

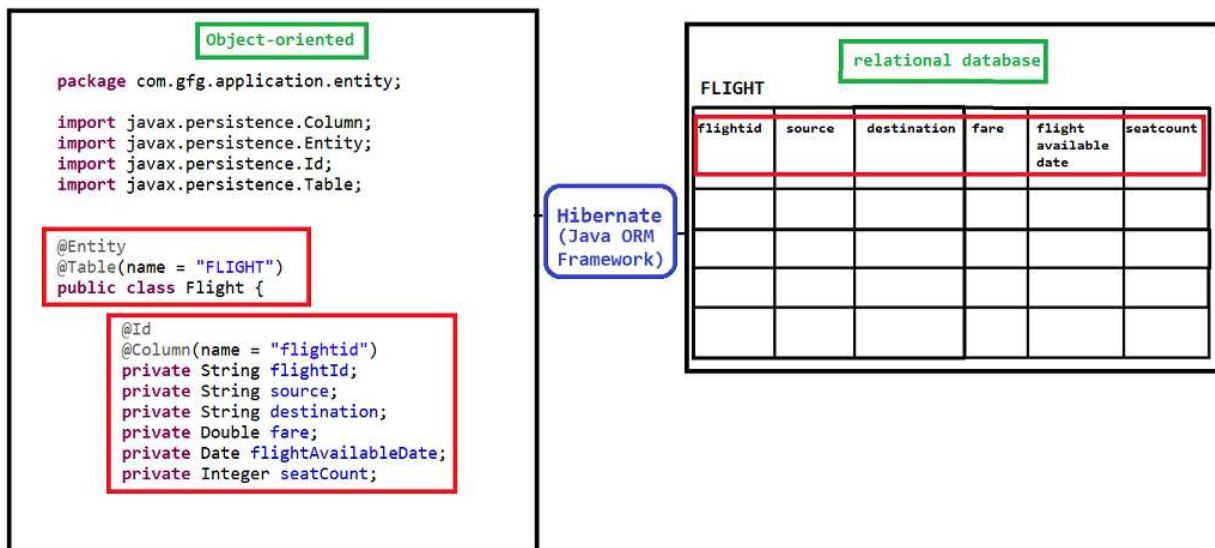


# Spring Hibernate Configuration and Create a Table in Database

Last Updated : 23 Jul, 2025

**Spring Boot** and **Hibernate** are a powerful combination for building scalable and efficient database-driven applications. [Spring Boot](#) simplifies application development by reducing boilerplate code, while [Hibernate](#), a popular **ORM (Object-Relational Mapping)** framework, enables easy database interactions. Together, they allow developers to manage relational databases, supporting **MySQL**, **PostgreSQL**, and other **RDBMS**.

In this article, we will walk you through configuring **Hibernate with Spring Boot**, setting up a **MySQL** database, and performing **CRUD** operations using **Spring Data JPA**.



*object-oriented to relational database*

## Advantages of Hibernate

- **Simplified CRUD Operations:** Easily perform Create, Read, Update, and Delete operations on data from multiple tables.
- **Object-Relational Mapping:** Map Java classes to database tables using annotations or XML files.
- **Database Independence:** Hibernate supports multiple relational database management systems (RDBMS), including MySQL, Oracle, PostgreSQL, and more.
- **Automatic Schema Generation:** Hibernate can automatically create and update database tables based on entity classes.
- **Caching:** Hibernate provides first-level and second-level caching mechanisms to improve performance.
- **Lazy Loading:** Optimize database access by loading related entities only when needed.
- **No Server Required:** Hibernate can operate without requiring an application server.

## Step-by-Step Implementation

### Step 1: Create a Schema in MYSQL

Firstly, we need to create a schema (database) in MYSQL. we can use

DSA Practice Problems C C++ Java Python JavaScript Data Science

Sign In

- Open MySQL Workbench or your preferred MySQL client.
- Connect to your MySQL server.
- Run the following SQL command to create a new schema:

```
CREATE SCHEMA `examportal`;
```

This will create a database named examportal where Hibernate will create the tables.



