2024년 상반기 K-디지털 트레이닝

스프링과 MySQL Database 연동

[KB] IT's Your Life

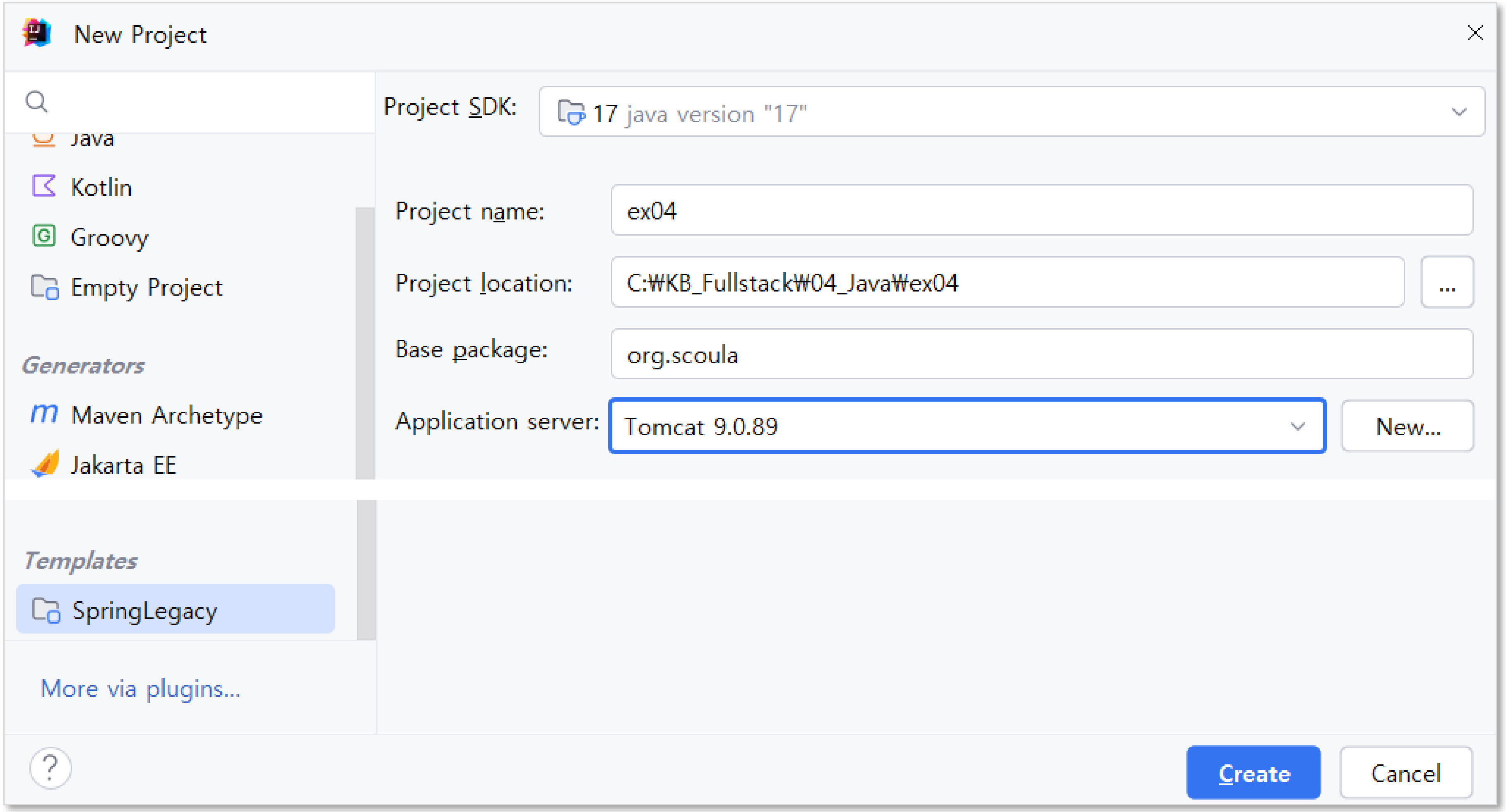
1 데이터베이스 및 계정 만들기

데이터베이스 생성 및 계정 생성, 권한 설정

```
create database scoula_db;

create user 'scoula'@'%' identified by '1234';

grant all privileges on scoula_db.* to 'scoula'@'%';
```

프로젝트 만들기

- Templates: SpringLegacy
- Project name: ex04



New Project

Java
Kotlin
Groovy
Empty Project

Generators
Maven Archetype
Jakarta EE

Templates
SpringLegacy

More via plugins...

