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Article

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## Tutorial - Develop IRIS using SSH

SSH framework is a relatively representative framework of Java, which was popular many years ago. There are Struts+Spring+hibernate and Spring MVC+Spring+hibernate. Of course, I used the second one in college. If I can connect IRIS to Hibernate as a library, does it also mean that IRIS can be developed using SSH framework in theory?

Tools and environment

JDK 1.8

Maven

Hibernate 5.X.X

IRISHealth-2022.1.3

intelliJ idea

Windows 10 64

Create database

Create several tables in code mode

```
Class BKIP.SOA.MonitorScreen.CacheTable.LogError Extends %Persistent
{
/// Service Overview Cache Table
Property SucNum As %String(MAXLEN = "") ;
Property failNum As %String(MAXLEN = "") ;
Property fdateTime As %String(MAXLEN = "") ;
}
```

As shown in the figure:

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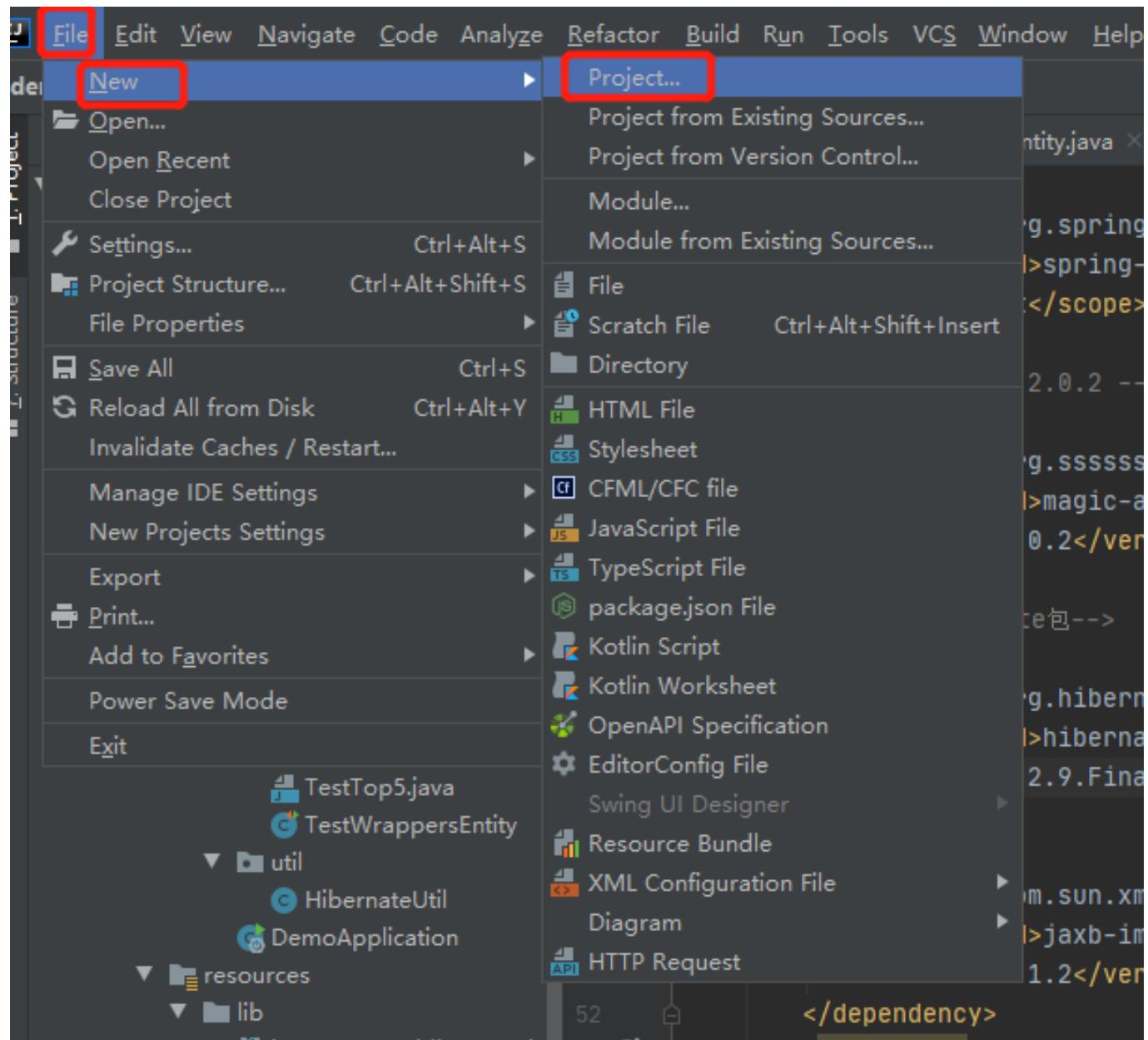
The screenshot shows the Oracle Database Navigator interface. On the left, the Database Navigator pane displays a tree structure for the 'SOA' schema, which includes 'BKIP' and 'BKIP\_SOA\_MonitorScreen\_CacheTable'. The 'BKIP\_SOA\_MonitorScreen\_CacheTable' node is expanded, showing 'Tables' like 'ServiceView', 'Systems', 'Top5', and 'logError', along with 'Views', 'Indexes', 'Procedures', and 'Data Types'. On the right, the main workspace shows the properties for the 'BKIP\_SOA\_MonitorScreen\_CacheTable' schema. The 'Properties' tab is selected, displaying the 'Schema Name' as 'BKIP\_SOA\_MonitorScreen\_CacheTable'. Below it, the 'Tables' section lists four tables:

Table Name	Table Type	Schema	Table Description
ServiceView	TABLE	BKIP_SOA_MonitorScreen_CacheTable	
Systems	TABLE	BKIP_SOA_MonitorScreen_CacheTable	
Top5	TABLE	BKIP_SOA_MonitorScreen_CacheTable	
logError	TABLE	BKIP_SOA_MonitorScreen_CacheTable	

## Create a Spring project

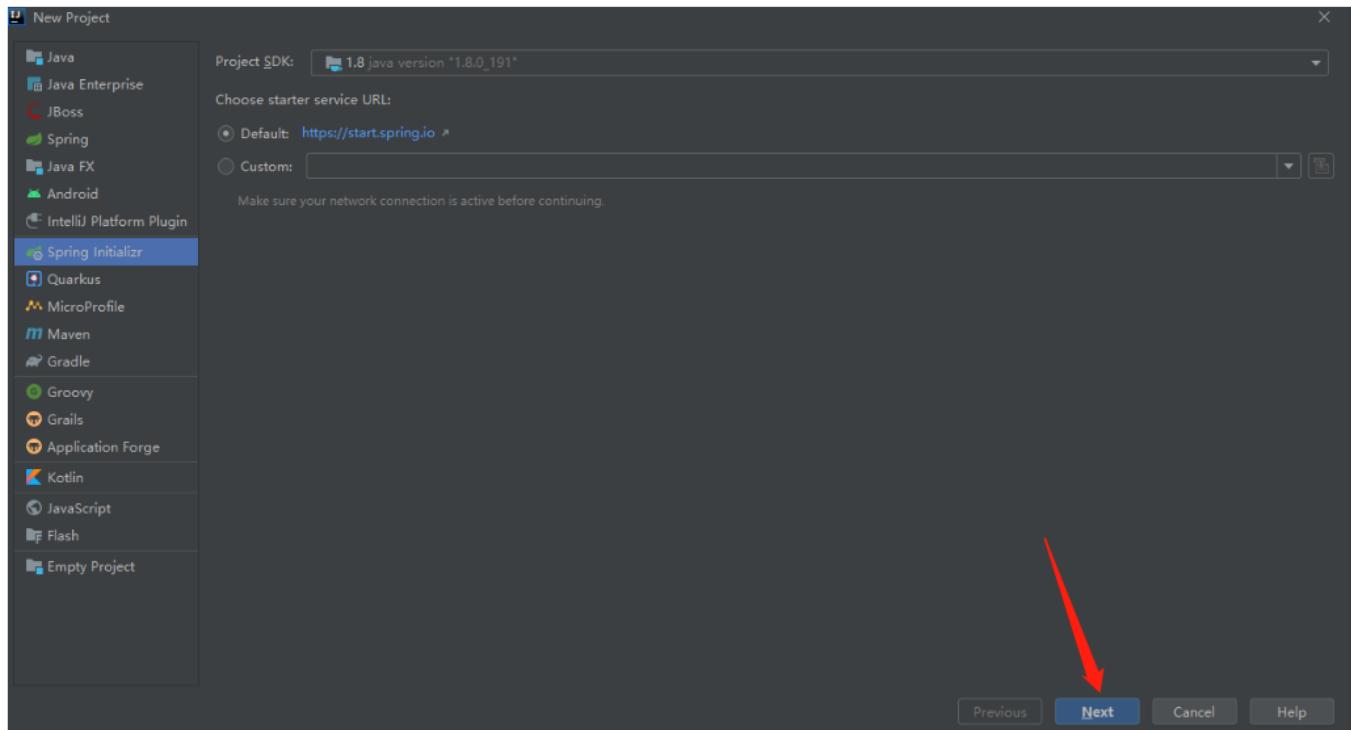
The next step is to use IDEA to create the mapping of the library and create the entity class

File—New—Project....

