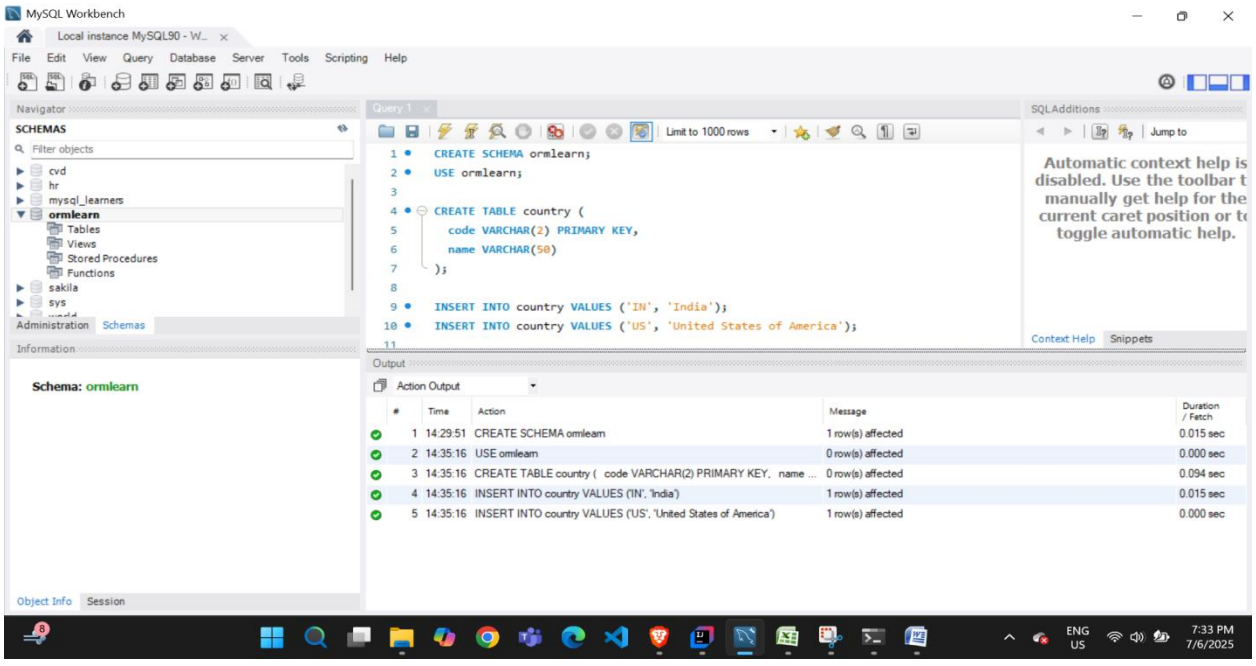
Spring Data JPA - Quick Example

MySQL Database

```
CREATE SCHEMA ormlearn;

USE ormlearn;

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');
```

Output:



Configure 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

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=root

spring.jpa.hibernate.ddl-auto=validate

spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.MySQL5Dialect

Create Entity Class 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 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 + "]";
