:35:17.282 restartedMain INFO org.hibernate.Version logVersion 44 HH#000412: Hibernate ORM core version 6.6.18.Final
07-07-25 20:35:17.339 restartedMain INFO i.RegionFactoryInitiator initiateService 50 HH#000026: Second-level cache disabled
07-07-25 20:35:17.698 restartedMain INFO SpringPersistenceUnitInfo addTransformer 87 No loadTimeWeaver setup: Ignoring JPA class transformer
07-07-25 20:35:17.737 restartedMain INFO c.z.h.HikariDataSource getConnection 109 HikariPool-1 - Starting...
07-07-25 20:35:17.907 restartedMain INFO c.z.h.pool.HikariPool checkFailFast 575 HikariPool-1 - Added connection conn0: url=jdbc:h2:mem:ormlearn user=SA
07-07-25 20:35:17.909 restartedMain INFO c.z.h.HikariDataSource getConnection 122 HikariPool-1 - Start completed.
07-07-25 20:35:17.926 restartedMain WARN o.h.o.deprecation constructDialect 153 HH#0000025: H2Dialect does not need to be specified explicitly using 'hibernate.dialect' (remove
07-07-25 20:35:17.958 restartedMain INFO o.h.o.connections.pooling logConnectionInfo 163 HH#10001005: Database info:
Database JDBC URL [Connecting through datasource 'HikariDataSource (HikariPool-1)']
Database driver: undefined/unknown
Database version: 2.3.232
Autocommit mode: undefined/unknown
Isolation level: undefined/unknown
Minimum pool size: undefined/unknown
Maximum pool size: undefined/unknown
07-07-25 20:35:18.097 restartedMain INFO p.i.JtaPlatformInitiator initiateService 59 HH#000489: No JTA platform available (set 'hibernate.transaction.jta.platform' to enable JTA platf
07-07-25 20:35:18.707 restartedMain DEBUG org.hibernate.SQL logStatement 135 drop table if exists country cascade
07-07-25 20:35:18.713 restartedMain DEBUG org.hibernate.SQL logStatement 135 create table country (code varchar(255) not null, name varchar(255), primary key (code))
07-07-25 20:35:18.724 restartedMain INFO rEntityManagerFactoryBean buildNativeEntityManagerFactory 447 Initialized JPA EntityManagerFactory for persistence unit 'default'
07-07-25 20:35:19.191 restartedMain INFO .OptionalLiveReloadServer startServer 59 LiveReload server is running on port 35729
07-07-25 20:35:19.217 restartedMain INFO c.c.o.OrlLearnApplication logStarted 59 Started OrlLearnApplication in 3.593 seconds (process running for 3.985)
07-07-25 20:35:19.223 restartedMain INFO c.c.o.OrlLearnApplication main 22 Inside main
07-07-25 20:35:19.326 restartedMain DEBUG org.hibernate.SQL logStatement 135 select c1_0.code,c1_0.name from country c1_0 where c1_0.code=?
07-07-25 20:35:19.390 restartedMain DEBUG org.hibernate.SQL logStatement 135 select c1_0.code,c1_0.name from country c1_0 where c1_0.code=?
07-07-25 20:35:19.414 restartedMain DEBUG org.hibernate.SQL logStatement 135 insert into country (name,code) values (?,?)
07-07-25 20:35:19.421 restartedMain DEBUG org.hibernate.SQL logStatement 135 insert into country (name,code) values (?,?)
07-07-25 20:35:19.428 restartedMain INFO c.c.o.OrlLearnApplication testGetAllCountries 32 Start
07-07-25 20:35:19.527 restartedMain DEBUG org.hibernate.SQL logStatement 135 select c1_0.code,c1_0.name from country c1_0
07-07-25 20:35:19.531 restartedMain DEBUG c.c.o.OrlLearnApplication testGetAllCountries 34 countries=[Country [code=IN, name=India], Country [code=US, name=United States of America]]
07-07-25 20:35:19.531 restartedMain INFO rEntityManagerFactoryBean testGetAllCountries 35 End
07-07-25 20:35:19.537 licationShutdownHook DEBUG org.hibernate.SQL logStatement 135 drop table if exists country cascade
07-07-25 20:35:19.538 licationShutdownHook DEBUG org.hibernate.SQL logStatement 135 drop table if exists country cascade
07-07-25 20:35:19.545 licationShutdownHook WARN f.s.DisposableBeanAdapter destroy 221 Invocation of destroy method failed on bean with name 'inMemoryDatabaseShutdownExecutor': org.h2.j
07-07-25 20:35:19.546 licationShutdownHook INFO c.z.h.HikariDataSource close 340 HikariPool-1 - Shutdown initiated...
07-07-25 20:35:19.551 licationShutdownHook INFO c.z.h.HikariDataSource close 351 HikariPool-1 - Shutdown completed.
```

Difference between JPA, Hibernate and Spring Data JPA

Employee.java

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

import jakarta.persistence.Entity;
import jakarta.persistence.Id;
import jakarta.persistence.Table;

@Entity
@Table(name = "employee")

public class Employee {

    @Id

    private int id;

    private String name;

    private String department;

    public Employee() {}

    public Employee(int id, String name, String department) {

        this.id = id;

        this.name = name;

        this.department = department;

    }

    public int getId() {

        return id;

    }

    public void setId(int 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;
    }

    @Override
    public String toString() {
        return "Employee{id=" + id + ", name='" + name + "', department='" + department + "'}";
    }
}

```

EmployeeRepository.java

```

package com.cognizant.ormlearn.repository;

import com.cognizant.ormlearn.model.Employee;
import org.springframework.data.jpa.repository.JpaRepository;

public interface EmployeeRepository extends JpaRepository<Employee, Integer> {}