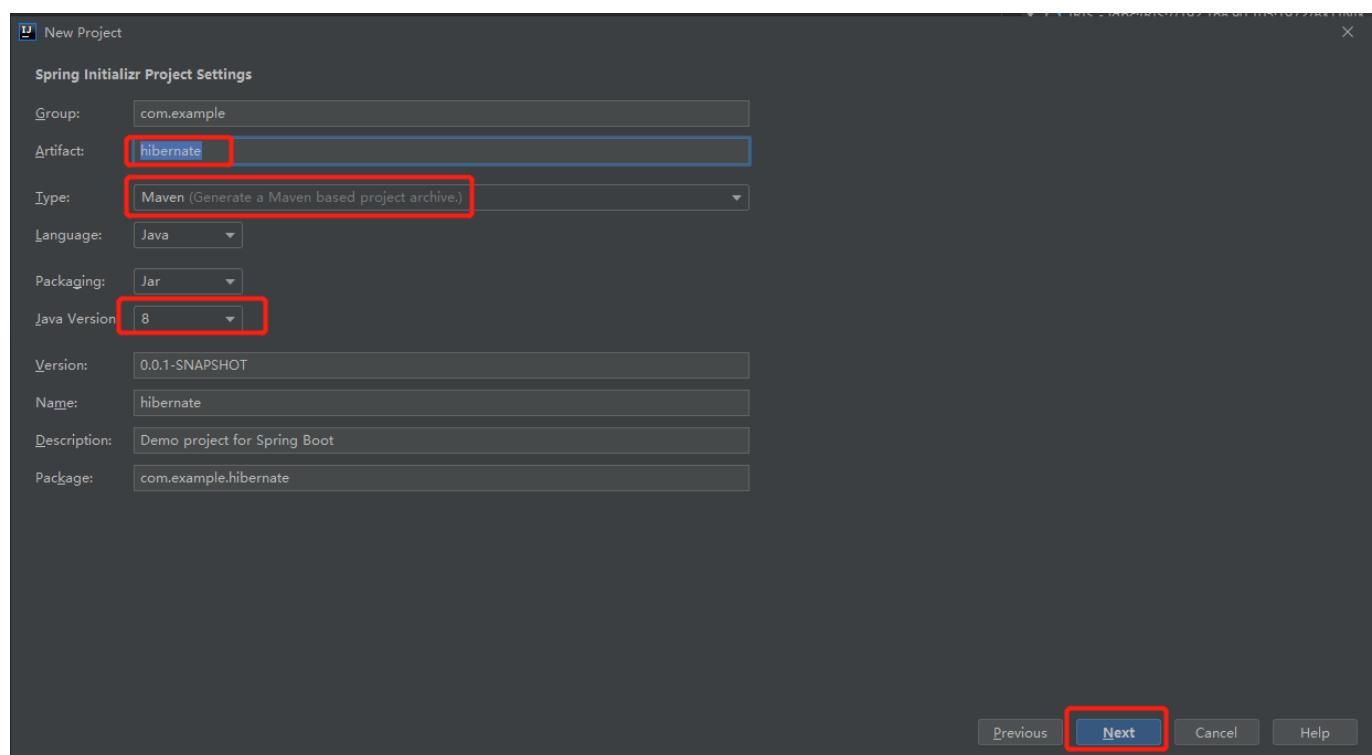


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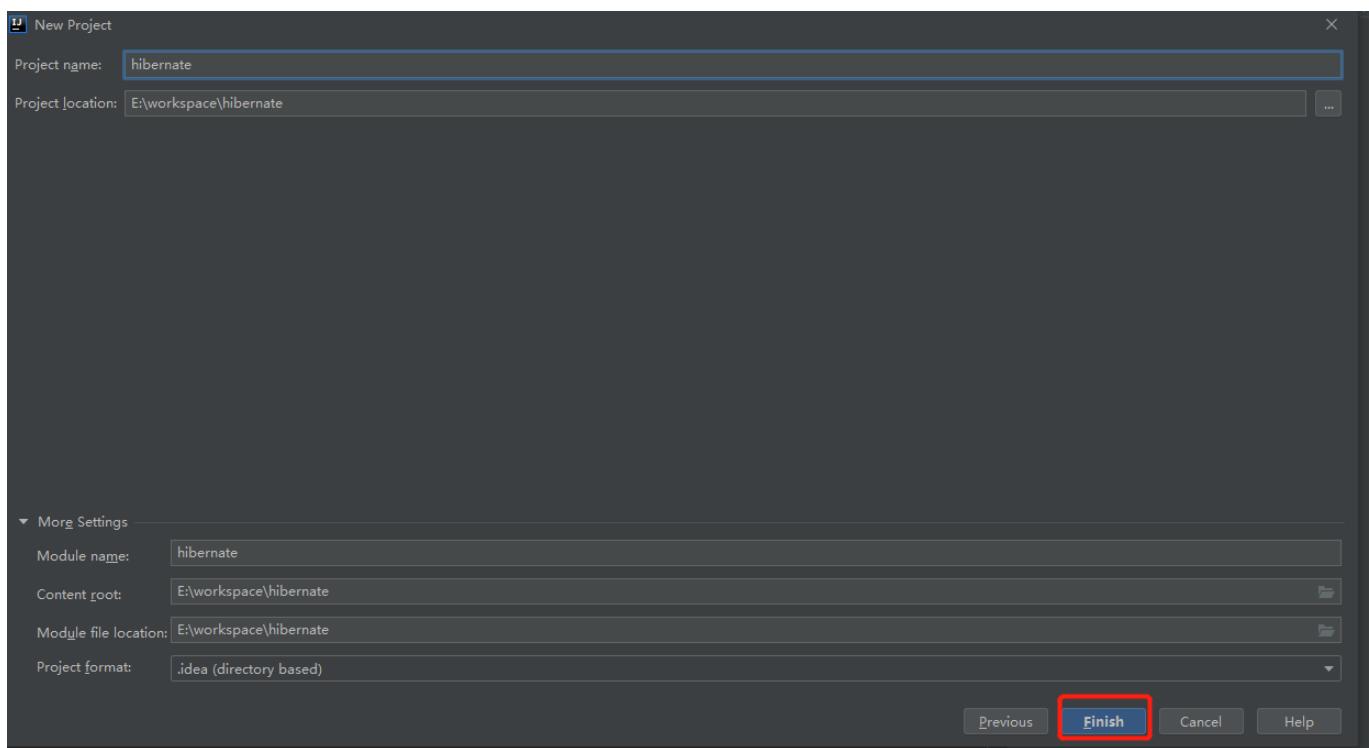
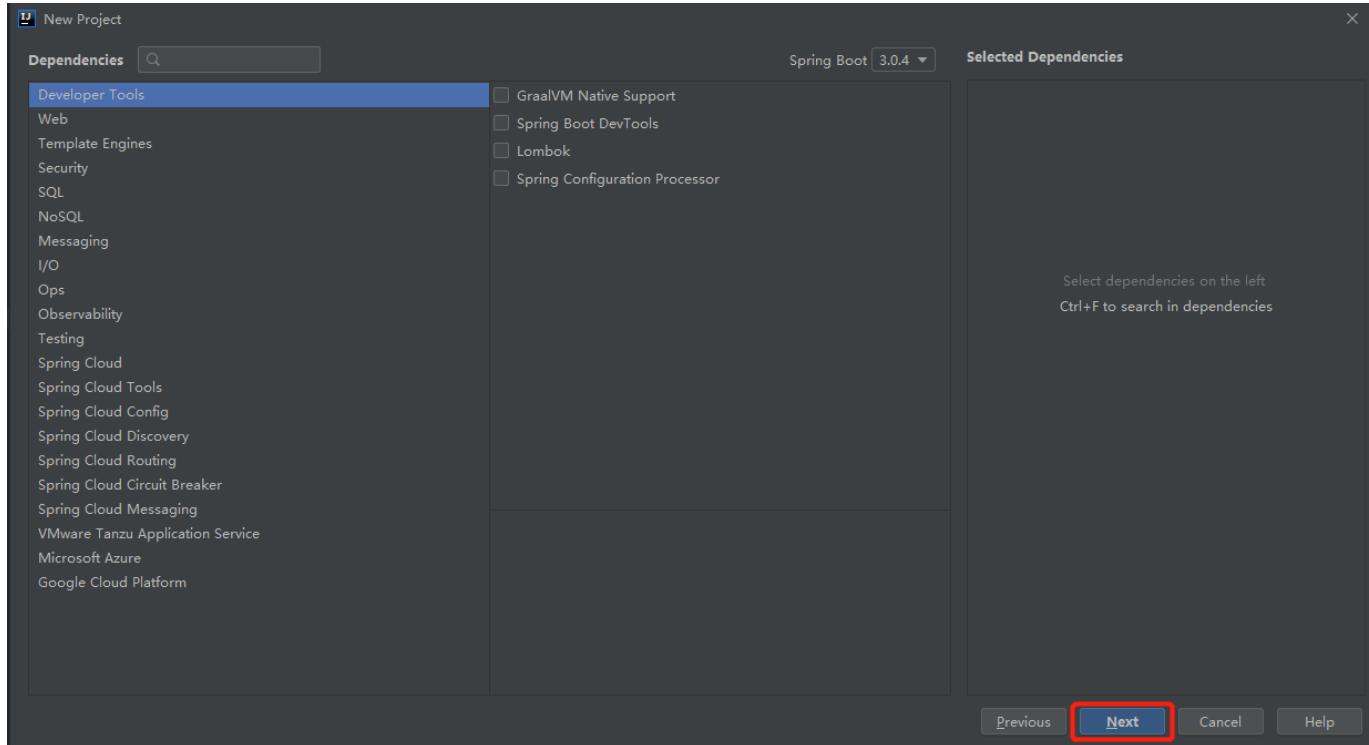


Name the project and select the jdk version , Click "Next"



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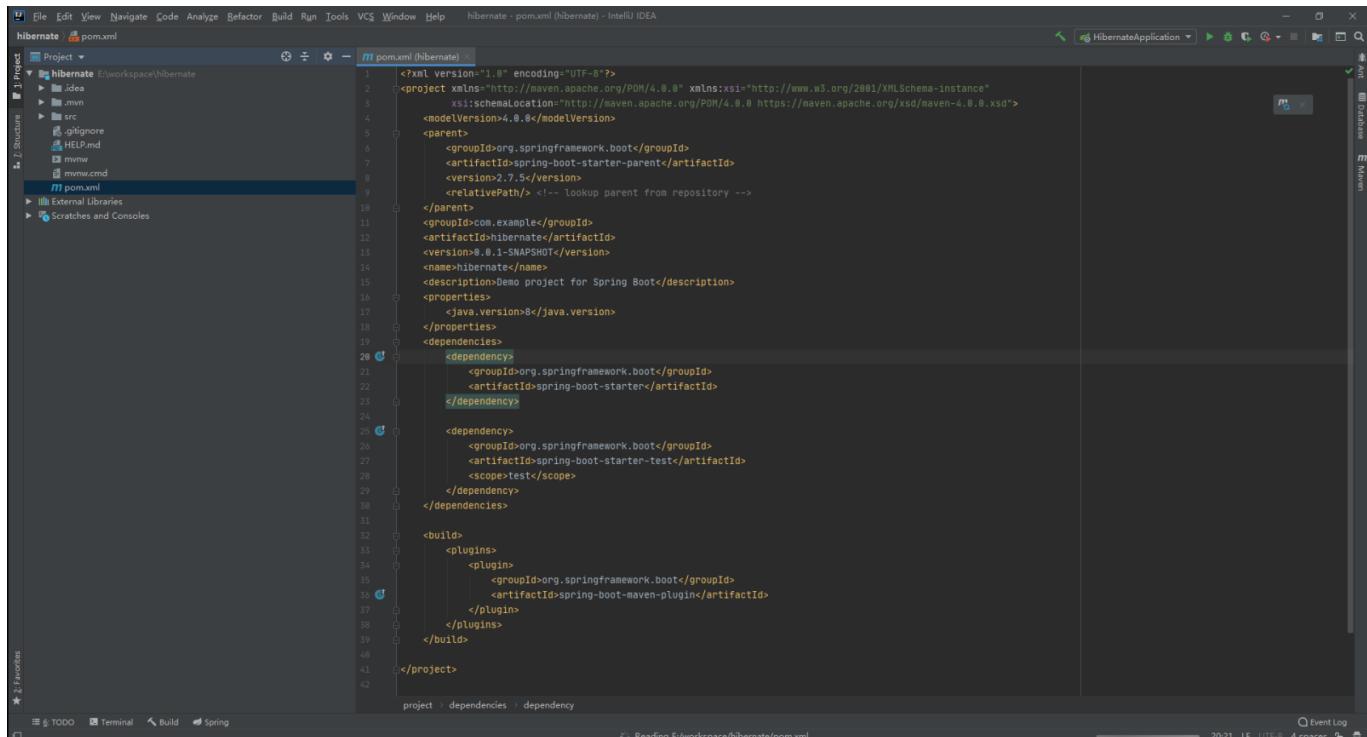
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Wait for maven to finish creating the project , As shown in the figure

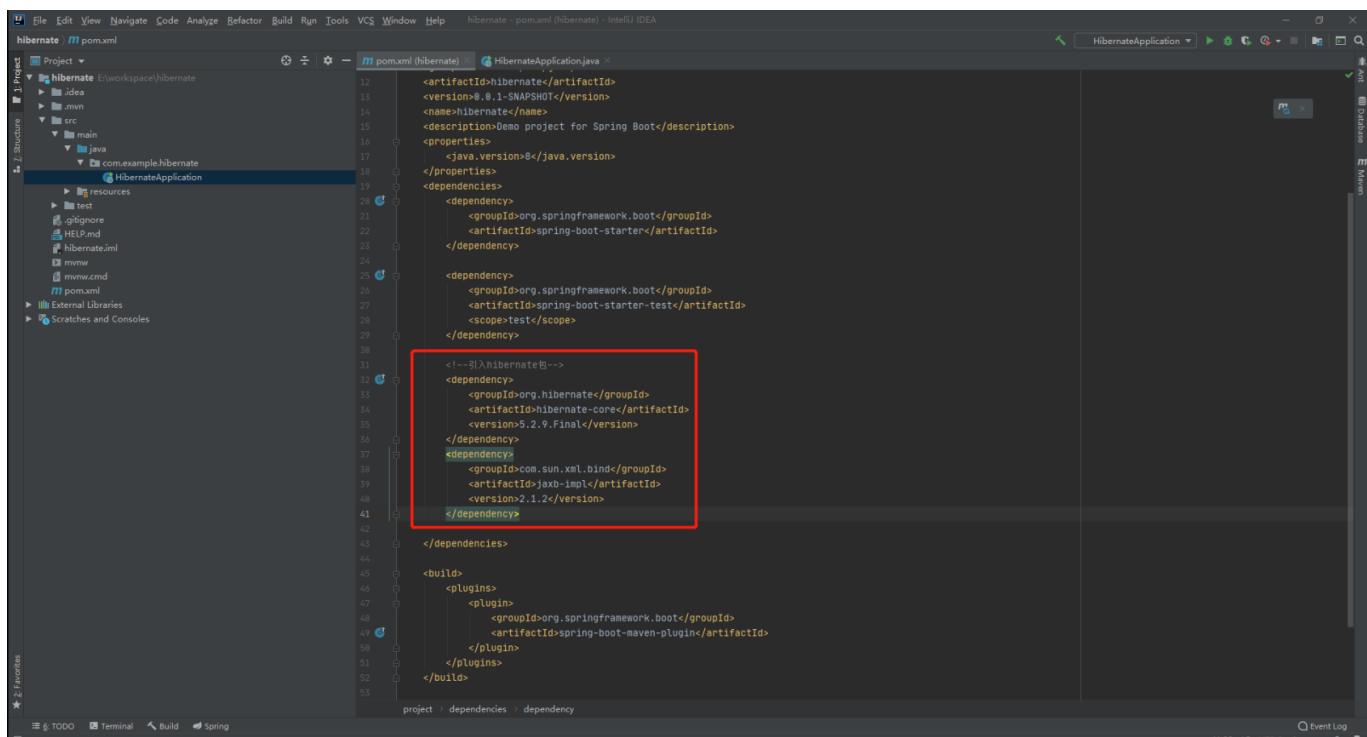
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```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>2.7.5</version>
    <relativePath/> <!-- lookup parent from repository -->
  </parent>
  <groupId>com.example</groupId>
  <artifactId>hibernate</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <name>hibernate</name>
  <description>Demo project for Spring Boot</description>
  <properties>
    <java.version>8</java.version>
  </properties>
  <dependencies>
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter</artifactId>
    </dependency>
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-test</artifactId>
      <scope>test</scope>
    </dependency>
  </dependencies>
  <build>
    <plugins>
      <plugin>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-maven-plugin</artifactId>
      </plugin>
    </plugins>
  </build>
</project>
```

## Add required packages

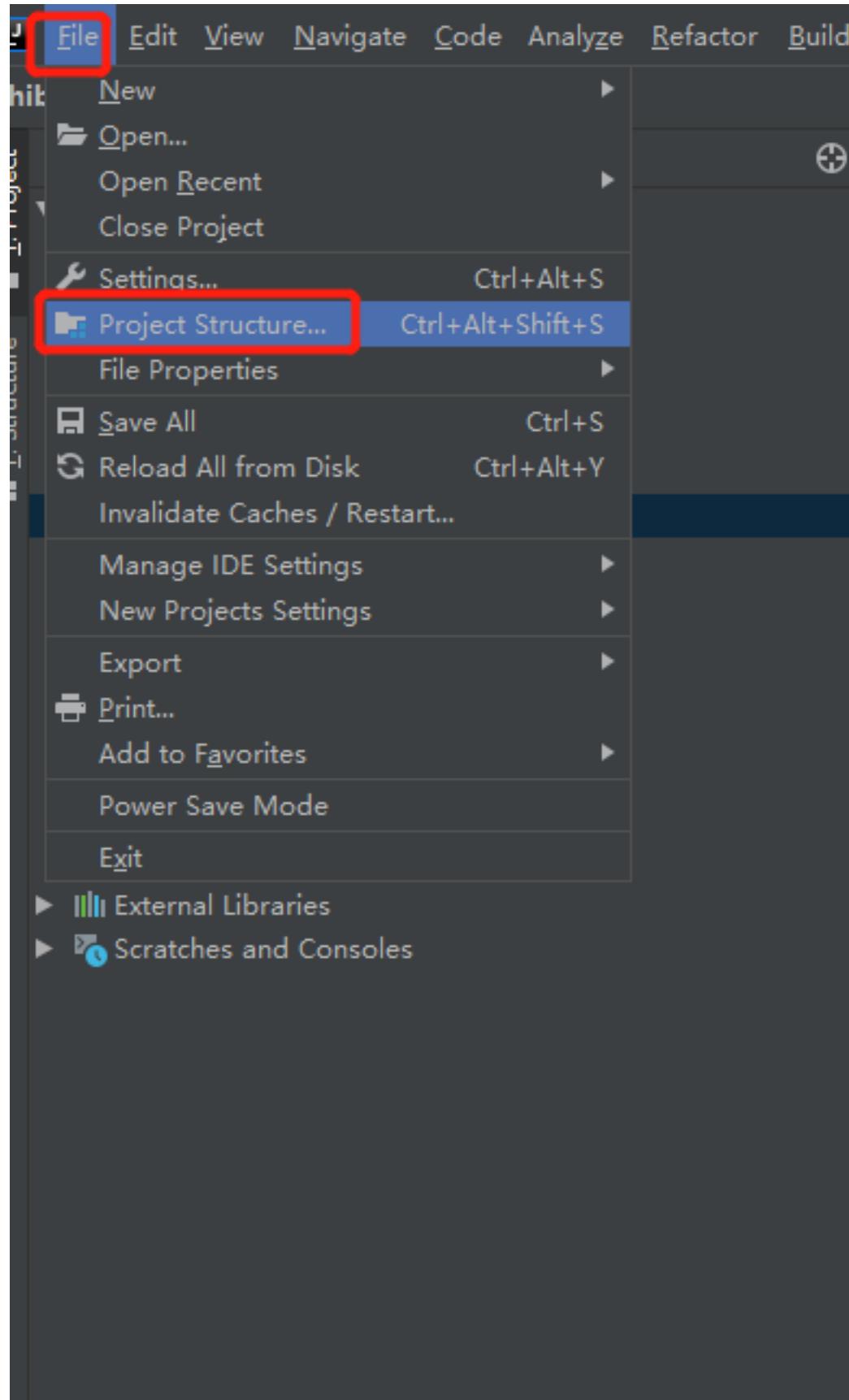


```
<!--Introduce hibernate package-->
<dependency>
  <groupId>org.hibernate</groupId>
  <artifactId>hibernate-core</artifactId>
  <version>5.2.9.Final</version>
</dependency>
<dependency>
  <groupId>com.sun.xml.bind</groupId>
  <artifactId>jaxb-impl</artifactId>
  <version>2.1.2</version>
</dependency>
```

```
<!--Introduce hibernate package-->
<dependency>
  <groupId>org.hibernate</groupId>
  <artifactId>hibernate-core</artifactId>
  <version>5.2.9.Final</version>
</dependency>
<dependency>
  <groupId>com.sun.xml.bind</groupId>
  <artifactId>jaxb-impl</artifactId>
```