Project SDK: 17 java version "17"

Project name: ex04

Project location: C:₩KB_Fullstack₩04_Java₩ex04

Base package: org.scoula

Application server: Tomcat 9.0.89

3 프로젝트의 JDBC 연결

settings.gradle

```
rootProject.name = 'ex04'
```

- Enable Annotation Processor 활성화

프로젝트의 JDBC 연결

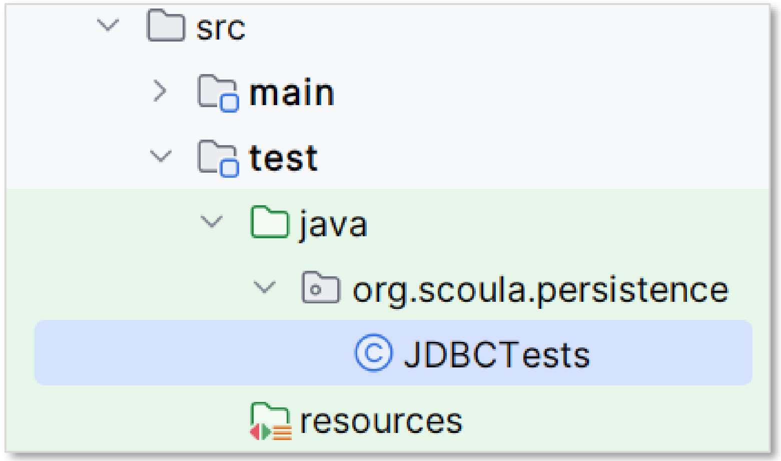
build.gradle

```
// 데이터베이스
implementation 'com.mysql:mysql-connector-j:8.1.0'
```

→ gradle sync

JDBC 테스트 코드

- src/test/java
  - org.scoula.persistence
    - JDBCTests.java



test :: JDBCTest.java

```
package org.scoula.persistence;

import lombok.extern.log4j.Log4j;
import org.junit.jupiter.api.Test;

import java.sql.Connection;
import java.sql.DriverManager;

import static org.junit.jupiter.api.Assertions.fail;

@Log4j
public class JDBCTest {
    static {
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
        } catch(Exception e) {
            e.printStackTrace();
        }
    }
```

프로젝트의 JDBC 연결

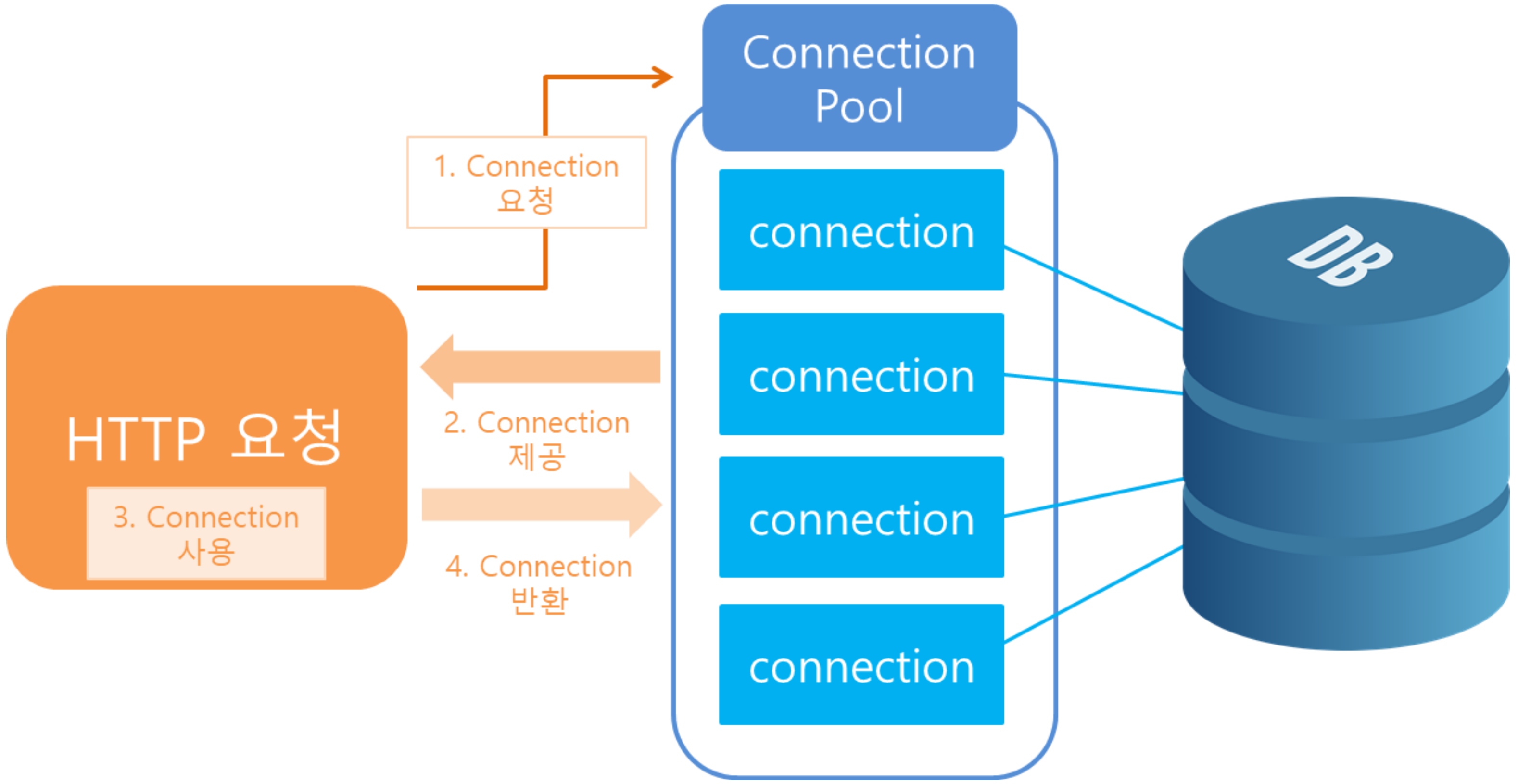
test :: JDBCTests.java

```
  @Test
  @DisplayName("JDBC 드라이버 연결이 된다.")
  public void testConnection() {
    String url = "jdbc:mysql://localhost:3306/scoula_db";
    try(Connection con = DriverManager.getConnection(url, "scoula", "1234")) {
      log.info(con);
    } catch(Exception e) {
      fail(e.getMessage());
    }
  }

}
```

```
INFO : org.scoula.persistence.JDBCTests - com.mysql.cj.jdbc.ConnectionImpl@13579834
```