    }
}
```

Create Repository Interface:

```
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> {
}
```

Create Service Class:

```
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();
    }
}
```

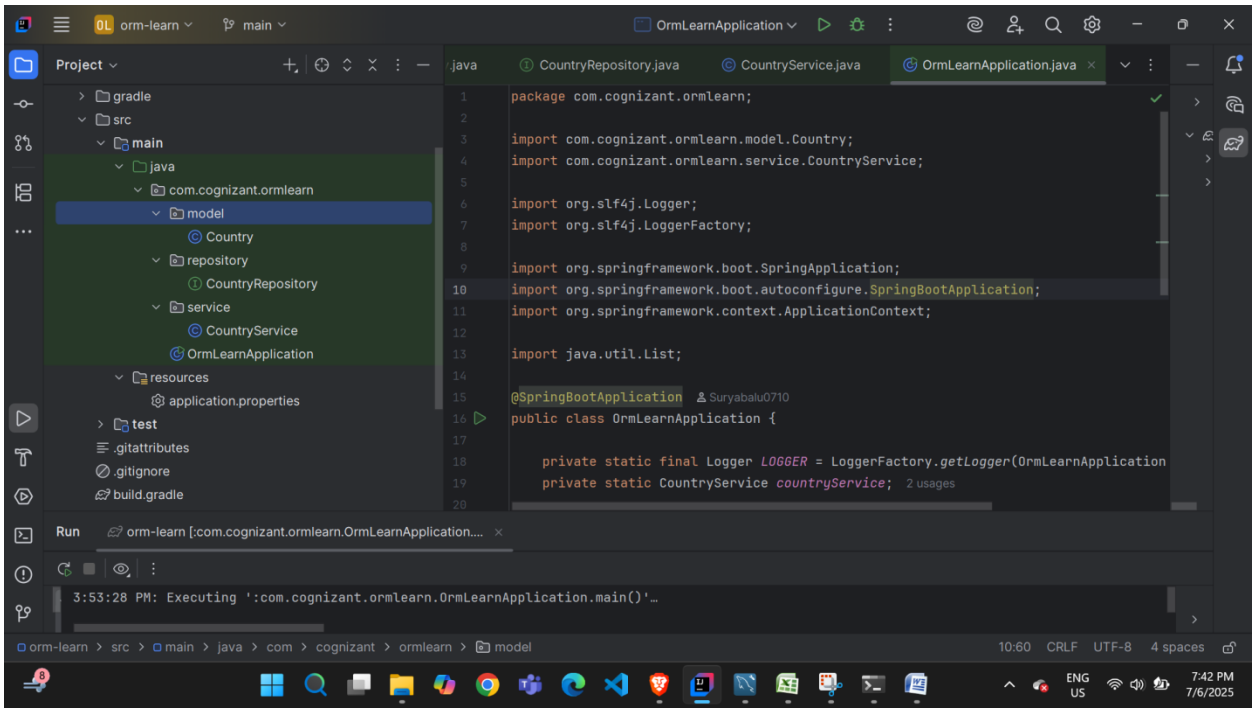
Modify Main Class:

```
package com.cognizant.ormlearn;

import com.cognizant.ormlearn.model.Country;
import com.cognizant.ormlearn.service.CountryService;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.springframework.boot.SpringApplication;
```

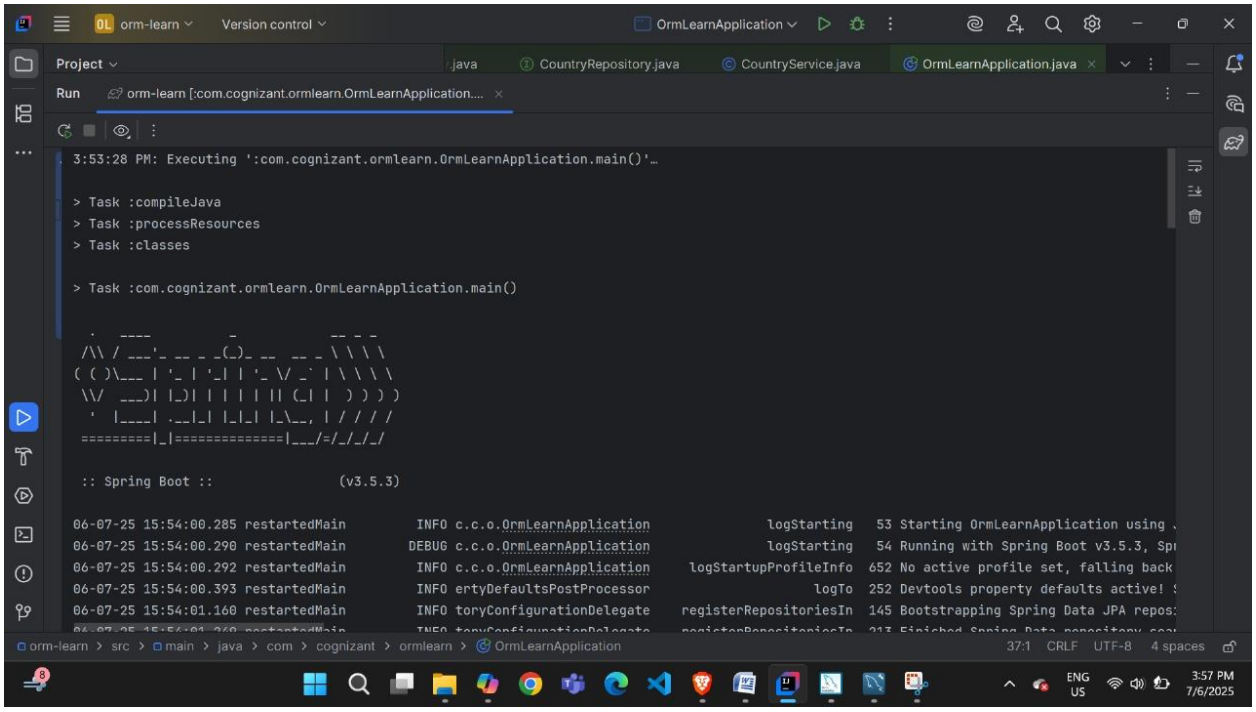
```