```
<version>2.1.2</version>
</dependency>
```

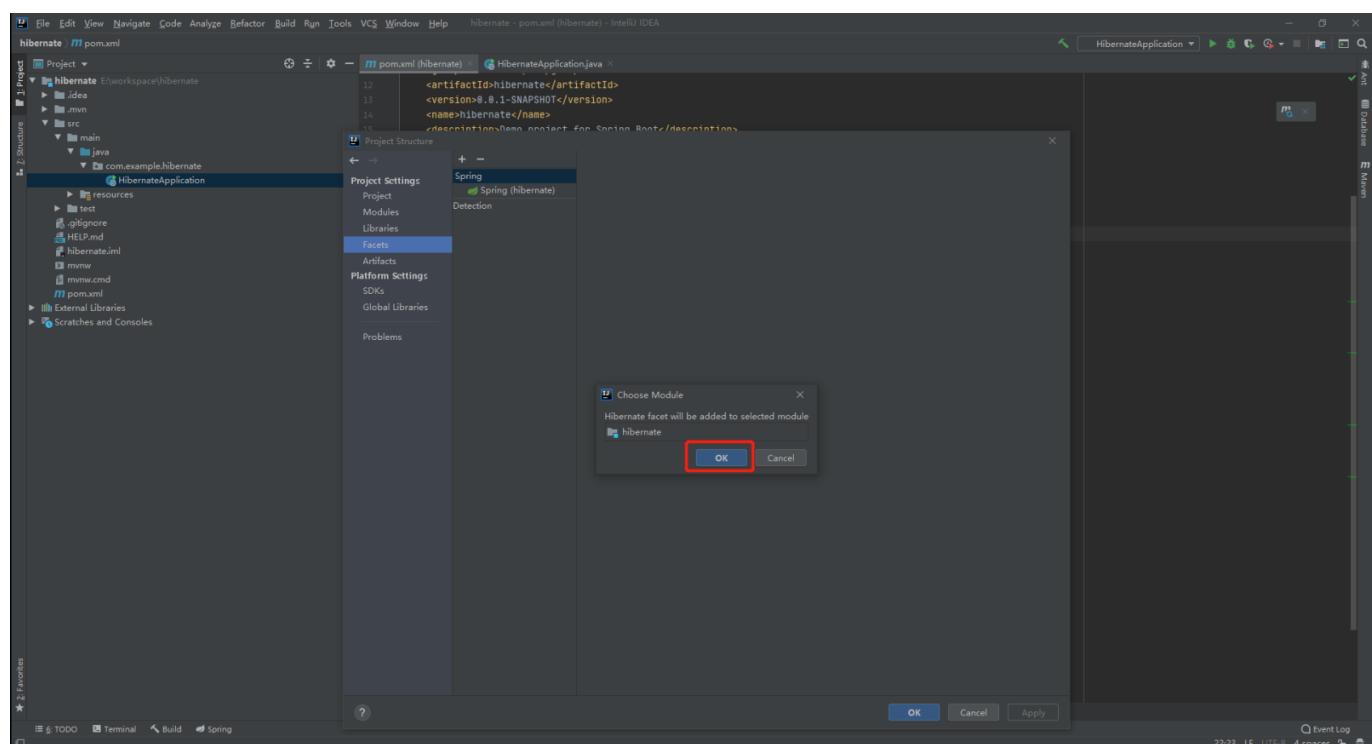
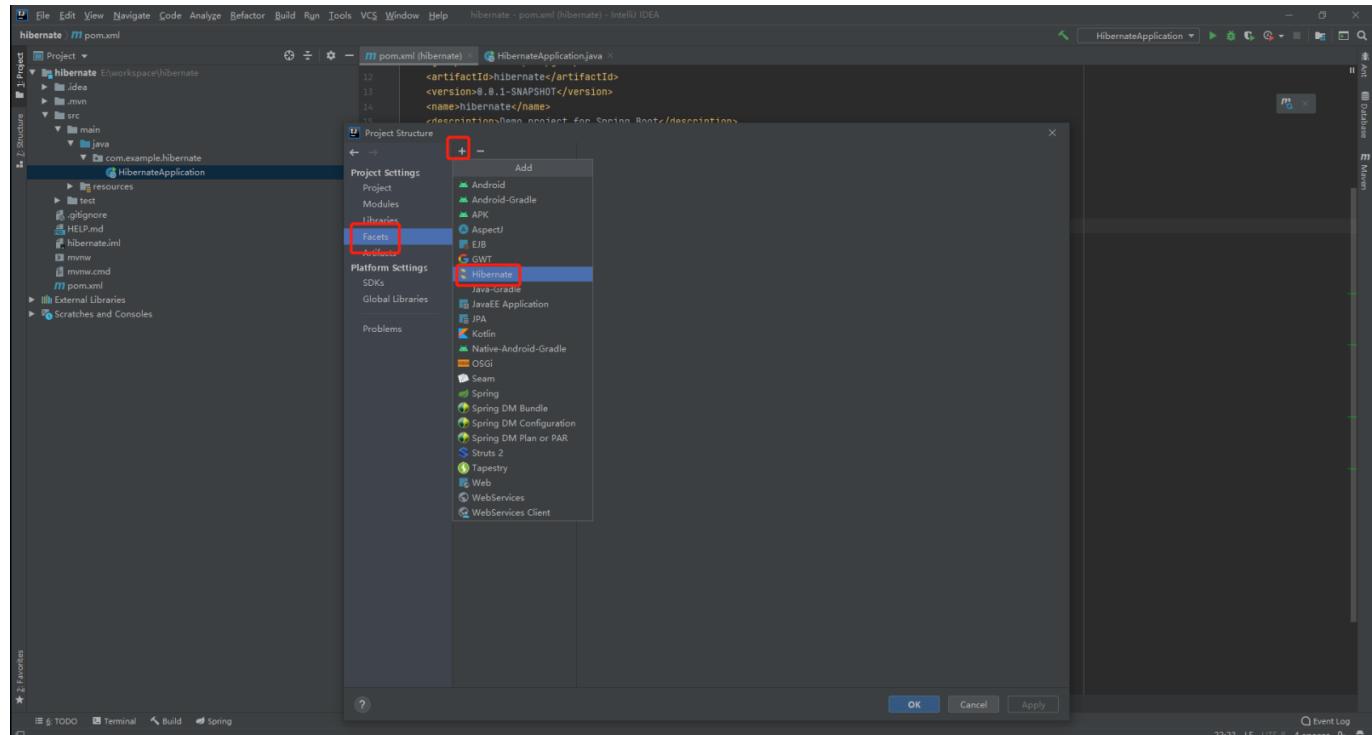
File—Project Structure...



Select Facets - add Hibernate

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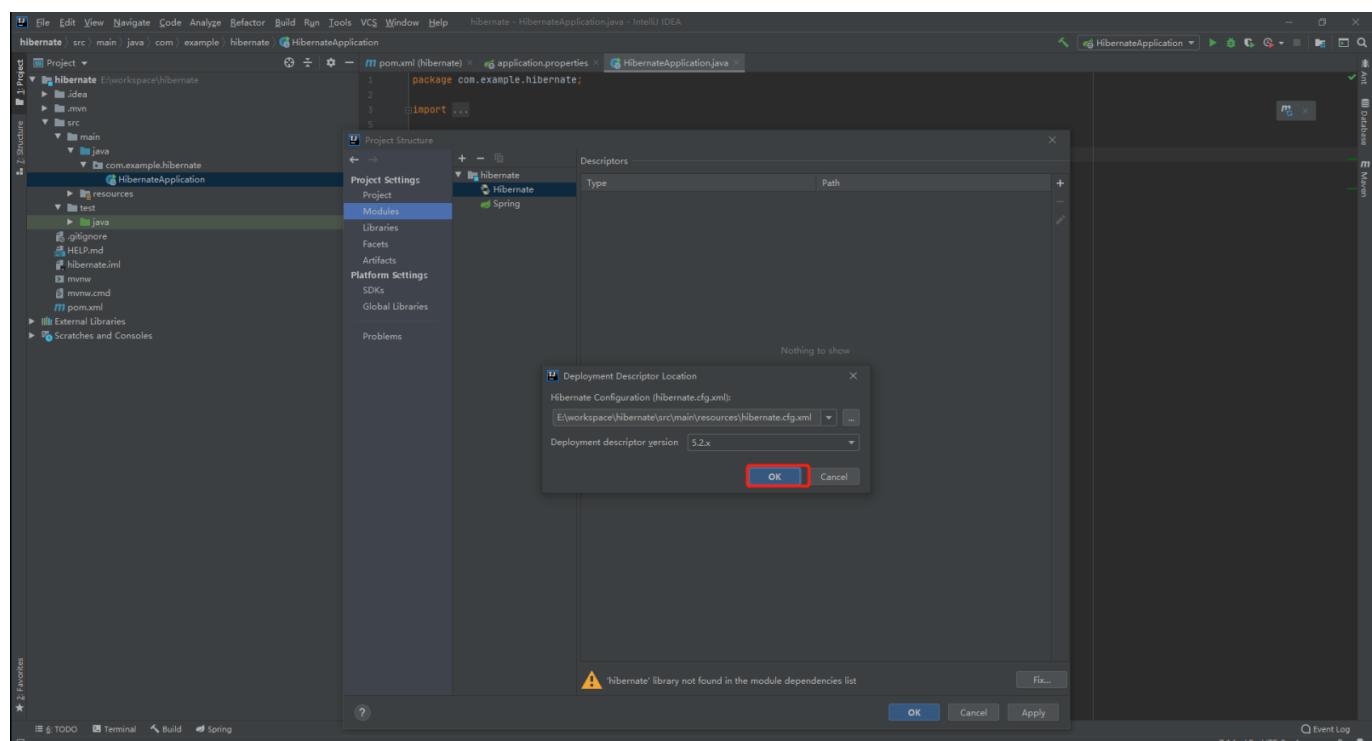
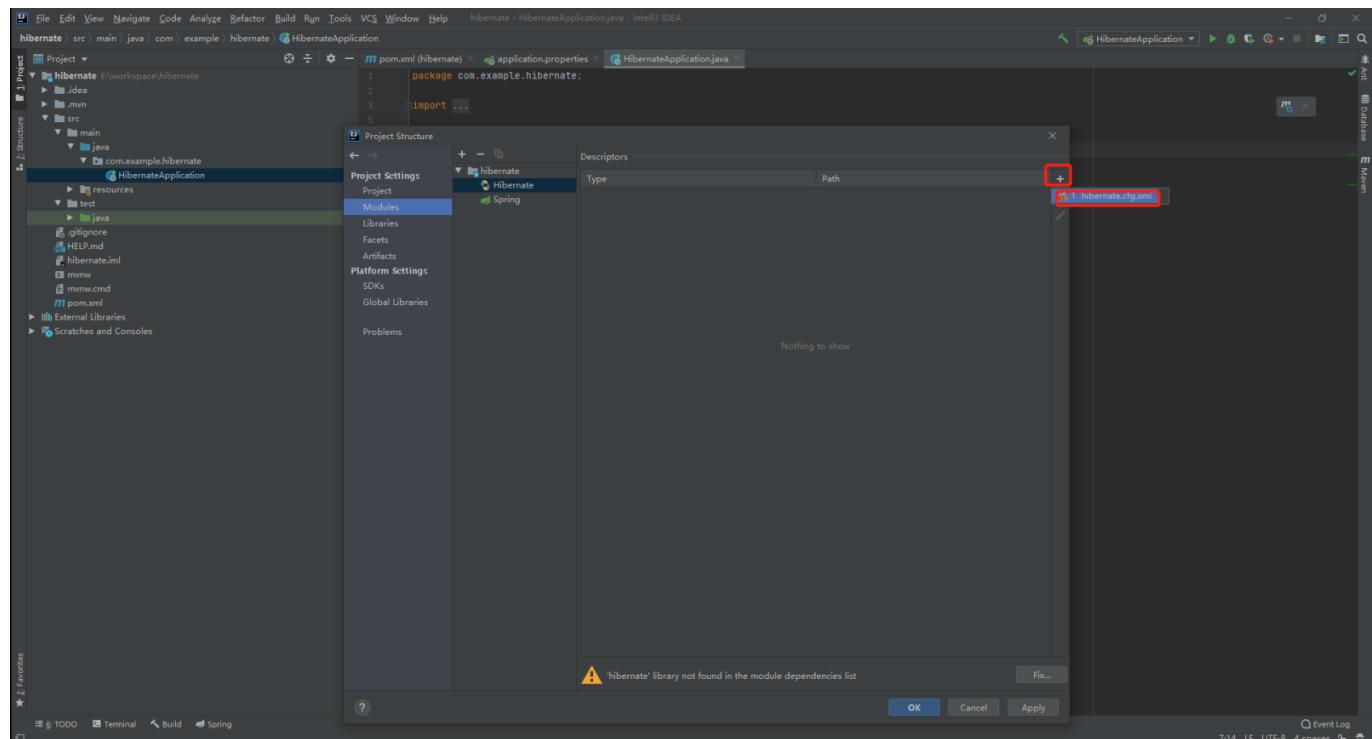
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Add the configuration file as shown in the figure

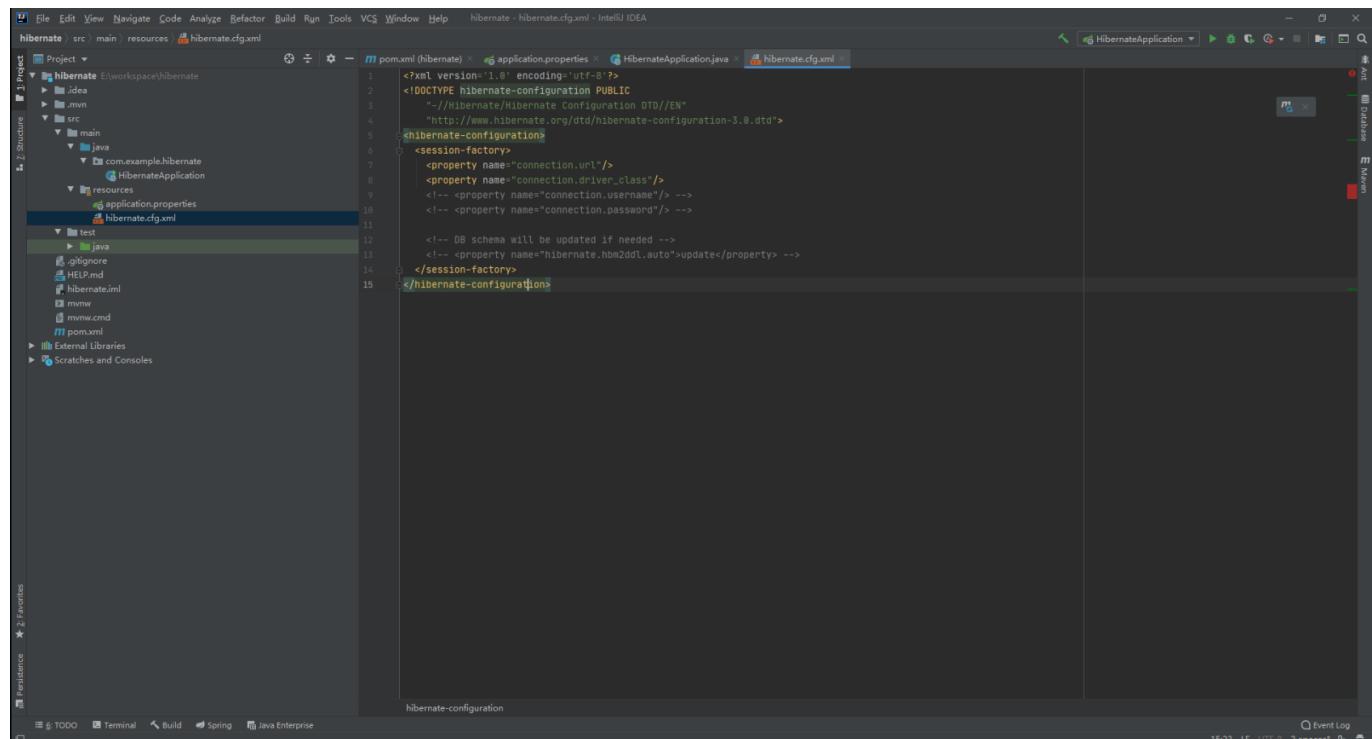
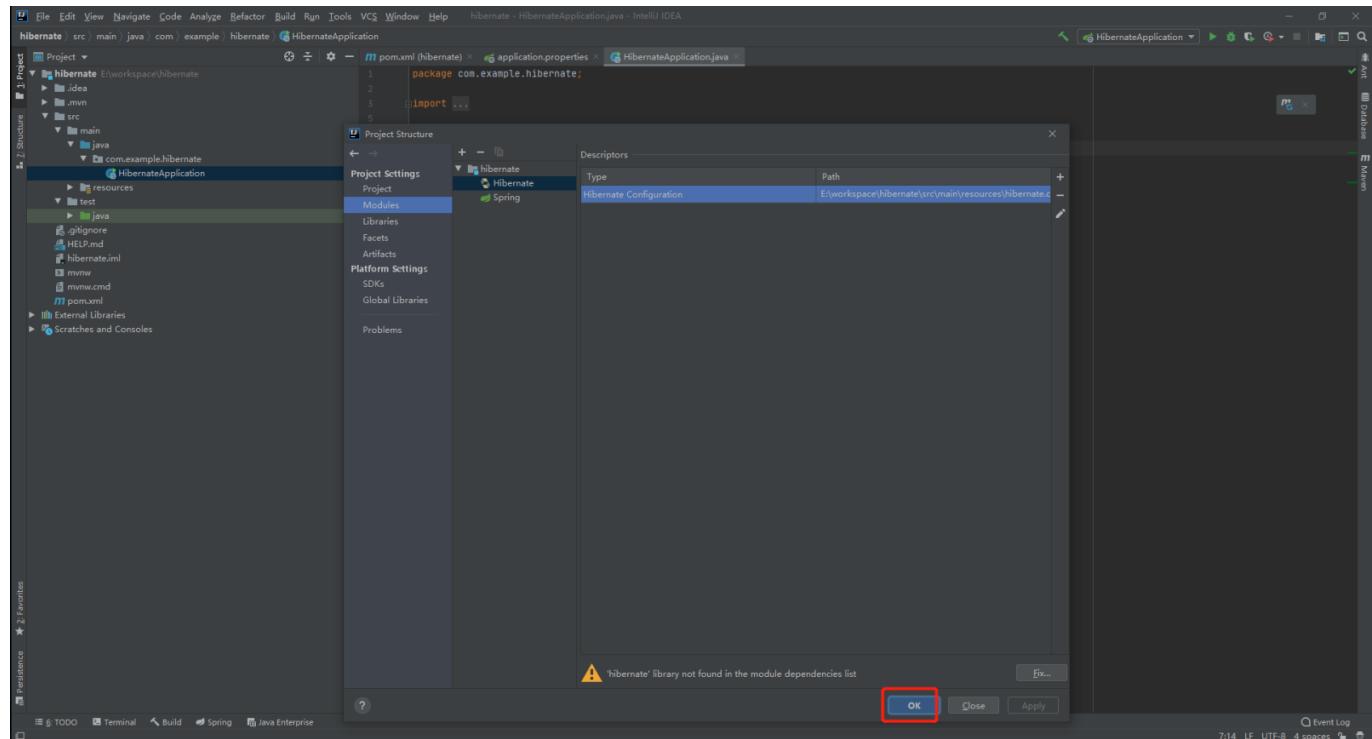