4 커넥션 풀 설정

- DataSource
  - Connection Pool



4 커넥션 풀 설정

라이브러리 추가와 DataSource 설정

build.gradle

```
// 데이터베이스
implementation 'com.mysql:mysql-connector-j:8.1.0'
implementation 'com.zaxxer:HikariCP:2.7.4'
```

→ gradle sync

4 커넥션 풀 설정

resources/application.properties

```
jdbc.driver=com.mysql.cj.jdbc.Driver
jdbc.url=jdbc:mysql://127.0.0.1:3306/scoula_db
jdbc.username=scoula
jdbc.password=1234
```

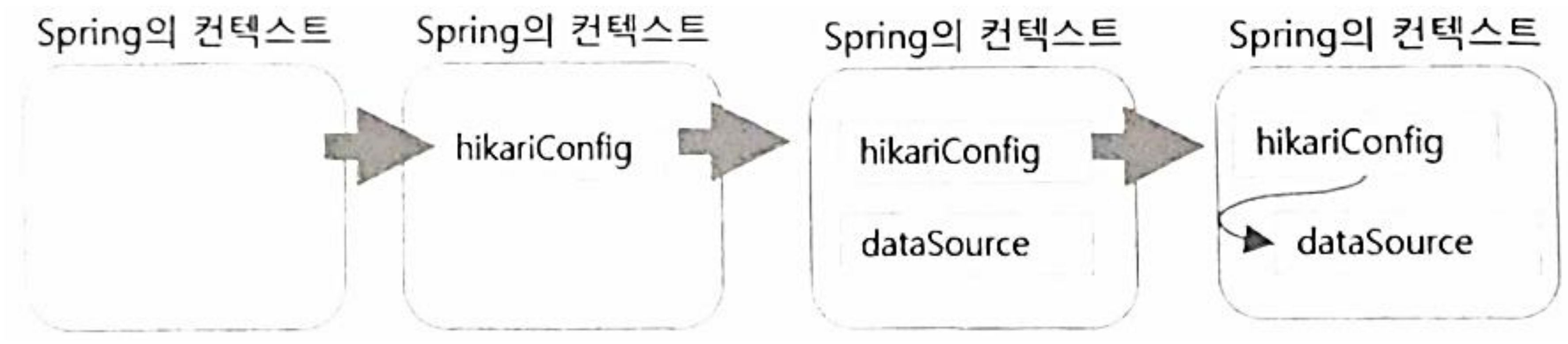
커넥션 풀 설정

RootConfig.java

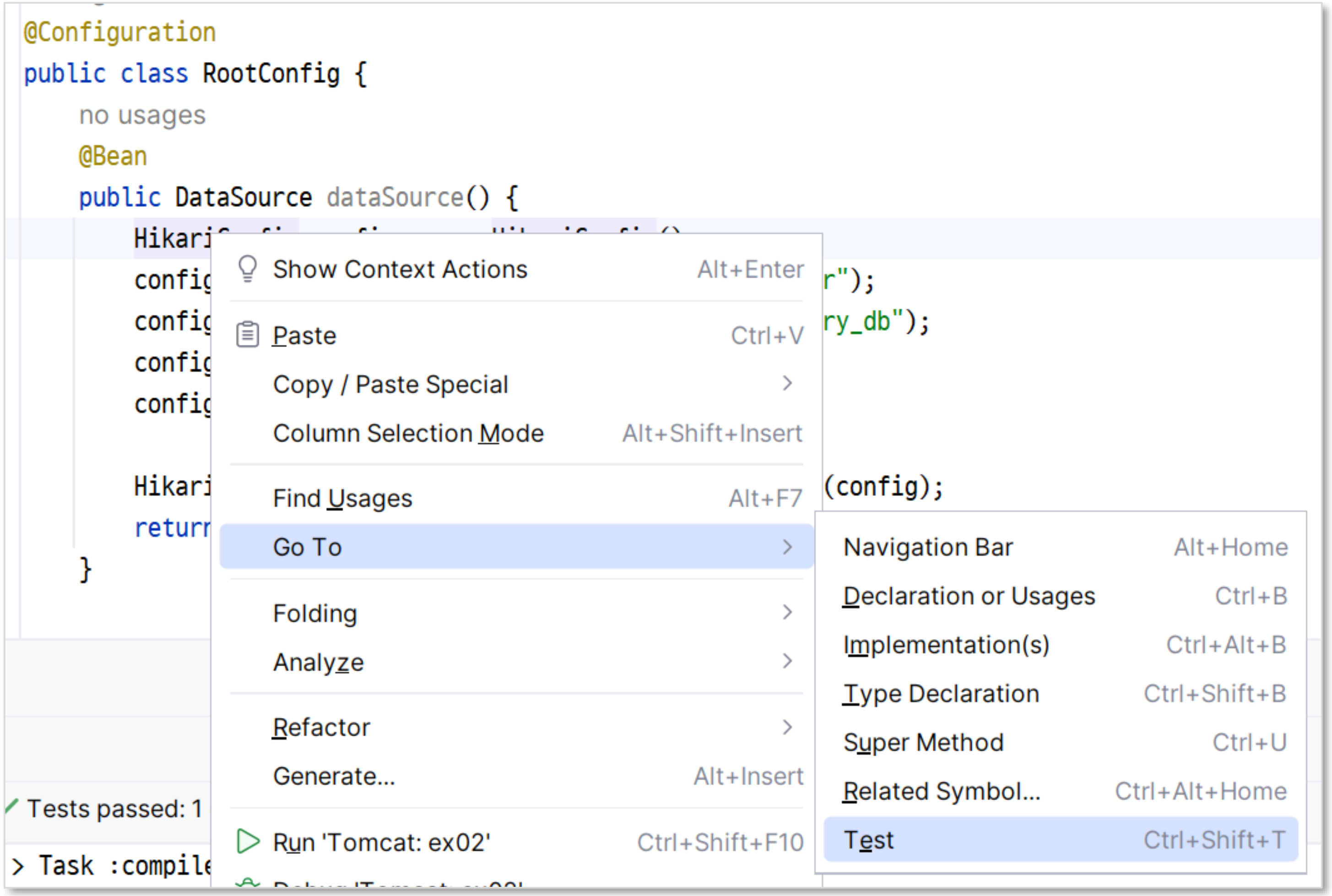
```java
package org.scoula.config;

import javax.sql.DataSource;

@Configuration
@PropertySource({"classpath:/application.properties"})
public class RootConfig {
    @Value("${jdbc.driver}") String driver;
    @Value("${jdbc.url}") String url;
    @Value("${jdbc.username}") String username;
    @Value("${jdbc.password}") String password;

    @Bean
    public DataSource dataSource() {
        HikariConfig config = new HikariConfig();

        config.setDriverClassName(driver);
        config.setJdbcUrl(url);
        config.setUsername(username);
        config.setPassword(password);

        HikariDataSource dataSource = new HikariDataSource(config);
        return dataSource;
    }
}
```

