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Microservices With Spring Boot-H2 database



Objective

- How to implement Spring Boot with H2 database

Spring Boot-H2 database

- H2 is one of the popular in-memory databases written in Java. It can be embedded in Java applications or run in the client-server mode.
- Spring Boot provides excellent integration support for H2 using simple properties configuration.
- To make it even more useful, H2 also provides a console view to maintain and interact with the database tables and data.
- Spring provides very easy configuration options to connect to any database using simple properties. Below are the configuration properties

Maven Dependency

- To use H2 in Spring boot application, all we need to do is adding H2 runtime jar into dependencies.
- We don't need to install any Db because its in-memory java Database

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

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

H2 Configuration Options

- Spring provides very easy configuration options to connect to any database using simple properties.

```
# H2
spring.h2.console.enabled=true
spring.h2.console.path=/h2
# Datasource
spring.datasource.url=jdbc:h2:file:~/test
spring.datasource.username=sa
spring.datasource.password=
spring.datasource.driver-class-name=org.h2.Driver
```

Create schema and insert data on initialization

- We may want to initialize database with some fixed schema (DDL) and insert default data (DML) into tables before the application is ready to run business use cases.
- We can achieve this by putting sql files into resources folder (/src/main/resources/).
- schema.sql – To initialize the schema ie.create tables and dependencies or use @Entity using spring-jpa

```
@Entity
public class Employee {
    @Id
    private Integer empId;
    private String empName;
    private Double empSalary;}

```

- data.sql – To insert default data rows.

```
INSERT into Employee values(1001,'Rahul',999.11);

```

H2 Console

<http://localhost:8888/h2>

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Login

Saved Settings: Generic H2 (Embedded) ▼

Setting Name: Generic H2 (Embedded) Save Remove

Driver Class: org.h2.Driver

JDBC URL: jdbc:h2:~/test

User Name: sa

Password:

Connect Test Connection

H2 Console

jdbc:h2:~/test | ☒ Auto commit | Max rows: 1000 | Auto complete: Off | Auto select: On

Run | Run Selected | Auto complete | Clear | SQL statement:

EMPLOYEE

- EMP_ID
- EMP_NAME
- EMP_SALARY
- Indexes

INFORMATION_SCHEMA

Users

H2 1.4.200 (2019-10-14)

```
SELECT * FROM EMPLOYEE;
```

EMP_ID	EMP_NAME	EMP_SALARY
1001	Rahul	999.11

(1 row, 7 ms)

Demo

DemoH2Database

Lab

Lab 1