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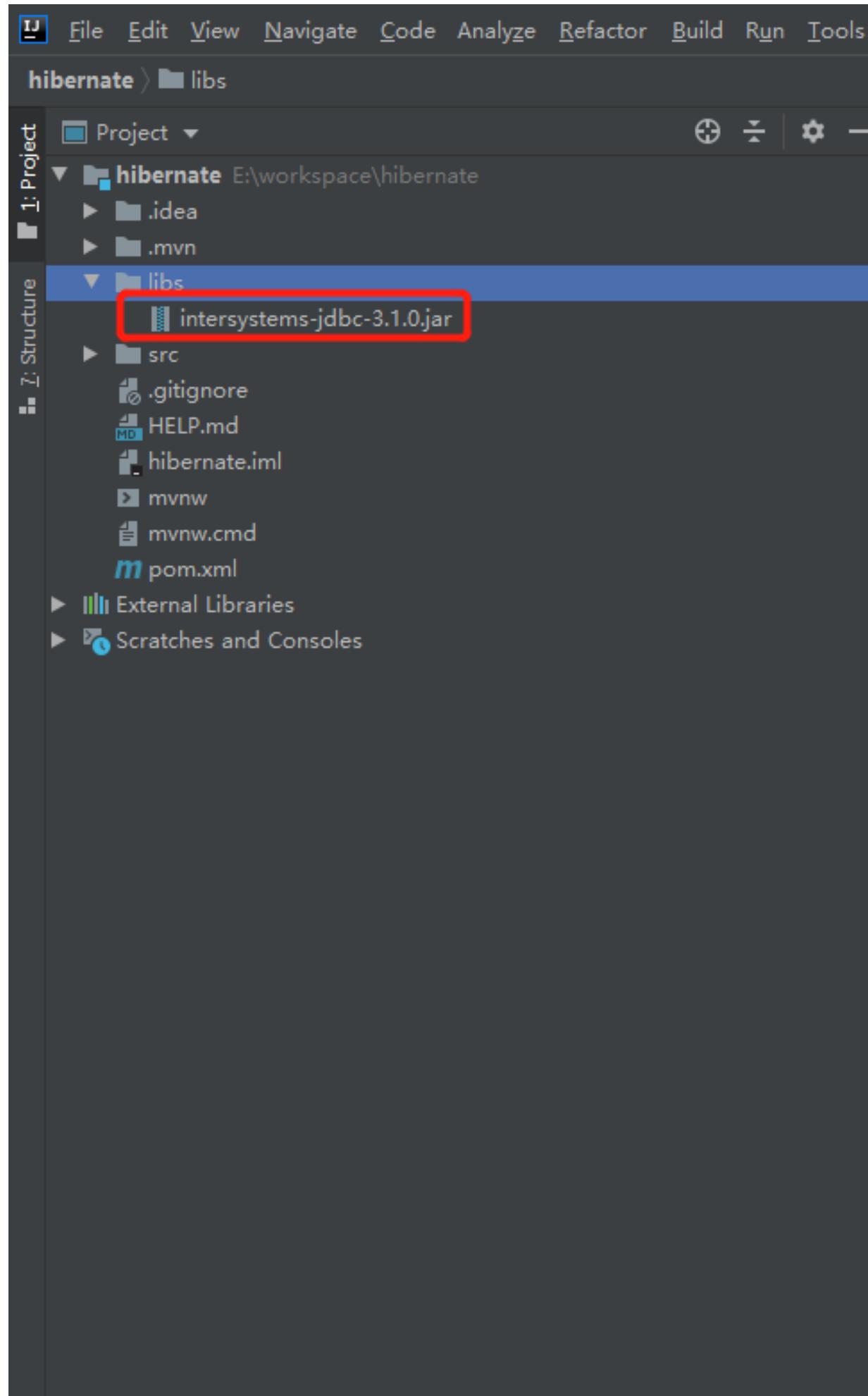


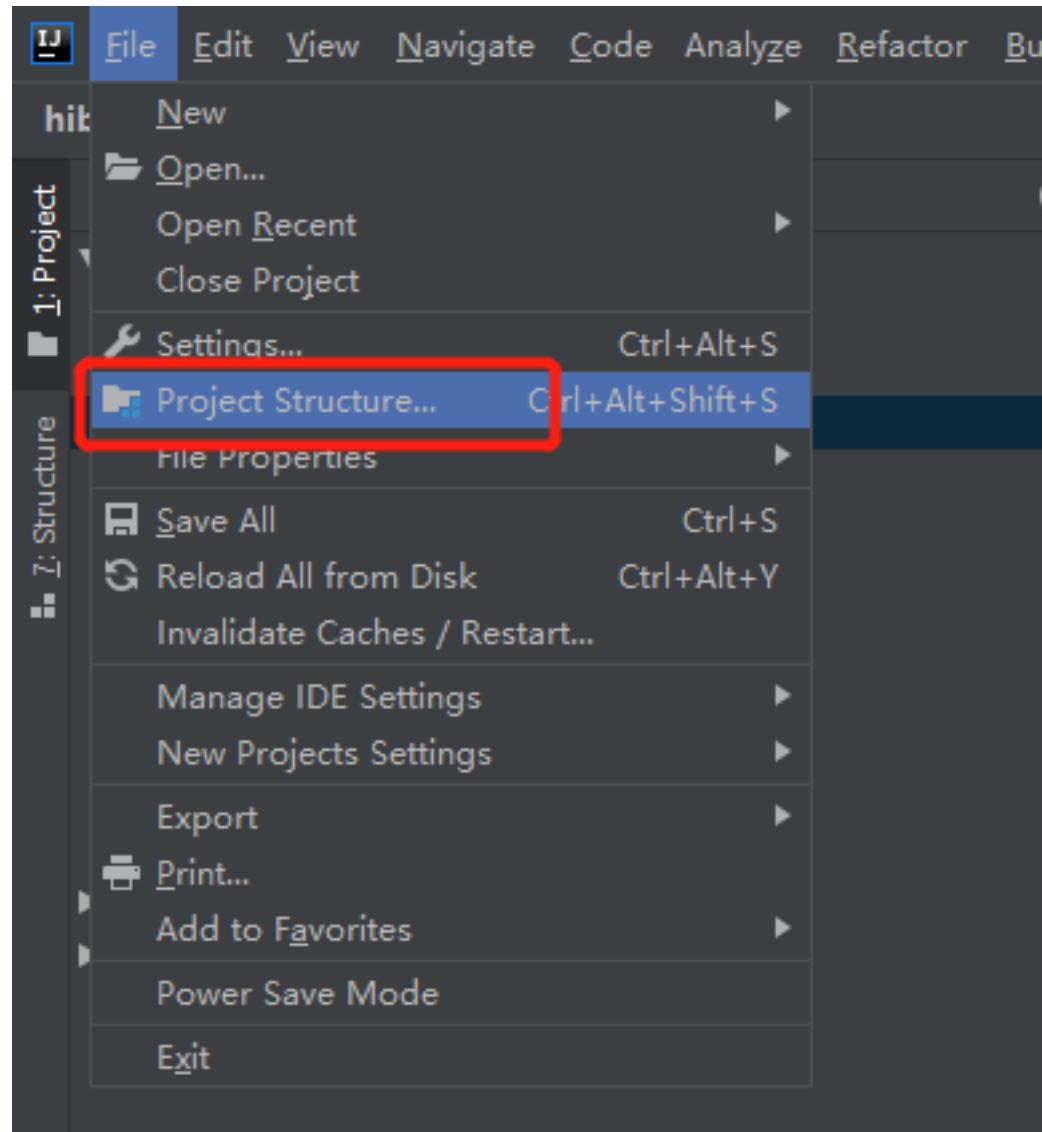
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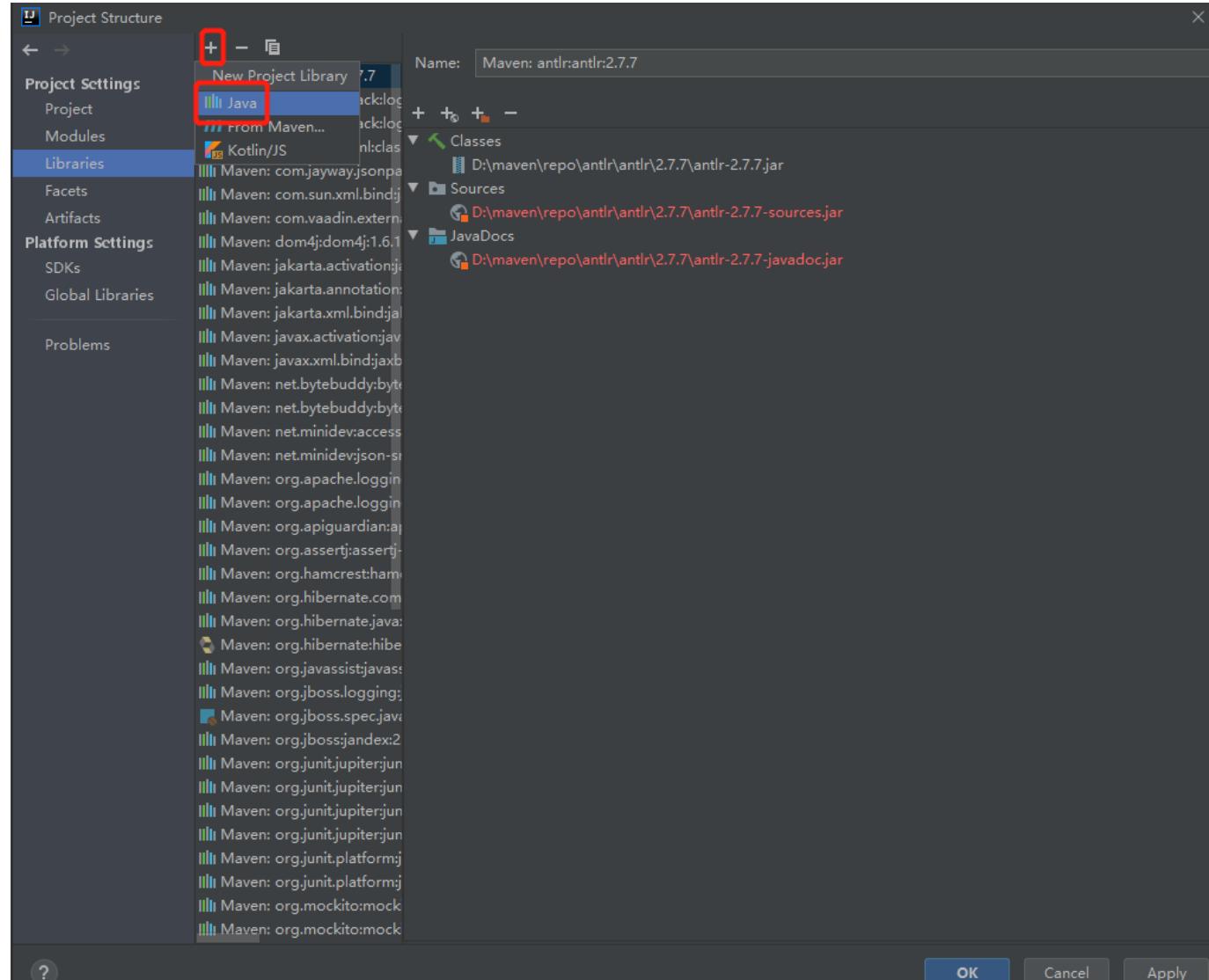
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Jdbc package introducing iris

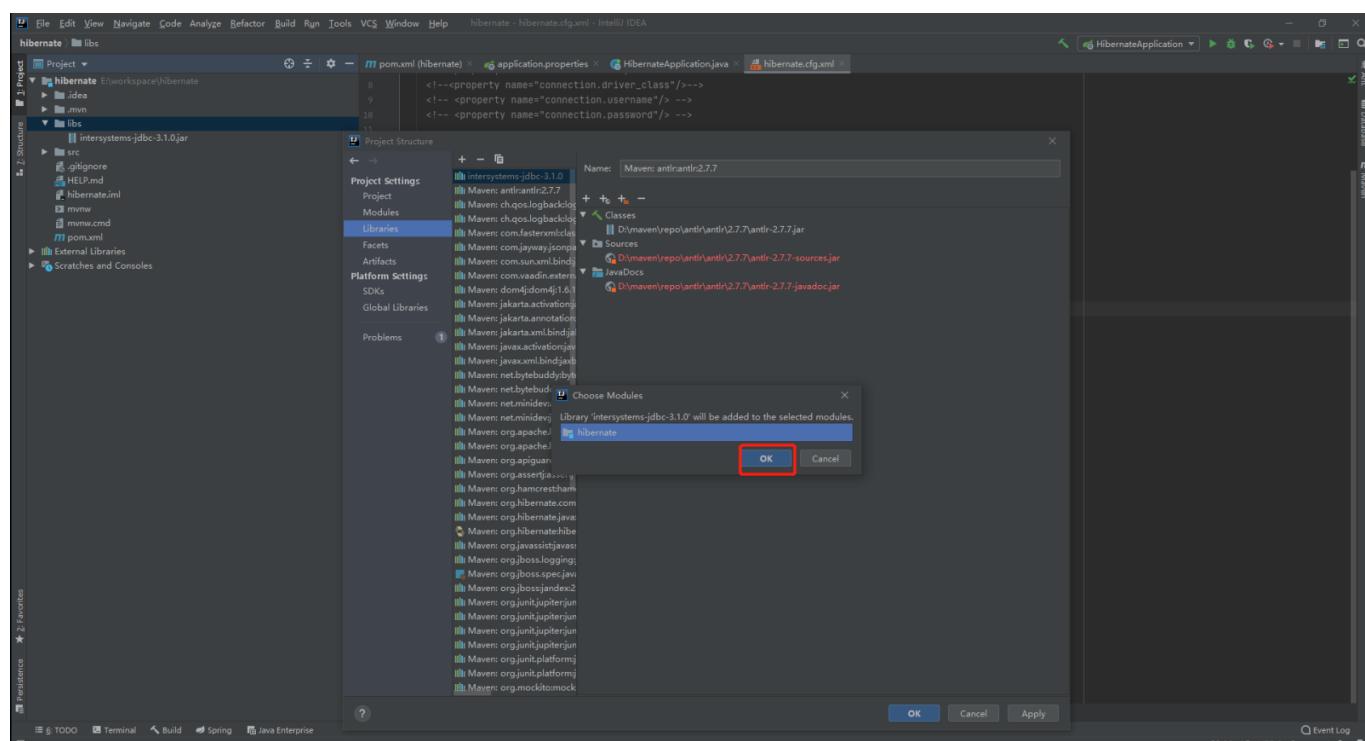
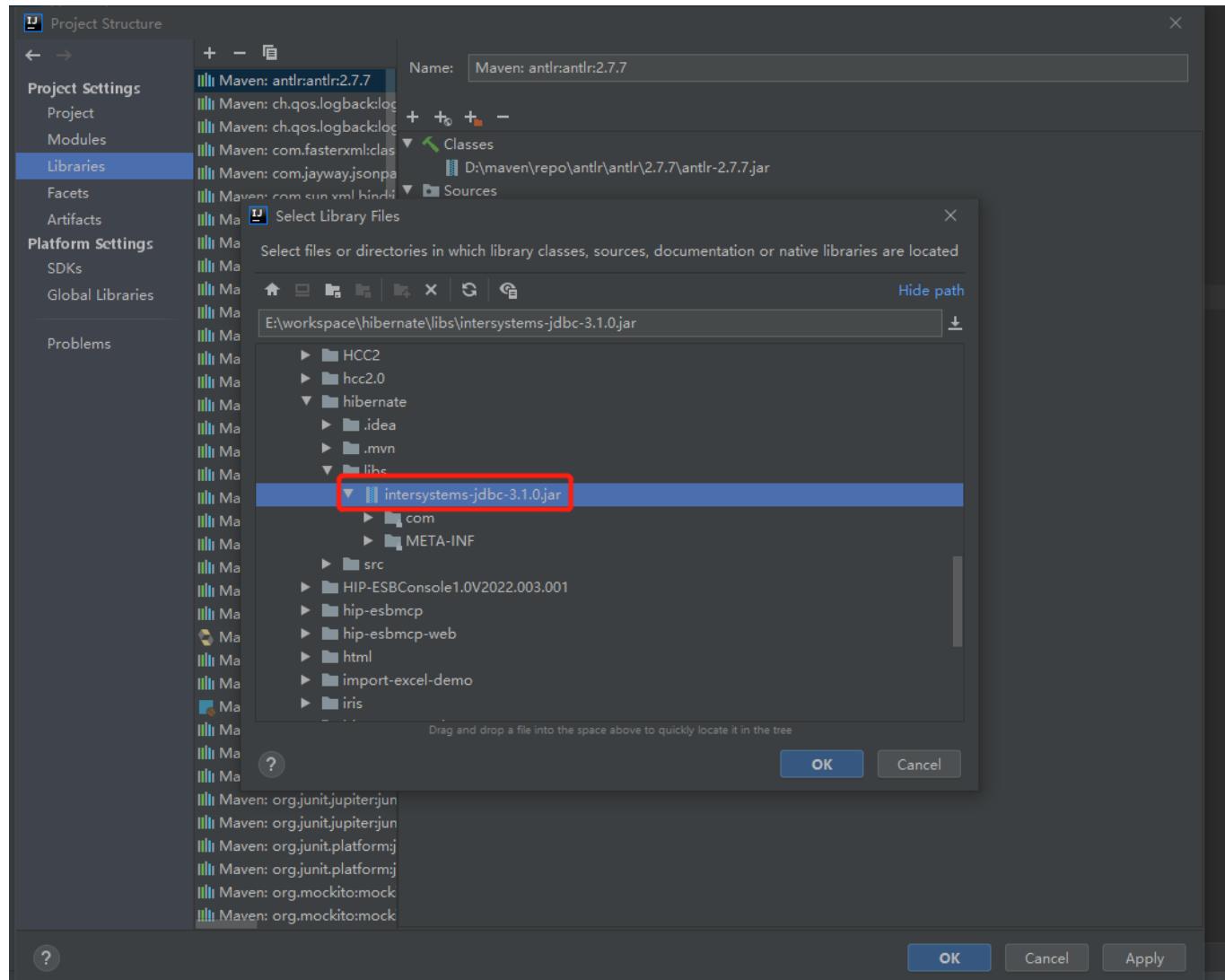






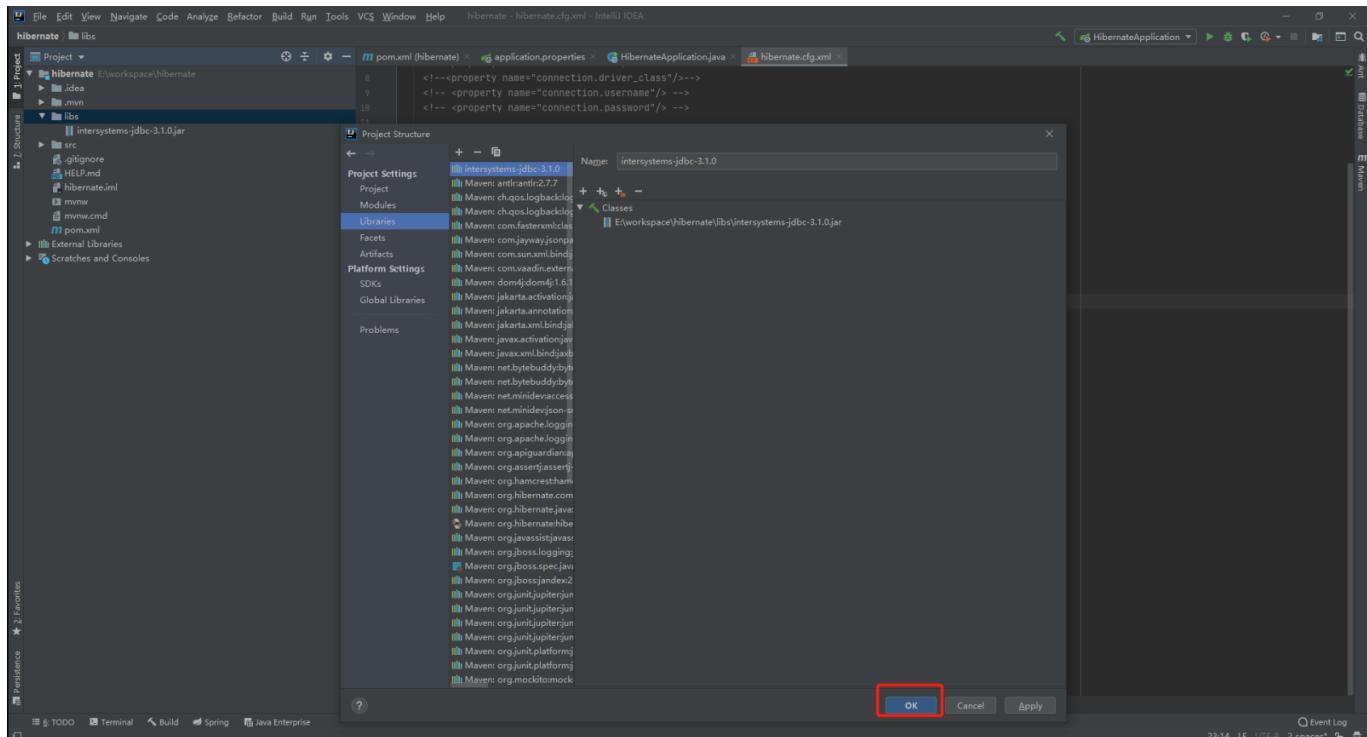
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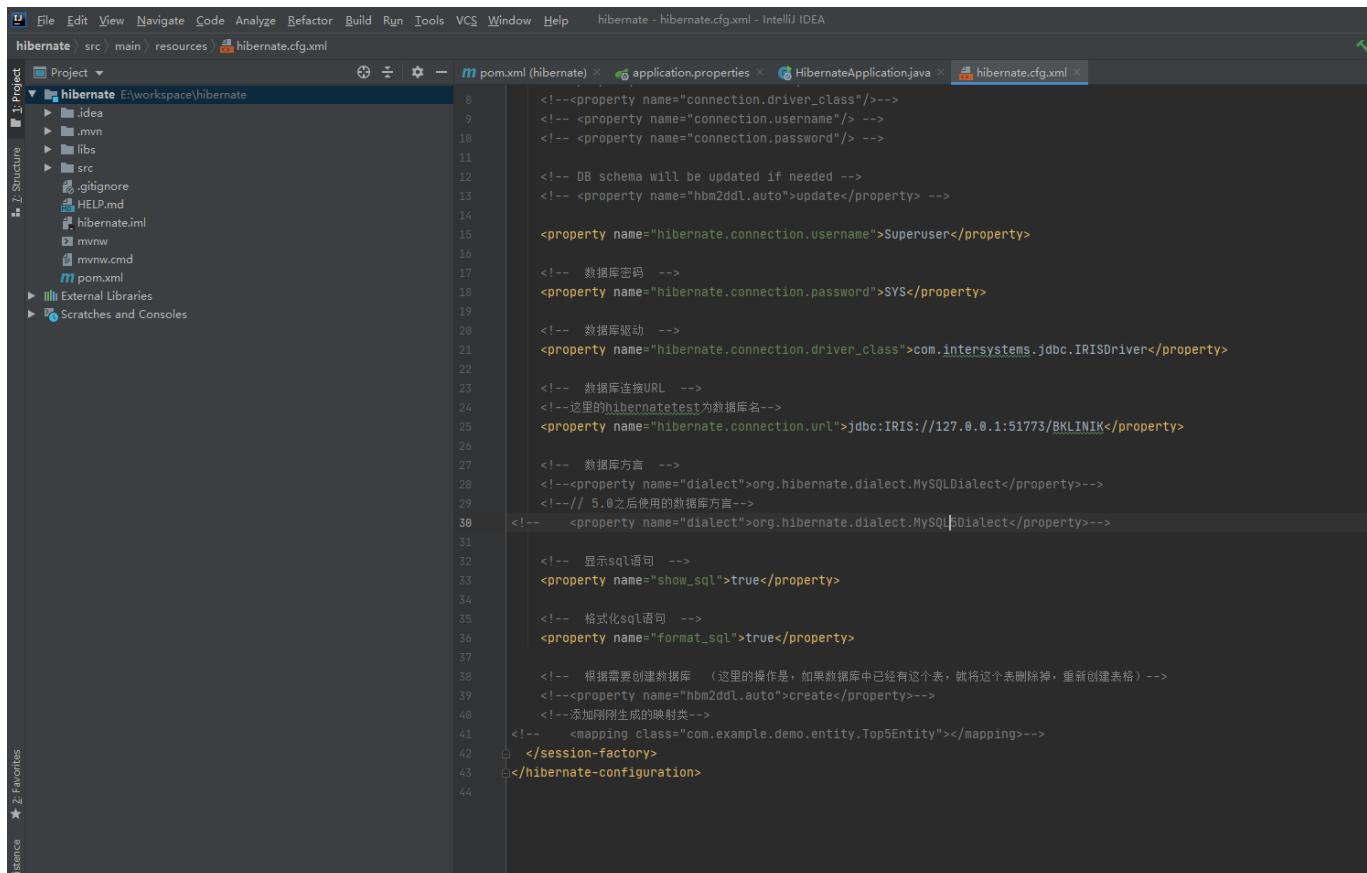