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.context.ApplicationContext;

import 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);
        LOGGER.info("Inside main");

        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");
```

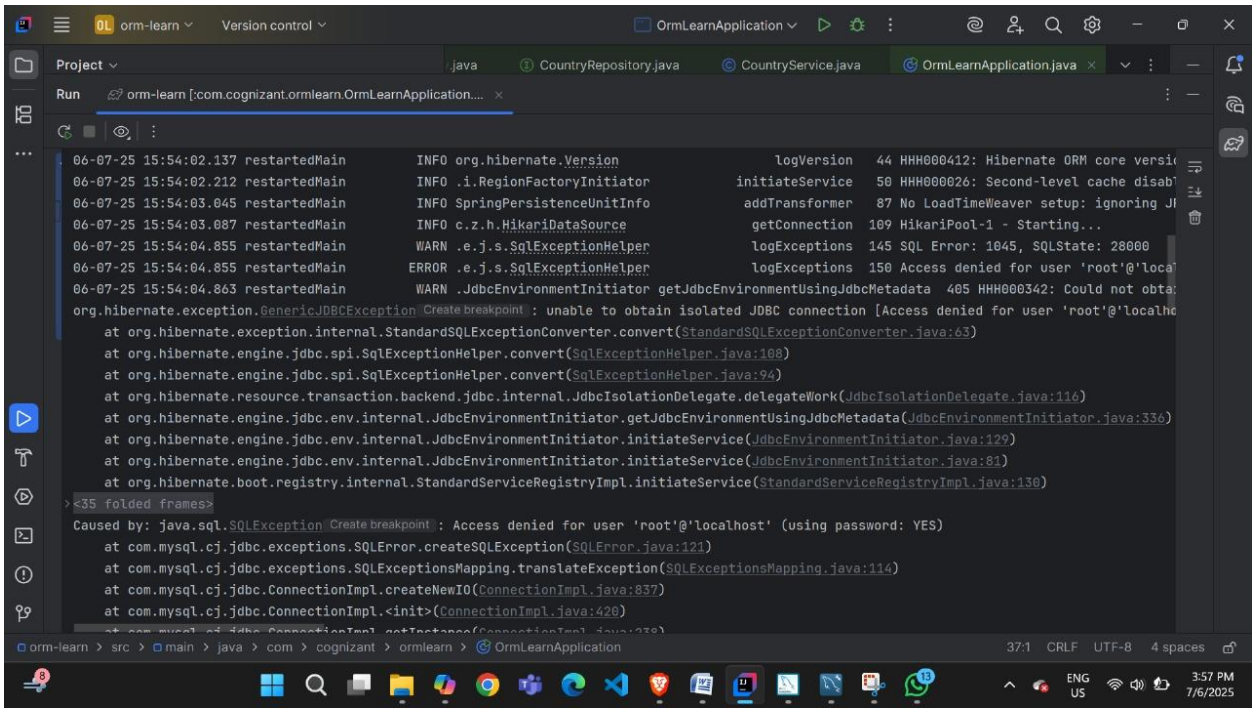
```
    }
}
```

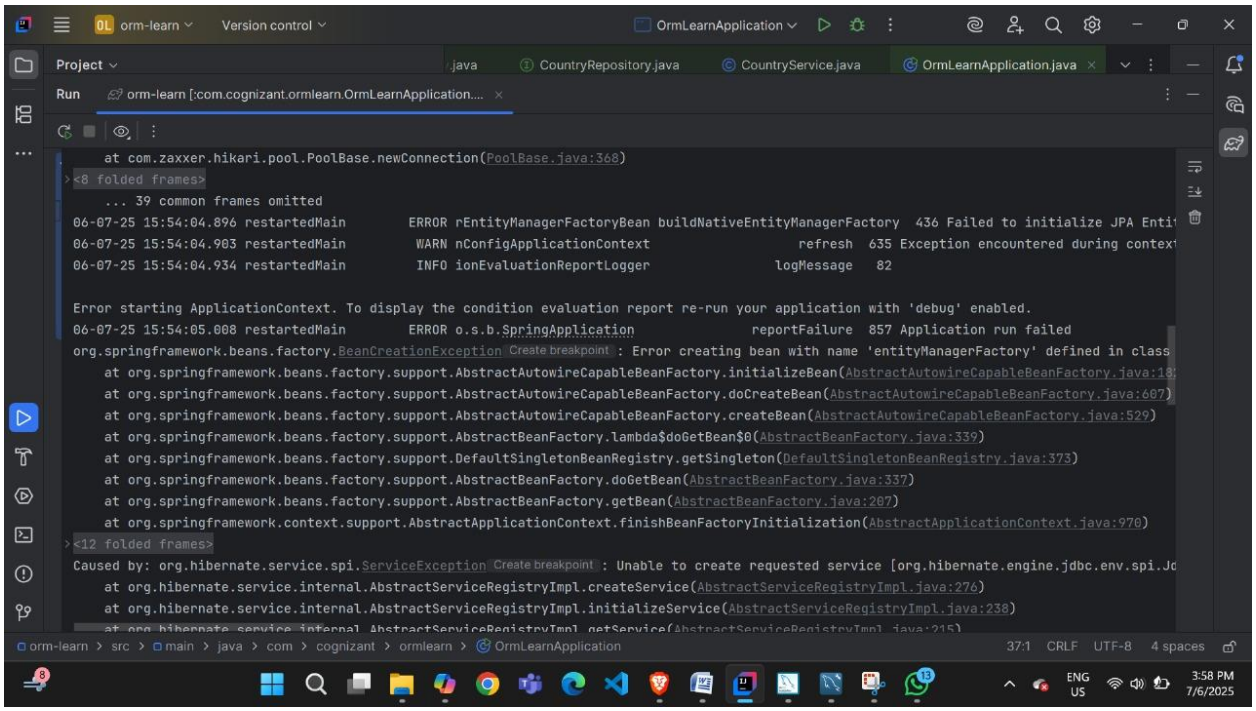
Execution:

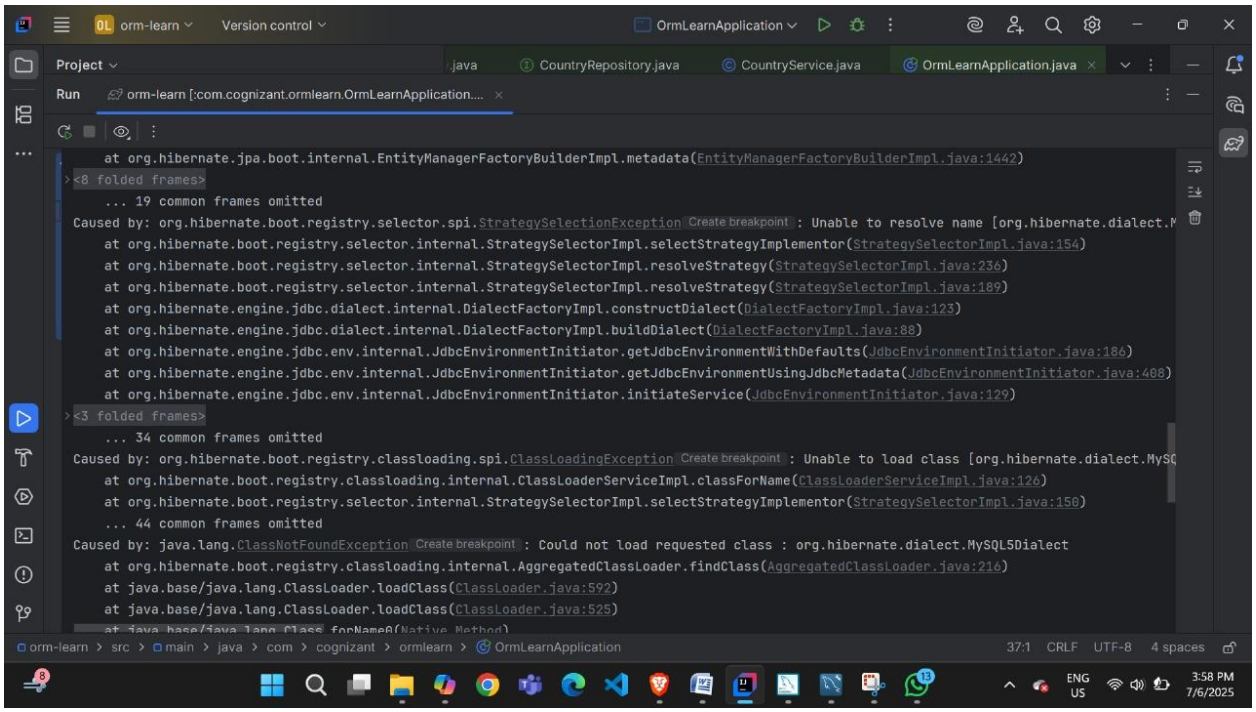

orm-learn
main
OrmLearnApplication
Project
CountryRepository.java
CountryService.java
OrmLearnApplication.java
gradle
src
main
java
com.cognizant.ormlearn
model
Country
repository
CountryRepository
service
CountryService
OrmLearnApplication
resources
application.properties
test
.gitattributes
.gitignore
build.gradle
package com.cognizant.ormlearn;
import com.cognizant.ormlearn.model.Country;
import com.cognizant.ormlearn.service.CountryService;
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 java.util.List;
@SpringBootApplication
Suryabalu0710
public class OrmLearnApplication {
private static final Logger LOGGER = LoggerFactory.getLogger(OrmLearnApplication
private static CountryService countryService;
2 usages
Run
orm-learn [:com.cognizant.ormlearn.OrmLearnApplication....