## Step 2: Create a Spring Boot Project

Use Spring Initializr to create a new Spring Boot with the following dependencies:

- **Spring Web** (for RESTful web services)
- **Spring Data JPA** (for Hibernate integration)
- **MySQL Driver** (for MySQL database connectivity)
- **Lombok** (for reducing boilerplate code)

**Note:** You can also add dependencies manually to the pom.xml file.

**pom.xml:**

```
<dependencies>
  <!-- Spring Boot Starter Web -->
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
  </dependency>

  <!-- Spring Boot Starter Data JPA (includes Hibernate) -->
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-jpa</artifactId>
  </dependency>

  <!-- MySQL Driver -->
  <dependency>
    <groupId>mysql</groupId>
    <artifactId>mysql-connector-java</artifactId>
    <version>8.0.33</version> <!-- Use the latest version as of 2025 -->
    <scope>runtime</scope>
  </dependency>

  <!-- Lombok (Optional, for reducing boilerplate code) -->
  <dependency>
    <groupId>org.projectlombok</groupId>
```

```
<artifactId>lombok</artifactId>
<version>1.18.30</version> <!-- Use the latest version as of 2025 --
>
<scope>provided</scope>
</dependency>
</dependencies>
```

### Step 3: Configure the Database

Add database configuration in the **application.properties** file under the **src/main/resources** folder.

*# Database configurations*

*spring.datasource.url=jdbc:mysql://localhost:3306/examportal?  
useSSL=false&serverTimezone=UTC*

*spring.datasource.username=root*

*spring.datasource.password=root*

*spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver*

*# Hibernate and JPA configurations*

*spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.MySQL  
8Dialect*

*spring.jpa.hibernate.ddl-auto=update*

*spring.jpa.show-sql=true*

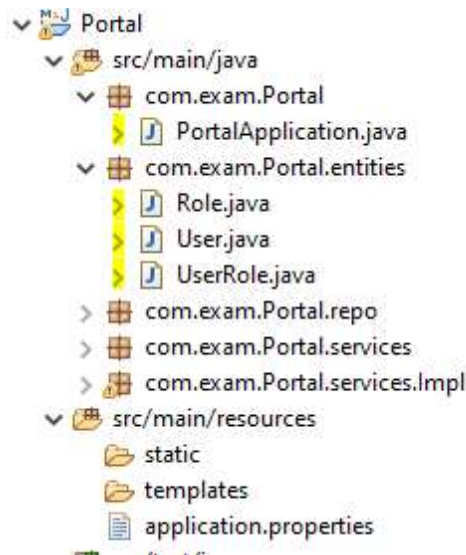
*spring.jpa.properties.hibernate.format\_sql=true*

#### Note:

- The `spring.datasource.url` includes the database name (examportal) and additional parameters (`useSSL=false&serverTimezone=UTC`) for secure connections and timezone settings.
- The `spring.jpa.hibernate.ddl-auto=update` setting ensures that the database schema is automatically updated based on the entity classes.

## Step 4: Create an Entity Class

Create an entity class to map to a database table. Use annotations like **@Entity**, **@Table**, **@Id**, and **@GeneratedValue** to define the mapping.. The below example shows to create package and Java files accordingly.



User.java:

```
package com.exam.Portal.entities;

import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.Table;
import lombok.Data;

@Data
@Entity
@Table(name = "users")
public class User {

    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    private int id;

    private String username;
    private String password;
    private String firstname;
    private String lastname;
    private String email;
    private String phone;
```

```
private boolean enable;  
}
```

### Note:

- **@Entity**: Marks the class as a JPA entity.
- **@Table**: Specifies the table name in the database.
- **@Id**: Marks the field as the primary key.
- **@GeneratedValue**: Configures the primary key generation strategy.

## Step 5: Create a Repository Interface

Extend the JpaRepository interface to create a repository for the User entity.

### UserRepository.java:

```
package com.exam.Portal.repositories;  
  
import com.exam.Portal.entities.User;  
import org.springframework.data.jpa.repository.JpaRepository;  
  
public interface UserRepository extends JpaRepository<User, Integer> {  
    // Custom query methods can be added here  
}
```

## Step 6: Create a Service Layer

Implement a service layer to handle business logic.