4 커넥션 풀 설정

라이브러리 추가와 DataSource 설정



RootConfig 테스트 클래스 만들기

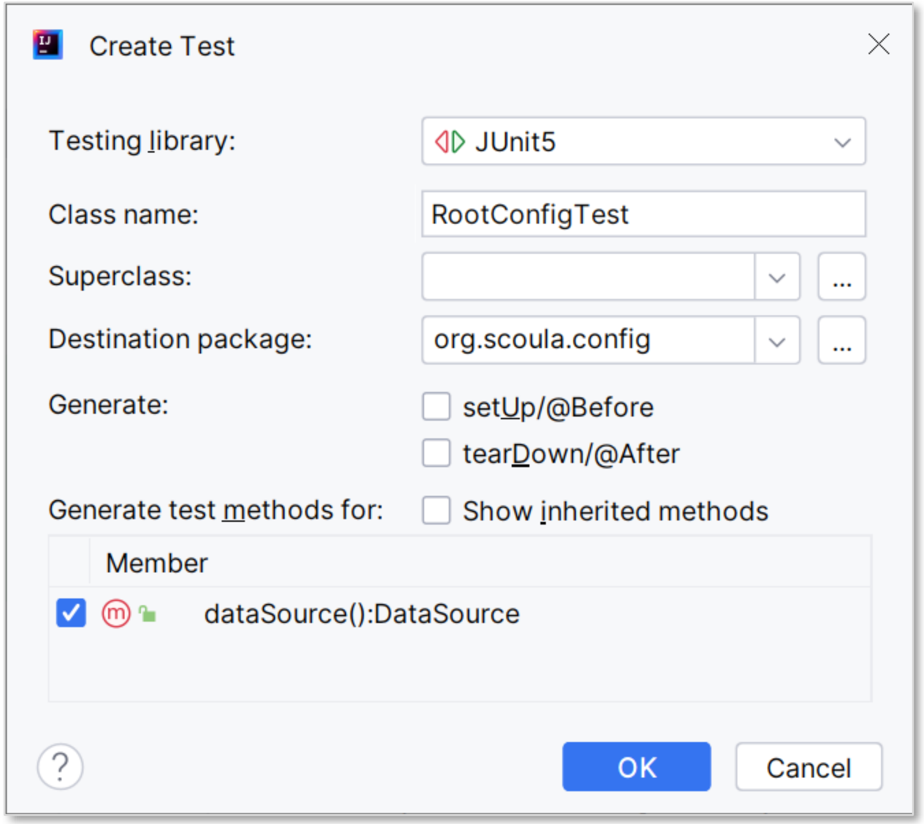


```
@Configuration
public class RootConfig {
    no usages
    @Bean
    public DataSource dataSource() {
        Hikari
        config                                    r");
        config                                    ry_db");
        config
        config

        Hikari                                    (config);
        return
    }
```

Tests passed: 1

> Task :compile

Show Context Actions Alt+Enter
Paste Ctrl+V
Copy / Paste Special
Column Selection Mode Alt+Shift+Insert
Find Usages Alt+F7
Go To
Folding
Analyze
Refactor
Generate... Alt+Insert
Run 'Tomcat: ex02' Ctrl+Shift+F10
Navigation Bar Alt+Home
Declaration or Usages Ctrl+B
Implementation(s) Ctrl+Alt+B
Type Declaration Ctrl+Shift+B
Super Method Ctrl+U
Related Symbol... Ctrl+Alt+Home
Test Ctrl+Shift+T



Create Test

Testing library: JUnit5

Class name: RootConfigTest

Superclass:

Destination package: org.scoula.config

Generate: ☐ setUp/@Before ☐ tearDown/@After

Generate test methods for: ☐ Show inherited methods

	Member
✓	dataSource():DataSource

4 커넥션 풀 설정

test :: config.DataSourceTests.java

```
@ExtendWith(SpringExtension.class)
@ContextConfiguration(classes= {RootConfig.class})
@Log4j
class RootConfigTest {

    @Autowired
    private DataSource dataSource;

    @Test
    @DisplayName("DataSource 연결이 된다.")
    public void dataSource() throws SQLException {
        try(Connection con = dataSource.getConnection()){
            log.info("DataSource 준비 완료");
            log.info(con);
        }
    }
}
```

```
INFO : org.scoula.config.RootConfigTest - DataSource 준비 완료
INFO : org.scoula.config.RootConfigTest - HikariProxyConnection@270734602 wrapping
com.mysql.cj.jdbc.ConnectionImpl@3ece1e79
```