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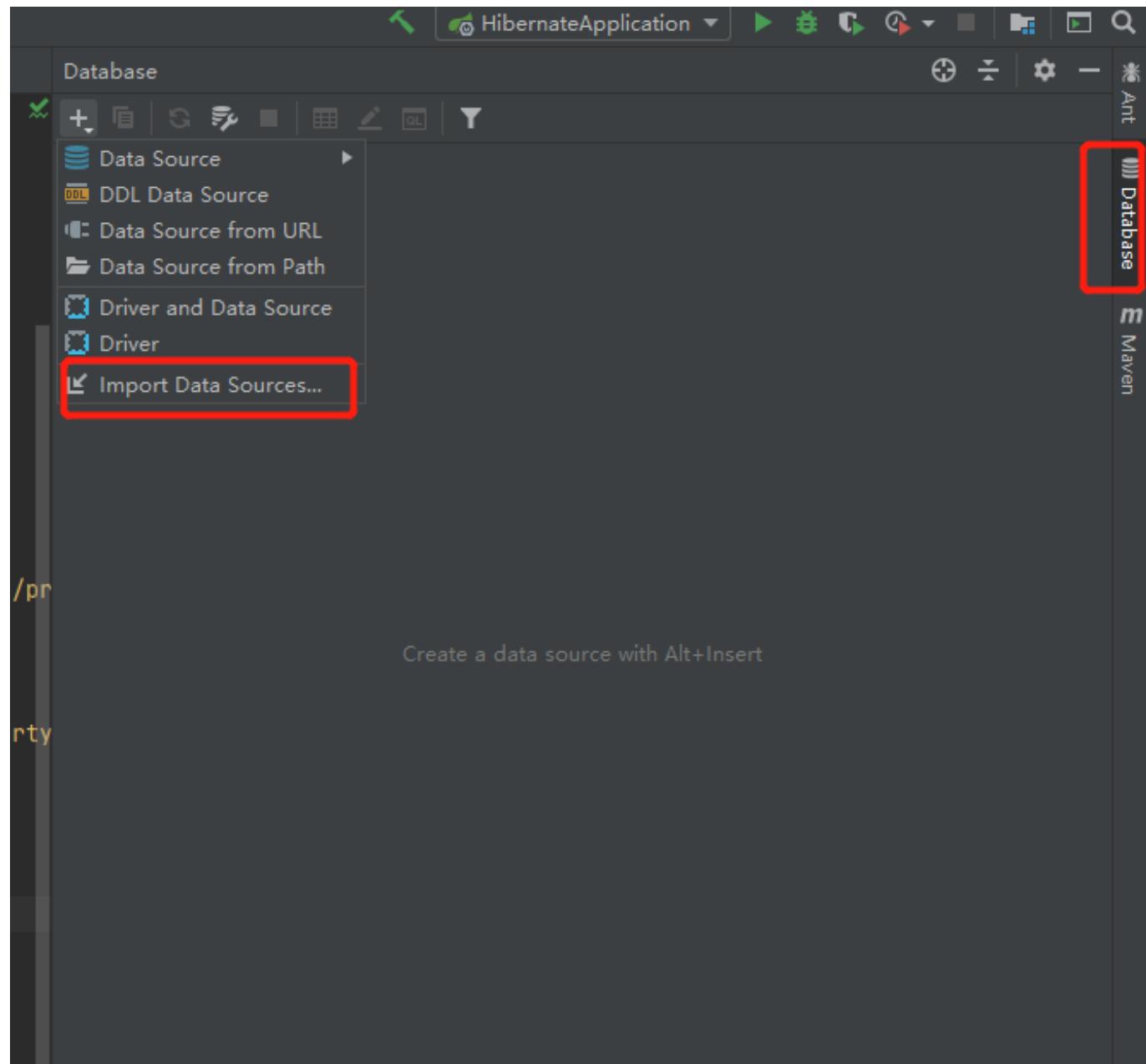
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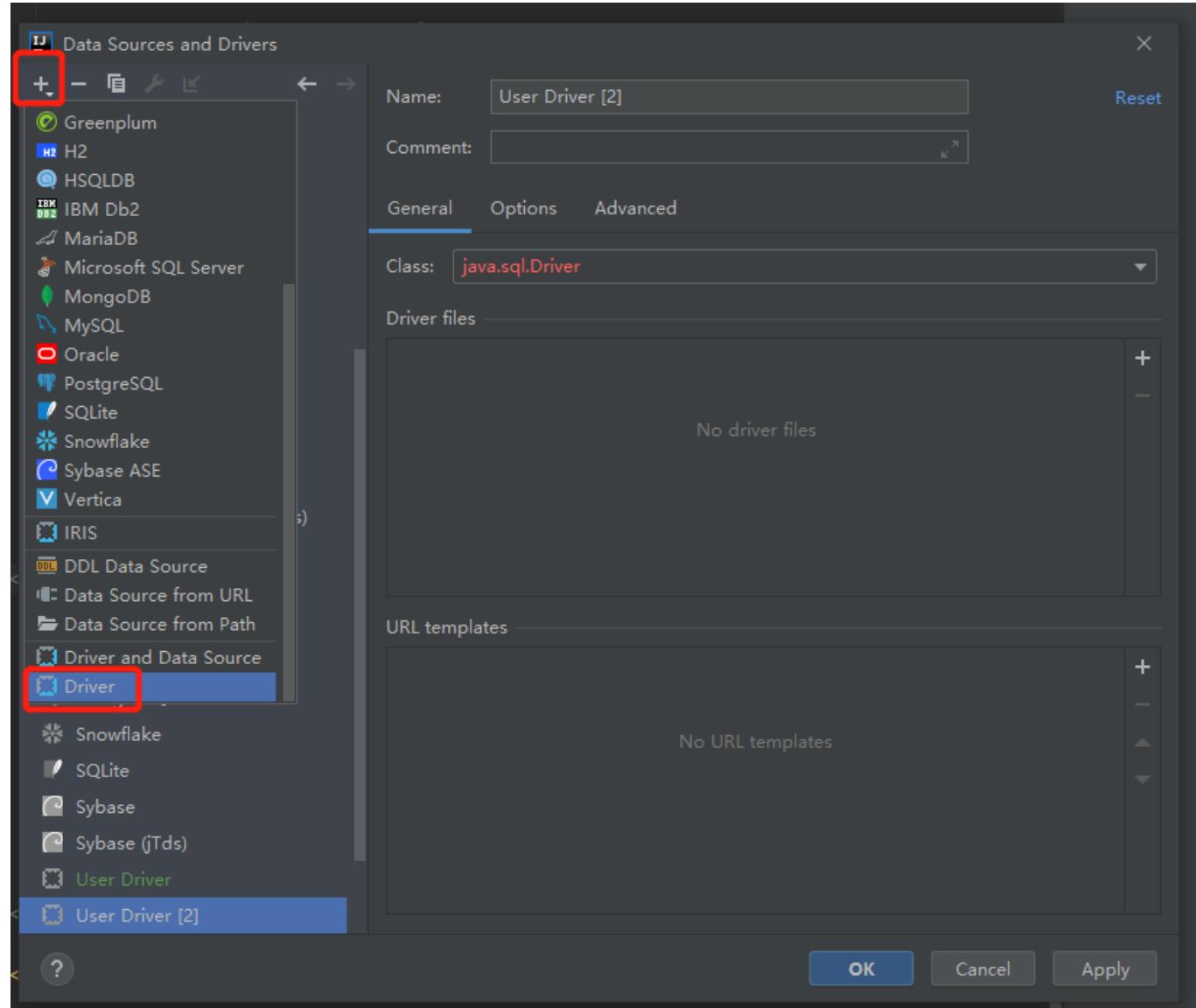
## Enter connection information in Hibernate configuration



IDEA's database management tool connects to IRIS

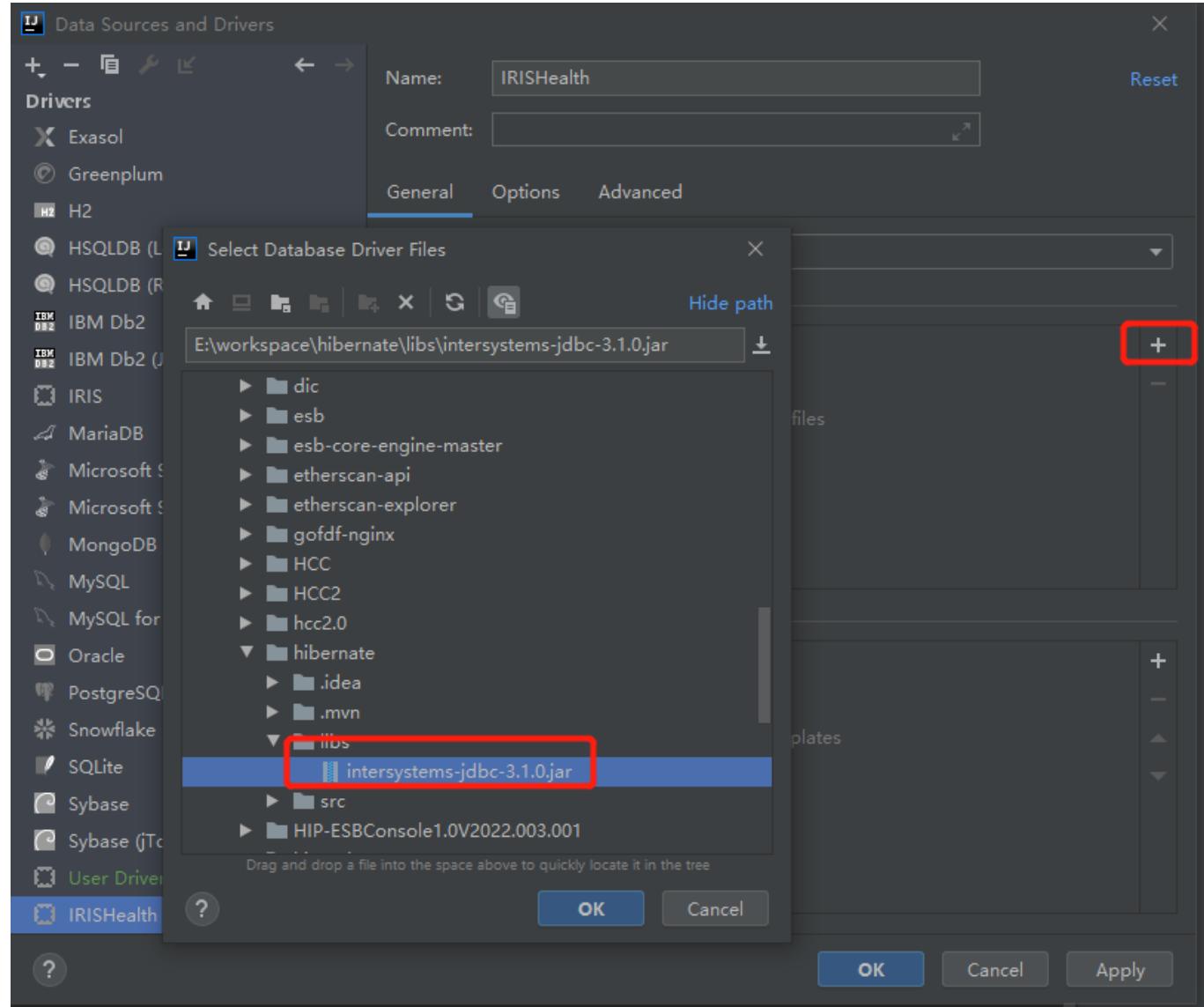


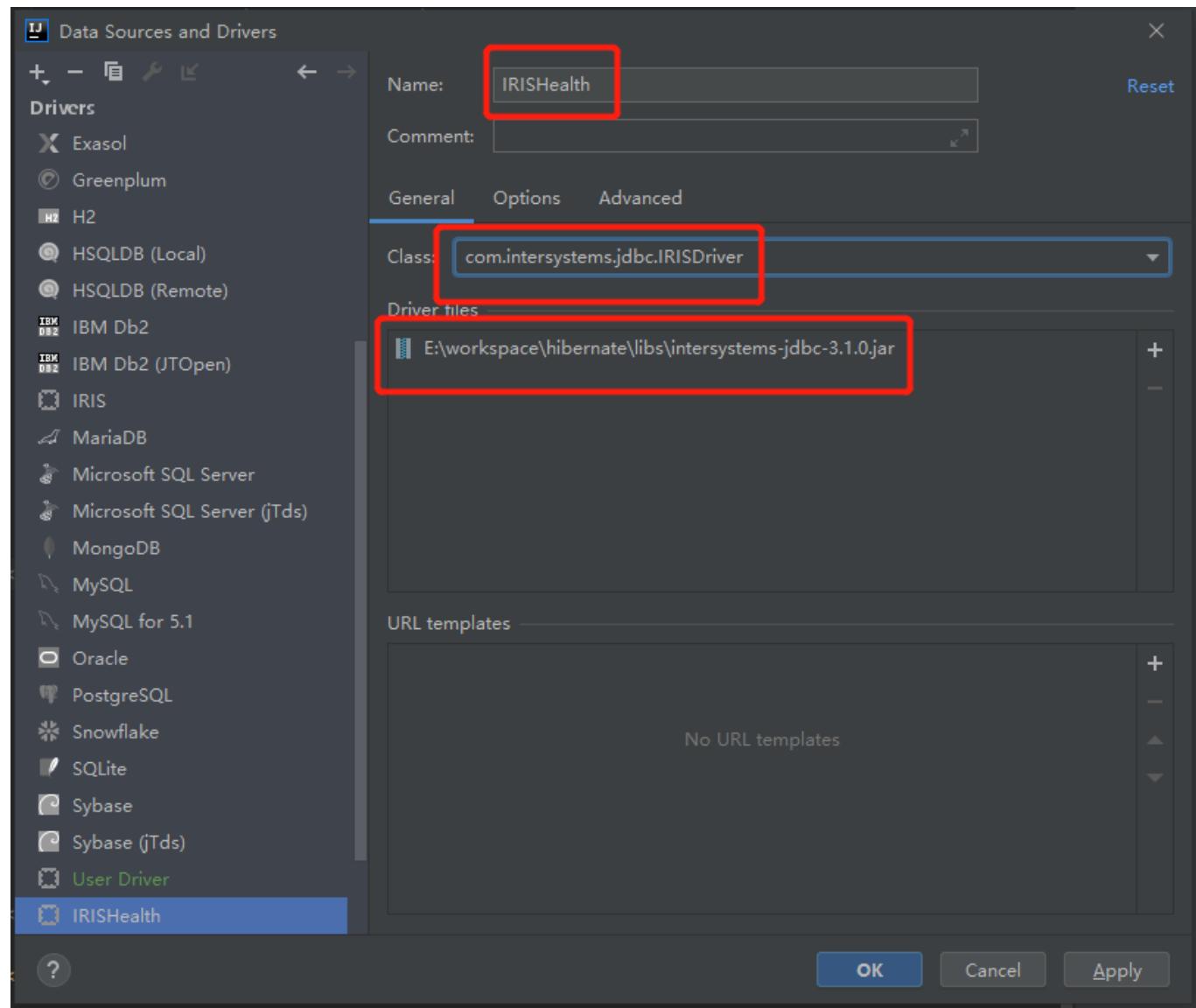
Introduction of drive package



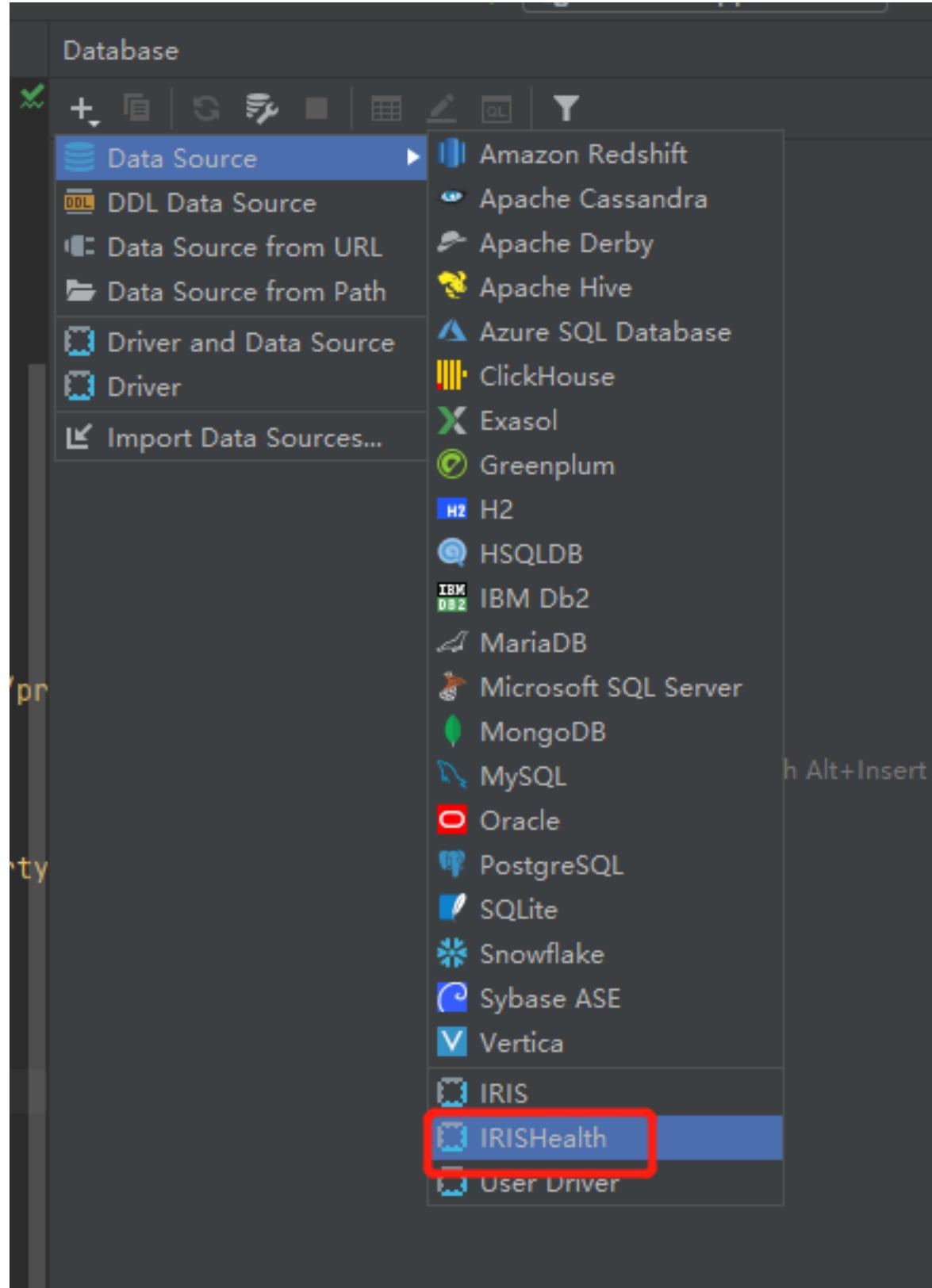