3:53:28 PM: Executing ':com.cognizant.ormlearn.OrmLearnApplication.main()'…
orm-learn > src > main > java > com > cognizant > ormlearn > model
10:60
CRLF
UTF-8
4 spaces
ENG
US
7:42 PM
7/6/2025

Output:


orm-learn
Version control
OrmLearnApplication
Project
CountryRepository.java
CountryService.java
OrmLearnApplication.java
Run
orm-learn [:com.cognizant.ormlearn.OrmLearnApplication....
3:53:28 PM: Executing ':com.cognizant.ormlearn.OrmLearnApplication.main()'…
> Task :compileJava
> Task :processResources
> Task :classes
> Task :com.cognizant.ormlearn.OrmLearnApplication.main()
:: Spring Boot :: (v3.5.3)
06-07-25 15:54:00.285 restartedMain INFO c.c.o.OrmLearnApplication logStarting 53 Starting OrmLearnApplication using
06-07-25 15:54:00.290 restartedMain DEBUG c.c.o.OrmLearnApplication logStarting 54 Running with Spring Boot v3.5.3, Spr
06-07-25 15:54:00.292 restartedMain INFO c.c.o.OrmLearnApplication logStartupProfileInfo 652 No active profile set, falling back
06-07-25 15:54:00.393 restartedMain INFO ertyDefaultsPostProcessor logTo 252 Devtools property defaults active!
06-07-25 15:54:01.160 restartedMain INFO toryConfigurationDelegate registerRepositoriesIn 145 Bootstrapping Spring Data JPA repos
orm-learn > src > main > java > com > cognizant > ormlearn > OrmLearnApplication
37:1 CRLF UTF-8 4 spaces
ENG US
3:57 PM 7/6/2025


orm-learn
Version control
OrmLearnApplication
Project
CountryRepository.java
CountryService.java
OrmLearnApplication.java
Run
orm-learn [:com.cognizant.ormlearn.OrmLearnApplication....
06-07-25 15:54:02.137 restartedMain INFO org.hibernate.Version logVersion 44 HHH000412: Hibernate ORM core versi
06-07-25 15:54:02.212 restartedMain INFO .i.RegionFactoryInitiator initiateService 50 HHH000026: Second-level cache disab
06-07-25 15:54:03.045 restartedMain INFO SpringPersistenceUnitInfo addTransformer 87 No LoadTimeWeaver setup: ignoring JP
06-07-25 15:54:03.087 restartedMain INFO c.z.h.HikariDataSource getConnection 109 HikariPool-1 - Starting...
06-07-25 15:54:04.855 restartedMain WARN .e.j.s.SqlExceptionHelper logExceptions 145 SQL Error: 1045, SQLState: 28000
06-07-25 15:54:04.855 restartedMain ERROR .e.j.s.SqlExceptionHelper logExceptions 150 Access denied for user 'root'@'loca
06-07-25 15:54:04.863 restartedMain WARN .JdbcEnvironmentInitiator getJdbcEnvironmentUsingJdbcMetadata 405 HHH000342: Could not obta
org.hibernate.exception.GenericJDBCException Create breakpoint : unable to obtain isolated JDBC connection [Access denied for user 'root'@'localho
at org.hibernate.exception.internal.StandardSQLExceptionConverter.convert(StandardSQLExceptionConverter.java:63)
at org.hibernate.engine.jdbc.spi.SqlExceptionHelper.convert(SqlExceptionHelper.java:108)
at org.hibernate.engine.jdbc.spi.SqlExceptionHelper.convert(SqlExceptionHelper.java:94)
at org.hibernate.resource.transaction.backend.jdbc.internal.JdbcIsolationDelegate.delegateWork(JdbcIsolationDelegate.java:116)
at org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator.getJdbcEnvironmentUsingJdbcMetadata(JdbcEnvironmentInitiator.java:336)
at org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator.initiateService(JdbcEnvironmentInitiator.java:129)
at org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator.initiateService(JdbcEnvironmentInitiator.java:81)
at org.hibernate.boot.registry.internal.StandardServiceRegistryImpl.initiateService(StandardServiceRegistryImpl.java:130)
<35 folded frames>
Caused by: java.sql.SQLException Create breakpoint : Access denied for user 'root'@'localhost' (using password: YES)
at com.mysql.cj.jdbc.exceptions.SQLError.createSQLException(SQLError.java:121)
at com.mysql.cj.jdbc.exceptions.SQLExceptionsMapping.translateException(SQLExceptionsMapping.java:114)
at com.mysql.cj.jdbc.ConnectionImpl.createNewIO(ConnectionImpl.java:837)
at com.mysql.cj.jdbc.ConnectionImpl.<init>(ConnectionImpl.java:420)
orm-learn > src > main > java > com > cognizant > ormlearn > OrmLearnApplication
37:1 CRLF UTF-8 4 spaces
ENG US
3:57 PM 7/6/2025


orm-learn
Version control
OrmLearnApplication
Project
CountryRepository.java
CountryService.java
OrmLearnApplication.java
Run
orm-learn [:com.cognizant.ormlearn.OrmLearnApplication....