```

EmployeeService.java

```

package com.cognizant.ormlearn.service;

import com.cognizant.ormlearn.model.Employee;
import com.cognizant.ormlearn.repository.EmployeeRepository;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;
import jakarta.transaction.Transactional;

```

@Service

```
public class EmployeeService {  
    @Autowired  
    private EmployeeRepository employeeRepository;  
    @Transactional  
    public void addEmployee(Employee employee) {  
        employeeRepository.save(employee);  
    }  
}
```

OrmLearnApplication.java

```
package com.cognizant.ormlearn;  
  
import com.cognizant.ormlearn.model.Employee;  
import com.cognizant.ormlearn.service.EmployeeService;  
import org.springframework.beans.factory.annotation.Autowired;  
import org.springframework.boot.CommandLineRunner;  
import org.springframework.boot.SpringApplication;  
import org.springframework.boot.autoconfigure.SpringBootApplication;  
  
@SpringBootApplication  
  
public class OrmLearnApplication implements CommandLineRunner {  
    public static void main(String[] args) {  
        SpringApplication.run(OrmLearnApplication.class, args);  
    }  
    @Autowired  
    private EmployeeService employeeService;  
  
    @Override  
    public void run(String... args) throws Exception {
```

```
Employee emp = new Employee(1, "Kevin Immanuel", "CSE");
```

```
employeeService.addEmployee(emp);
```

```
System.out.println("Employee details saved!!!!");
```

```
}
```

```
}
```

OUTPUT

```
2025-07-07T23:11:57.401+05:30 INFO 37364 --- [ restartedMain] c.c.ormlearn.OrmLearnApplication : Starting OrmLearnApplication using Java 17.0.12 with PID 37364 (C:\Users\user\workspace\o
2025-07-07T23:11:57.405+05:30 INFO 37364 --- [ restartedMain] c.c.ormlearn.OrmLearnApplication : No active profile set, falling back to 1 default profile: "default"
2025-07-07T23:11:57.461+05:30 INFO 37364 --- [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : Devtools property defaults active! Set 'spring.devtools.add-properties' to 'false' to disable
2025-07-07T23:11:58.011+05:30 INFO 37364 --- [ restartedMain] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in DEFAULT mode.
2025-07-07T23:11:58.090+05:30 INFO 37364 --- [ restartedMain] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 75 ms. Found 2 JPA repository interfaces.
2025-07-07T23:11:58.640+05:30 INFO 37364 --- [ restartedMain] o.hibernate.jpa.internal.util.LogHelper : HHH0000204: Processing PersistenceUnitInfo [name: default]
2025-07-07T23:11:58.704+05:30 INFO 37364 --- [ restartedMain] org.hibernate.Version : HHH0000412: Hibernate ORM core version 6.4.4.Final
2025-07-07T23:11:58.746+05:30 INFO 37364 --- [ restartedMain] o.h.c.internal.RegionFactoryInitiator : HHH0000026: Second-level cache disabled
2025-07-07T23:11:59.111+05:30 INFO 37364 --- [ restartedMain] o.s.o.j.p.SpringPersistenceUnitInfo : No LoadTimeWeaver setup: ignoring JPA class transformer
2025-07-07T23:11:59.143+05:30 INFO 37364 --- [ restartedMain] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Starting...
2025-07-07T23:11:59.206+05:30 INFO 37364 --- [ restartedMain] com.zaxxer.hikari.pool.HikariPool : HikariPool-1 - Added connection conn0: url=jdbc:h2:mem:testdb user=SA
2025-07-07T23:11:59.300+05:30 INFO 37364 --- [ restartedMain] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Start completed.
2025-07-07T23:11:59.324+05:30 WARN 37364 --- [ restartedMain] org.hibernate.orm.deprecation : HHH90000025: H2Dialect does not need to be specified explicitly using 'hibernate.dialect' (remove
2025-07-07T23:12:00.219+05:30 INFO 37364 --- [ restartedMain] o.h.e.t.j.p.i.ItaPlatformInitiator : HHH0000489: No JTA platform available (set 'hibernate.transaction.jta.platform' to enable JTA plat
Hibernate: create table country (code varchar(255) not null, name varchar(255), primary key (code))
Hibernate: create table employee (id integer not null, department varchar(255), name varchar(255), primary key (id))
2025-07-07T23:12:00.275+05:30 INFO 37364 --- [ restartedMain] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'default'
2025-07-07T23:12:00.841+05:30 INFO 37364 --- [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is running on port 35729
2025-07-07T23:12:00.877+05:30 INFO 37364 --- [ restartedMain] c.c.ormlearn.OrmLearnApplication : Started OrmLearnApplication in 3.915 seconds (process running for 4.465)
Hibernate: select e1_0.id,e1_0.department,e1_0.name from employee e1_0 where e1_0.id=?
Employee Details Saved!!!!
2025-07-07T23:12:01.036+05:30 INFO 37364 --- [ionShutdownHook] j.LocalContainerEntityManagerFactoryBean : Closing JPA EntityManagerFactory for persistence unit 'default'
2025-07-07T23:12:01.045+05:30 WARN 37364 --- [ionShutdownHook] o.s.b.f.support.DisposableBeanAdapter : Invocation of destroy method failed on bean with name 'inMemoryDatabaseShutdownExecutor': org.h2.
2025-07-07T23:12:01.047+05:30 INFO 37364 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Shutdown initiated...
2025-07-07T23:12:01.050+05:30 INFO 37364 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Shutdown completed.
```