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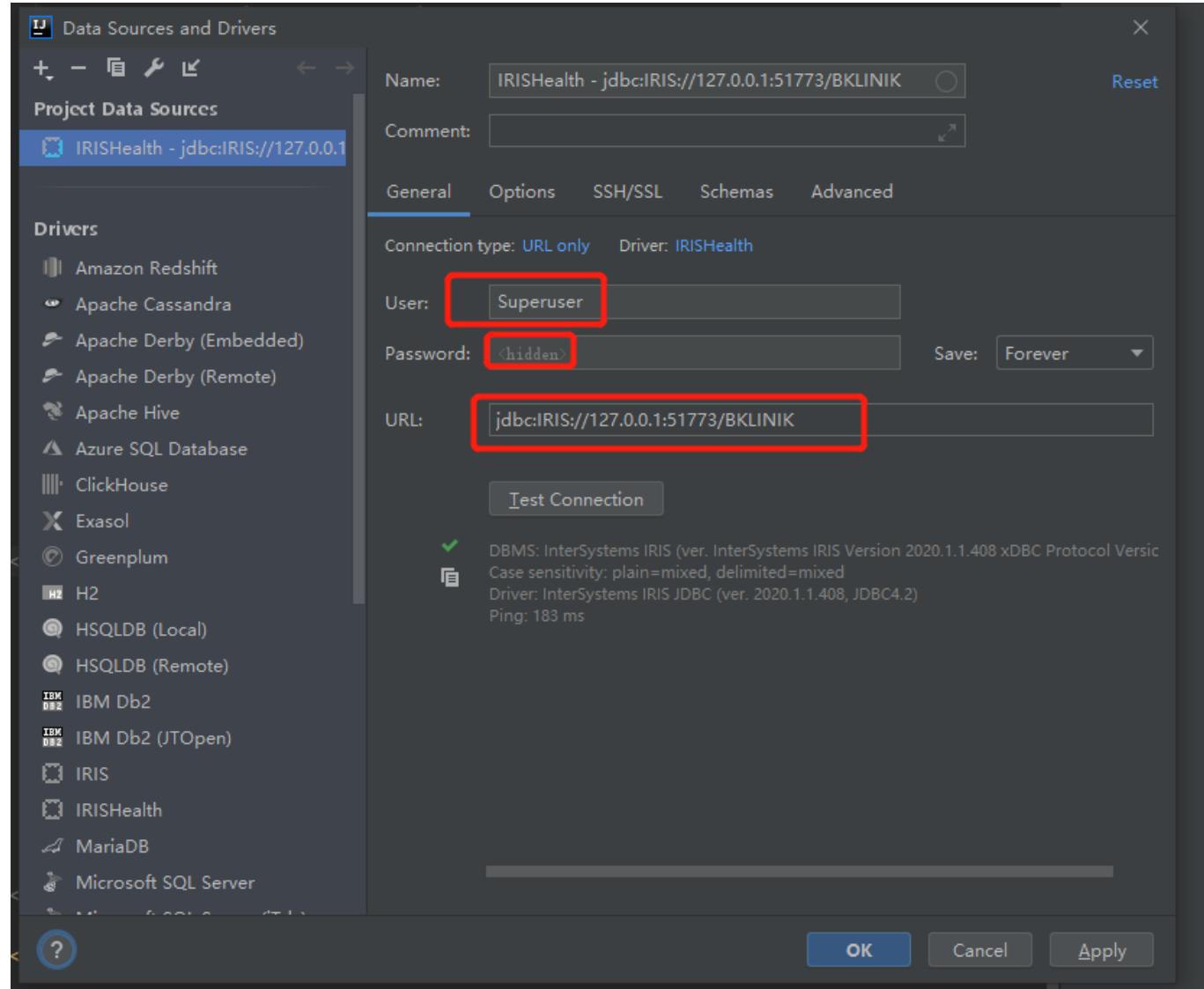
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Connect to IRIS database

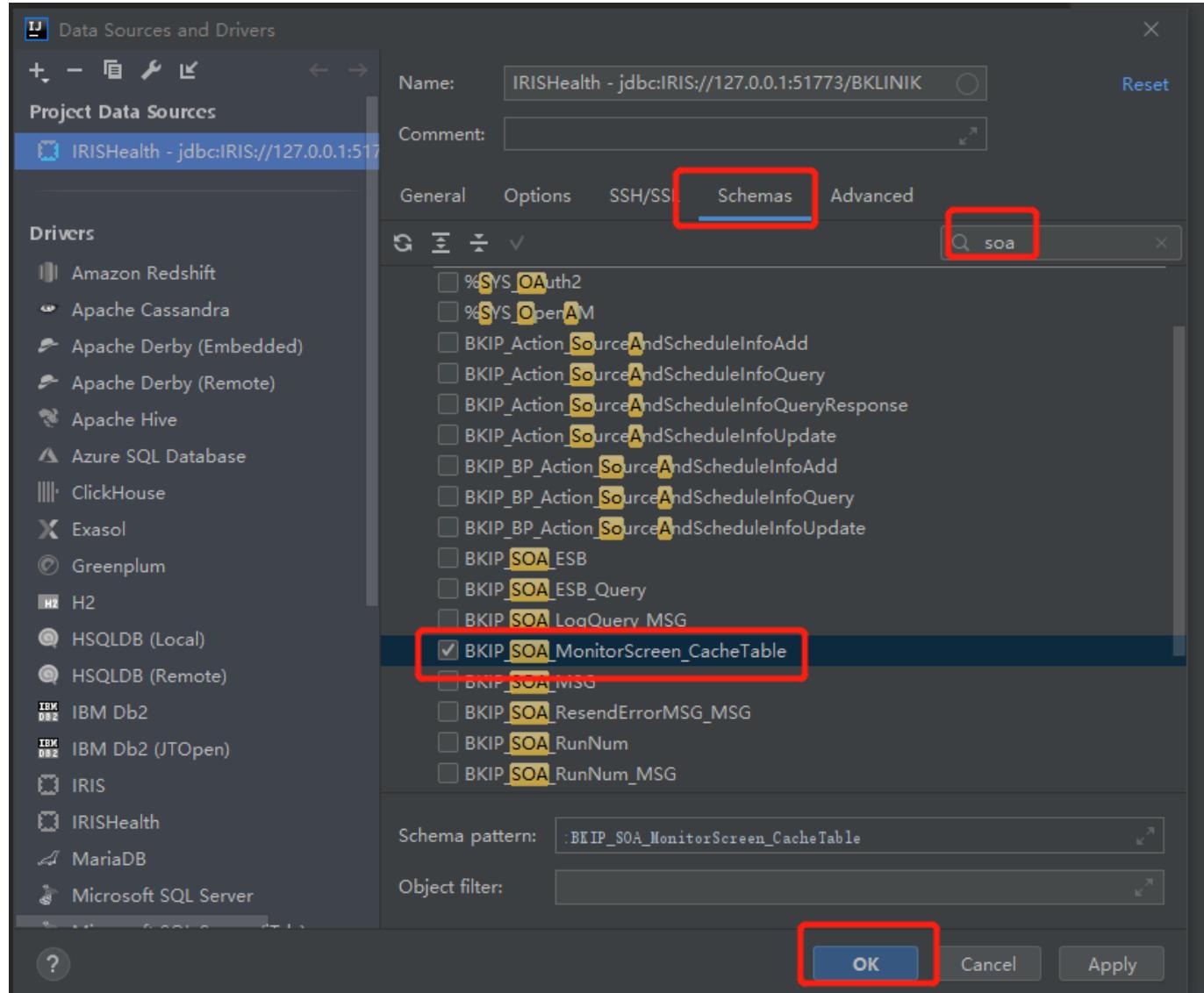




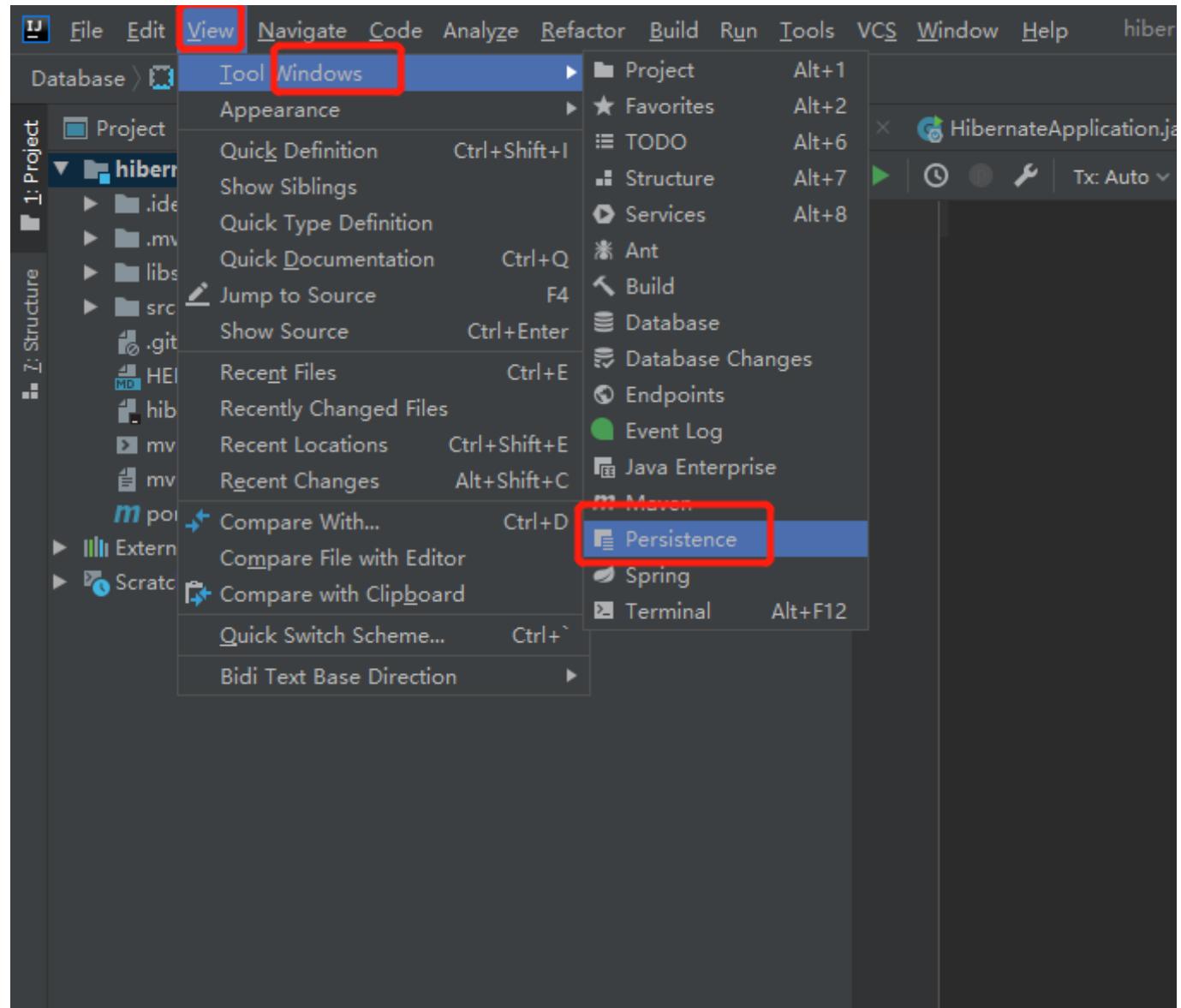
Select the required database

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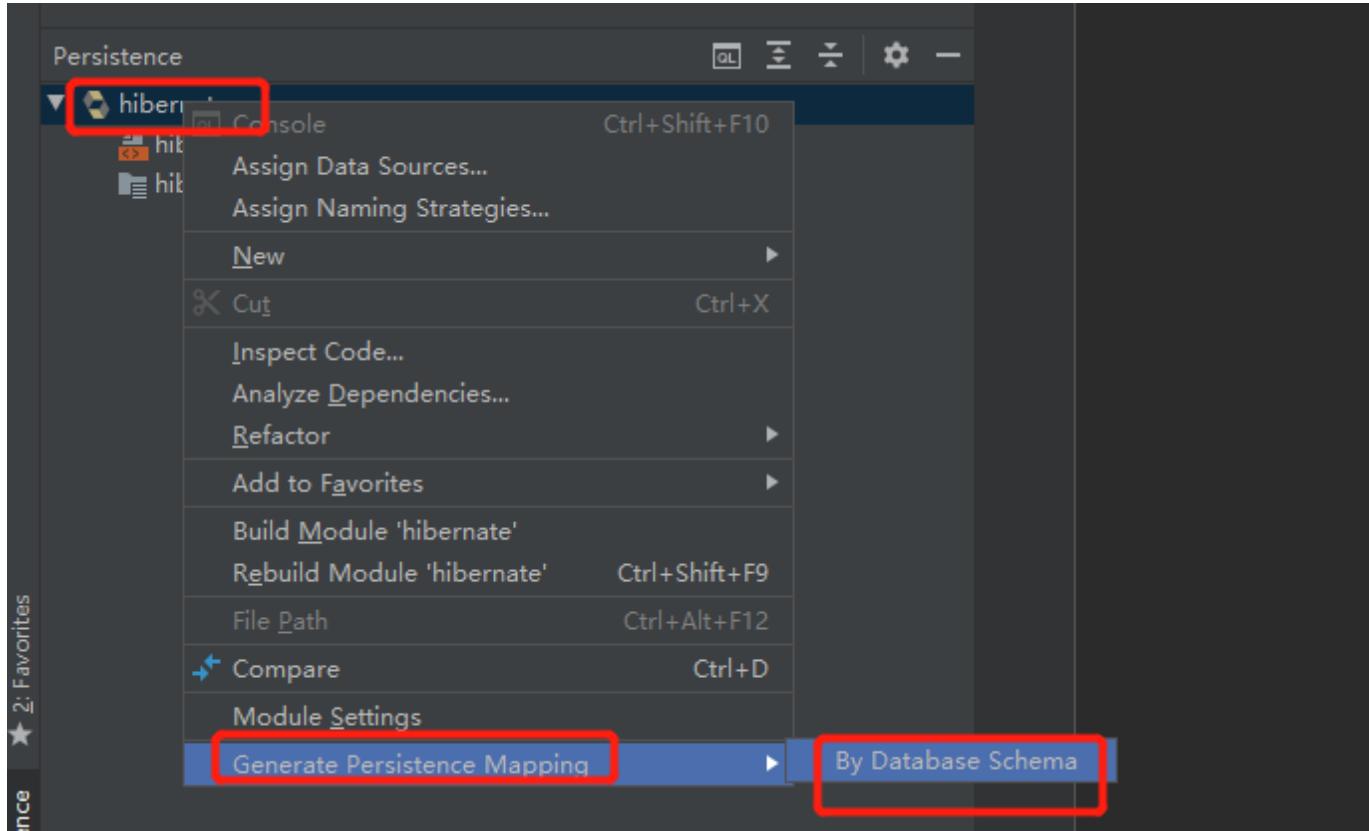
Open Hibernate tool, View -- Persistence



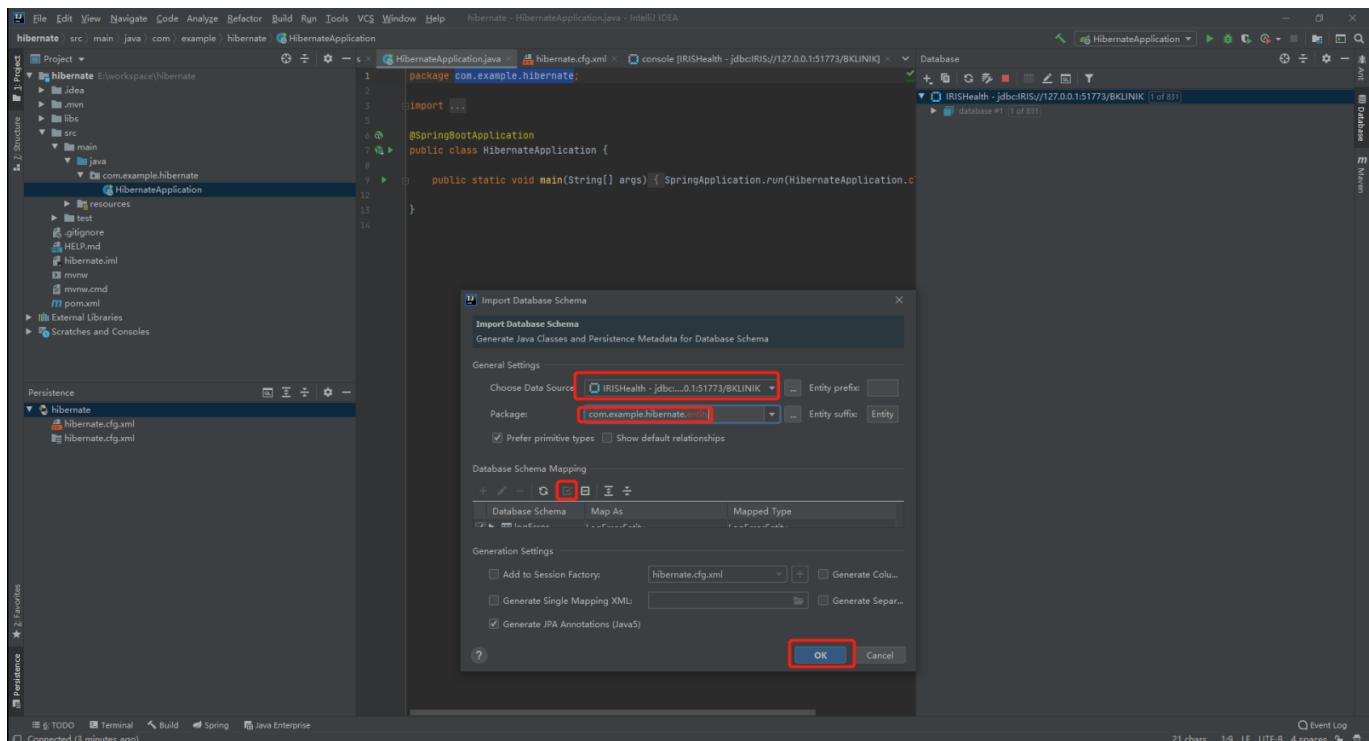
Open the mapping, as shown:

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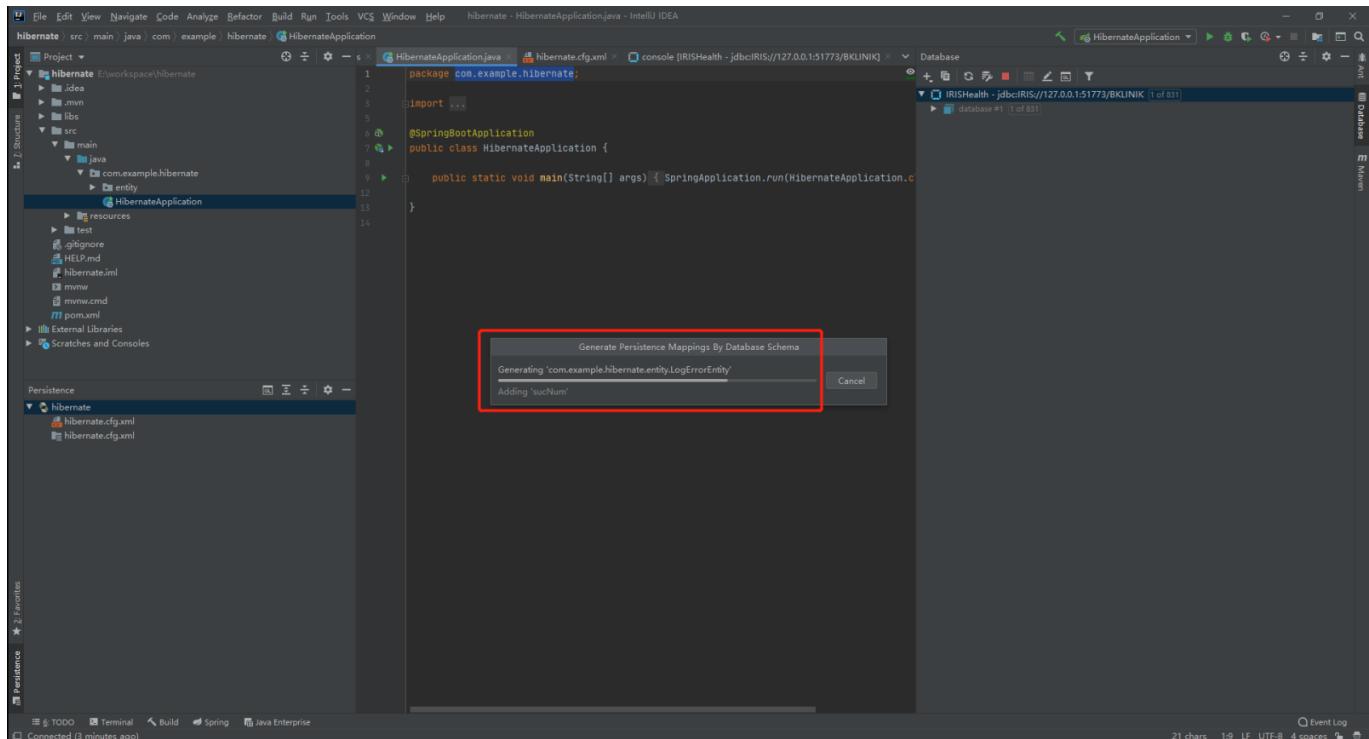
Select Connect and enter the registration. Because the computer display is incomplete, select all.



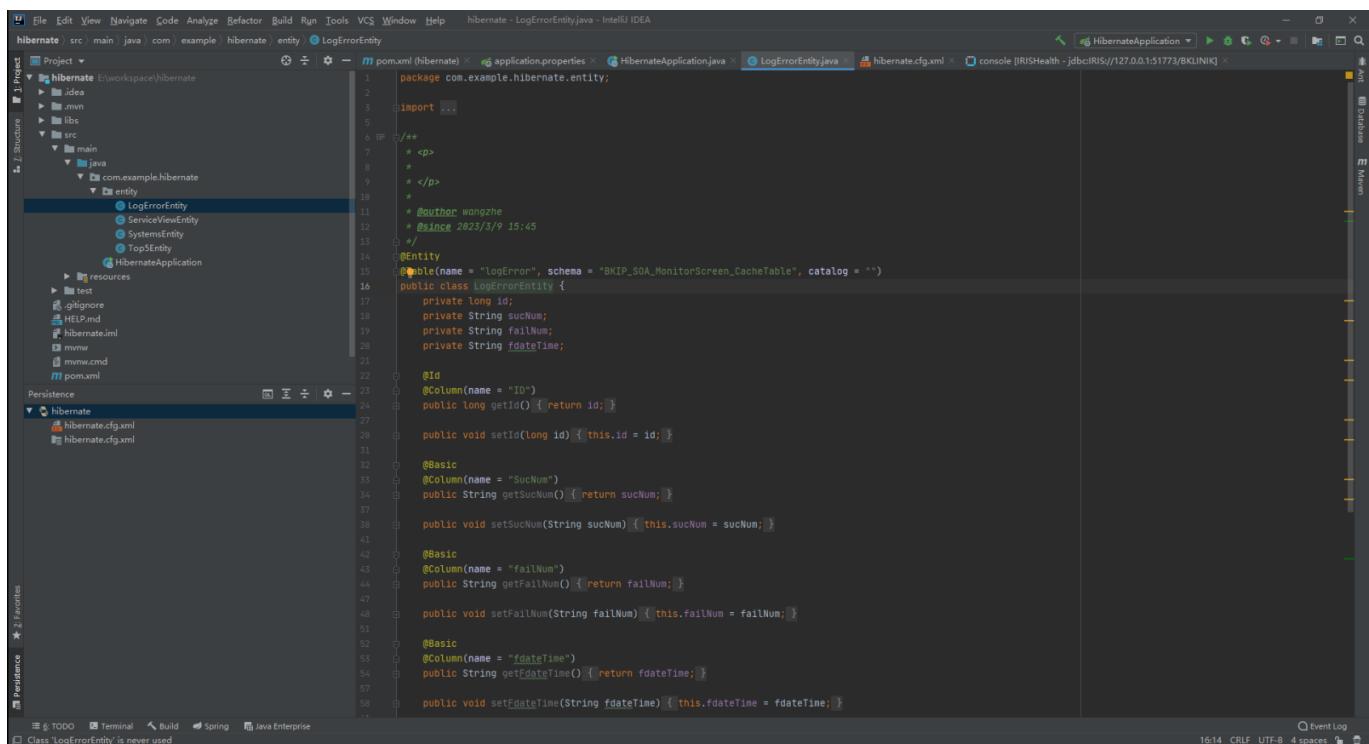
Next, click OK until you succeed:

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You get a bunch of entity classes:



Now that the entity class has been created, the rest of the logic of creating a session factory to add, delete, and check is not shown here. Share a tool class I used for reference only