at com.zaxxer.hikari.pool.PoolBase.newConnection(PoolBase.java:368)
<8 folded frames>
... 39 common frames omitted
06-07-25 15:54:04.896 restartedMain ERROR rEntityManagerFactoryBean buildNativeEntityManagerFactory 436 Failed to initialize JPA Enti
06-07-25 15:54:04.903 restartedMain WARN nConfigApplicationContext refresh 635 Exception encountered during contex
06-07-25 15:54:04.934 restartedMain INFO ionEvaluationReportLogger logMessage 82
Error starting ApplicationContext. To display the condition evaluation report re-run your application with 'debug' enabled.
06-07-25 15:54:05.008 restartedMain ERROR o.s.b.SpringApplication reportFailure 857 Application run failed
org.springframework.beans.factory.BeanCreationException Create breakpoint : Error creating bean with name 'entityManagerFactory' defined in class
at org.springframework.beans.factory.support.AbstractAutowireCapableBeanFactory.initializeBean(AbstractAutowireCapableBeanFactory.java:18
at org.springframework.beans.factory.support.AbstractAutowireCapableBeanFactory.doCreateBean(AbstractAutowireCapableBeanFactory.java:607)
at org.springframework.beans.factory.support.AbstractAutowireCapableBeanFactory.createBean(AbstractAutowireCapableBeanFactory.java:529)
at org.springframework.beans.factory.support.AbstractBeanFactory.lambda$doGetBean$0(AbstractBeanFactory.java:339)
at org.springframework.beans.factory.support.DefaultSingletonBeanRegistry.getSingleton(DefaultSingletonBeanRegistry.java:373)
at org.springframework.beans.factory.support.AbstractBeanFactory.doGetBean(AbstractBeanFactory.java:337)
at org.springframework.beans.factory.support.AbstractBeanFactory.getBean(AbstractBeanFactory.java:207)
at org.springframework.context.support.AbstractApplicationContext.finishBeanFactoryInitialization(AbstractApplicationContext.java:970)
<12 folded frames>
Caused by: org.hibernate.service.spi.ServiceException Create breakpoint : Unable to create requested service [org.hibernate.engine.jdbc.env.spi.Jd
at org.hibernate.service.internal.AbstractServiceRegistryImpl.createService(AbstractServiceRegistryImpl.java:276)
at org.hibernate.service.internal.AbstractServiceRegistryImpl.initializeService(AbstractServiceRegistryImpl.java:238)
orm-learn > src > main > java > com > cognizant > ormlearn > OrmLearnApplication
37:1 CRLF UTF-8 4 spaces
ENG US
3:58 PM 7/6/2025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OrmLearnApplication.java
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orm-learn [:com.cognizant.ormlearn.OrmLearnApplication....
at org.hibernate.jpa.boot.internal.EntityManagerFactoryBuilderImpl.metadata(EntityManagerFactoryBuilderImpl.java:1442)
<8 folded frames>
... 19 common frames omitted