### UserService.java:

```
package com.exam.Portal.services;  
  
import com.exam.Portal.entities.User;  
import com.exam.Portal.repositories.UserRepository;  
import org.springframework.beans.factory.annotation.Autowired;  
import org.springframework.stereotype.Service;  
  
import java.util.List;
```

```
@Service
public class UserService {

    @Autowired
    private UserRepository userRepository;

    public List<User> getAllUsers() {
        return userRepository.findAll();
    }

    public User getUserById(int id) {
        return userRepository.findById(id).orElse(null);
    }

    public User createUser(User user) {
        return userRepository.save(user);
    }

    public void deleteUser(int id) {
        userRepository.deleteById(id);
    }
}
```

## Step 7: Create a REST Controller

Create a REST controller to expose endpoints for user management.

**UserController.java:**

```
package com.exam.Portal.controllers;

import com.exam.Portal.entities.User;
import com.exam.Portal.services.UserService;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.*;

import java.util.List;

@RestController
@RequestMapping("/users")
public class UserController {

    @Autowired
    private UserService userService;

    @GetMapping
    public List<User> getAllUsers() {
        return userService.getAllUsers();
    }
}
```

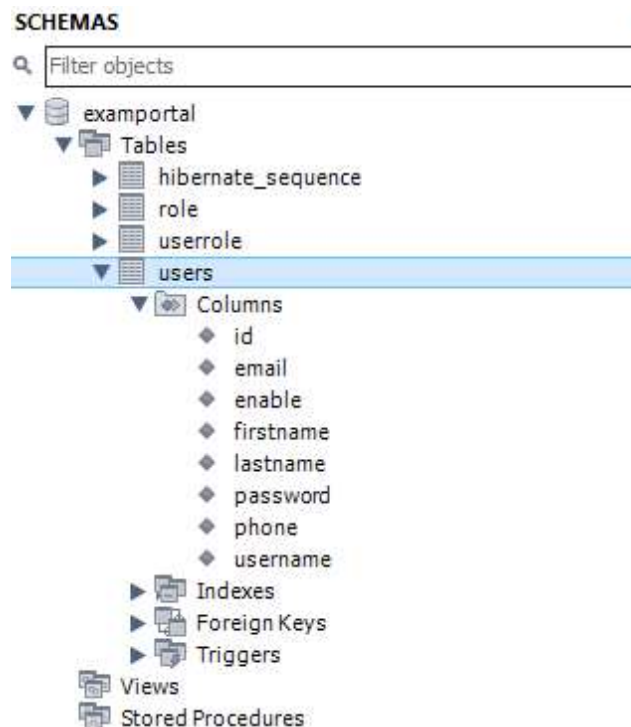
```
@GetMapping("/{id}")
public User getUserById(@PathVariable int id) {
    return userService.getUserById(id);
}

@PostMapping
public User createUser(@RequestBody User user) {
    return userService.createUser(user);
}

@DeleteMapping("/{id}")
public void deleteUser(@PathVariable int id) {
    userService.deleteUser(id);
}
}
```

## Step 8: Run the Application

Run the Spring Boot application. Hibernate will automatically create the users table in the examportal database based on the User entity.



We can also test the application using tools like **Postman**



- GET /users – Retrieve all users.
- GET /users/{id} – Retrieve a user by ID.
- POST /users – Create a new user.
- DELETE /users/{id} – Delete a user by ID.

[Comment](#)[More info](#)[Advertise with us](#)**Corporate & Communications Address:**

A-143, 7th Floor, Sovereign Corporate Tower, Sector- 136, Noida, Uttar Pradesh (201305)

**Registered Address:**

K 061, Tower K, Gulshan Vivante Apartment, Sector 137, Noida, Gautam Buddh Nagar, Uttar Pradesh, 201305

[Advertise with us](#)**Company**

[About Us](#)  
[Legal](#)  
[Privacy Policy](#)  
[Careers](#)  
[Contact Us](#)  
[Corporate Solution](#)  
[Campus Training Program](#)

**Explore**

[POTD](#)  
[Job-A-Thon](#)  
[Connect](#)  
[Community](#)  
[Videos](#)  
[Blogs](#)  
[Nation Skill Up](#)