```
package com.example.hibernate.utils;

import org.hibernate.HibernateException;
import org.hibernate.Session;
import org.hibernate.SessionFactory;
import org.hibernate.boot.MetadataSources;
```

```
import org.hibernate.cfg.Configuration;
import org.hibernate.service.ServiceRegistry;

/**
 * <p>
 * Hibernate Tools
 * </p>
 *
 * @author wangzhe
 * @since 2017/3/9 14:42
 */
public class HibernateUtil {

    private static final
    ThreadLocal<Session> threadLocal = new ThreadLocal<Session>();
    private static SessionFactory sessionFactory = null;

    static {
        try {
            Configuration cfg = new Configuration().configure();
            ServiceRegistry serviceRegistry = cfg.getStandardServiceRegistryBuilder().bu
ild();
            sessionFactory = new
            MetadataSources(serviceRegistry).buildMetadata().buildSessionFactory();
        } catch (Exception e) {
            System.err.println("Failed to create session factory");
            e.printStackTrace();
        }
    }

    /**
     * Get Session
     *
     * @return Session
     * @throws HibernateException
     */
    public static Session getSession() throws HibernateException {
        Session session = (Session) threadLocal.get();
        if (session == null || !session.isOpen()) {
            if (sessionFactory == null) {
                rebuildSessionFactory();
            }
            session = (sessionFactory != null) ? sessionFactory.openSession() : null;
            threadLocal.set(session);
        }

        return session;
    }

    /**
     * Rebuild session factory
     */
    public static void rebuildSessionFactory() {
        try {
            Configuration cfg = new Configuration().configure();
            ServiceRegistry serviceRegistry = cfg.getStandardServiceRegistryBuilder().bu
ild();
            sessionFactory = new
            MetadataSources(serviceRegistry).buildMetadata().buildSessionFactory();
        }
    }
}
```

```
        } catch (Exception e) {
            System.err.println("Failed to create session factory");
            e.printStackTrace();
        }
    }

/**
 * Get SessionFactory object
 *
 * @return SessionFactory object
 */
public static SessionFactory getSessionFactory() {
    return sessionFactory;
}

/**
 * Close Session
 *
 * @throws HibernateException
 */
public static void closeSession() throws HibernateException {
    Session session = (Session) threadLocal.get();
    threadLocal.set(null);
    if (session != null) {
        session.close();
    }
}
}
```

## Conclusion:

The above is a step that I showed how to build an environment and continue to develop IRIS as a data source in combination with the SSH framework. Although the content shown is relatively simple, if I follow this way, in theory, I can use Java to develop and use IRIS, and I can use a series of native Java methods to make it more convenient for Java developers to use the powerful performance of IRIS and complete more businesses. At the same time, if you want to use SpringBoot or even SpringCloud to develop IRIS, it is not impossible. The key is the role of IRIS in this architecture.

[#Java](#) [#JDBC](#) [#Tutorial](#) [#InterSystems IRIS](#) [#InterSystems IRIS for Health](#)

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