Caused by: org.hibernate.boot.registry.selector.spi.StrategySelectionException Create breakpoint : Unable to resolve name [org.hibernate.dialect.M
at org.hibernate.boot.registry.selector.internal.StrategySelectorImpl.selectStrategyImplementor(StrategySelectorImpl.java:154)
at org.hibernate.boot.registry.selector.internal.StrategySelectorImpl.resolveStrategy(StrategySelectorImpl.java:236)
at org.hibernate.boot.registry.selector.internal.StrategySelectorImpl.resolveStrategy(StrategySelectorImpl.java:189)
at org.hibernate.engine.jdbc.dialect.internal.DialectFactoryImpl.constructDialect(DialectFactoryImpl.java:123)
at org.hibernate.engine.jdbc.dialect.internal.DialectFactoryImpl.buildDialect(DialectFactoryImpl.java:88)
at org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator.getJdbcEnvironmentWithDefaults(JdbcEnvironmentInitiator.java:186)
at org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator.getJdbcEnvironmentUsingJdbcMetadata(JdbcEnvironmentInitiator.java:408)
at org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator.initiateService(JdbcEnvironmentInitiator.java:129)
<3 folded frames>
... 34 common frames omitted
Caused by: org.hibernate.boot.registry.classloading.spi.ClassLoadingException Create breakpoint : Unable to load class [org.hibernate.dialect.MySQ
at org.hibernate.boot.registry.classloading.internal.ClassLoaderServiceImpl.classForName(ClassLoaderServiceImpl.java:126)
at org.hibernate.boot.registry.selector.internal.StrategySelectorImpl.selectStrategyImplementor(StrategySelectorImpl.java:150)
... 44 common frames omitted
Caused by: java.lang.ClassNotFoundException Create breakpoint : Could not load requested class : org.hibernate.dialect.MySQL5Dialect
at org.hibernate.boot.registry.classloading.internal.AggregatedClassLoader.findClass(AggregatedClassLoader.java:216)
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:592)
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
orm-learn > src > main > java > com > cognizant > ormlearn > OrmLearnApplication
37:1 CRLF UTF-8 4 spaces
ENG US
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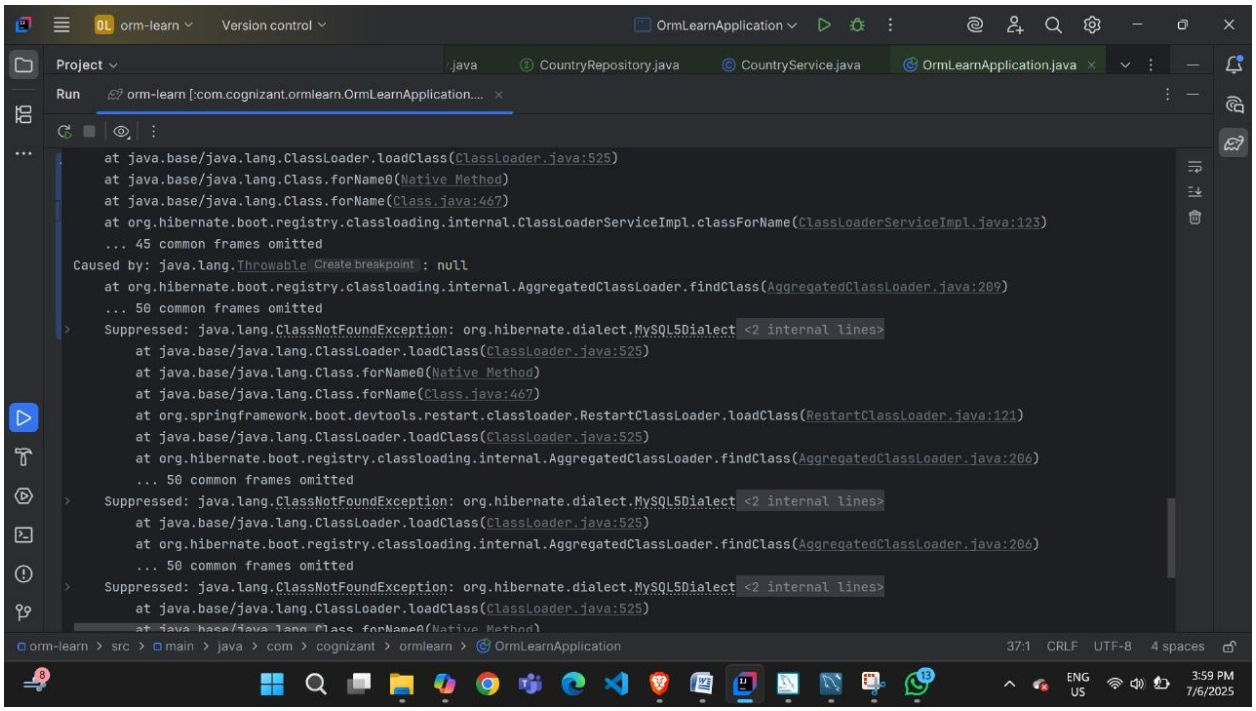
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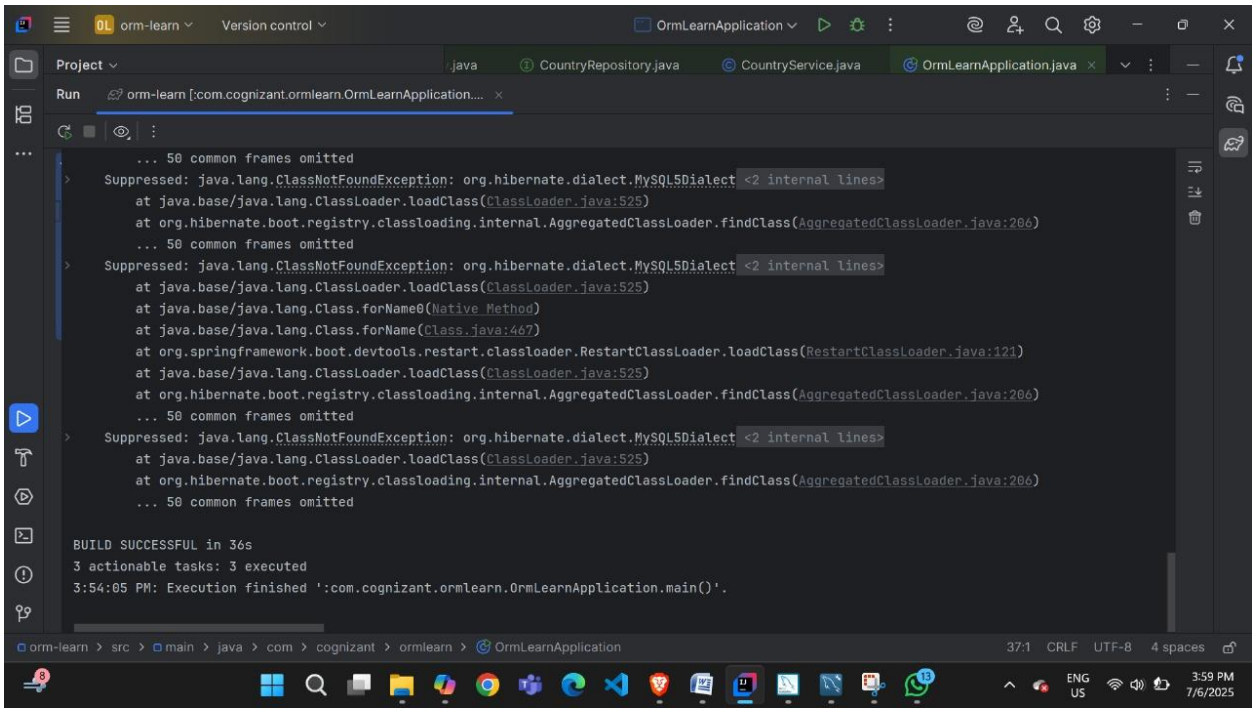
orm-learn [:com.cognizant.ormlearn.OrmLearnApplication....
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
at java.base/java.lang.Class.forName0(Native Method)
at java.base/java.lang.Class.forName(Class.java:467)
at org.hibernate.boot.registry.classloading.internal.ClassLoaderServiceImpl.classForName(ClassLoaderServiceImpl.java:123)
... 45 common frames omitted
Caused by: java.lang.Throwable Create breakpoint : null
at org.hibernate.boot.registry.classloading.internal.AggregatedClassLoader.findClass(AggregatedClassLoader.java:209)
... 50 common frames omitted
Suppressed: java.lang.ClassNotFoundException: org.hibernate.dialect.MySQL5Dialect <2 internal lines>
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
at java.base/java.lang.Class.forName0(Native Method)
at java.base/java.lang.Class.forName(Class.java:467)
at org.springframework.boot.devtools.restart.classloader.RestartClassLoader.loadClass(RestartClassLoader.java:121)
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
at org.hibernate.boot.registry.classloading.internal.AggregatedClassLoader.findClass(AggregatedClassLoader.java:206)
... 50 common frames omitted
Suppressed: java.lang.ClassNotFoundException: org.hibernate.dialect.MySQL5Dialect <2 internal lines>
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
at org.hibernate.boot.registry.classloading.internal.AggregatedClassLoader.findClass(AggregatedClassLoader.java:206)
... 50 common frames omitted
Suppressed: java.lang.ClassNotFoundException: org.hibernate.dialect.MySQL5Dialect <2 internal lines>
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
orm-learn > src > main > java > com > cognizant > ormlearn > OrmLearnApplication
37:1 CRLF UTF-8 4 spaces
ENG US
3:59 PM 7/6/2025


orm-learn
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orm-learn [:com.cognizant.ormlearn.OrmLearnApplication....
... 50 common frames omitted
Suppressed: java.lang.ClassNotFoundException: org.hibernate.dialect.MySQL5Dialect <2 internal lines>
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
at org.hibernate.boot.registry.classloading.internal.AggregatedClassLoader.findClass(AggregatedClassLoader.java:206)
... 50 common frames omitted
Suppressed: java.lang.ClassNotFoundException: org.hibernate.dialect.MySQL5Dialect <2 internal lines>
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
at java.base/java.lang.Class.forName0(Native Method)
at java.base/java.lang.Class.forName(Class.java:467)
at org.springframework.boot.devtools.restart.classloader.RestartClassLoader.loadClass(RestartClassLoader.java:121)
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
at org.hibernate.boot.registry.classloading.internal.AggregatedClassLoader.findClass(AggregatedClassLoader.java:206)
... 50 common frames omitted
Suppressed: java.lang.ClassNotFoundException: org.hibernate.dialect.MySQL5Dialect <2 internal lines>
at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:525)
at org.hibernate.boot.registry.classloading.internal.AggregatedClassLoader.findClass(AggregatedClassLoader.java:206)
... 50 common frames omitted
BUILD SUCCESSFUL in 36s
3 actionable tasks: 3 executed
3:54:05 PM: Execution finished ':com.cognizant.ormlearn.OrmLearnApplication.main()'.
orm-learn > src > main > java > com > cognizant > ormlearn > OrmLearnApplication
37:1 CRLF UTF-8 4 spaces
ENG US
3:59 PM 7/6/2025