

Bug-Tracking

JUnit testing:

```
package com.bug;
import static org.testng.Assert.assertEquals;
import static org.testng.Assert.assertSame;
import java.util.ArrayList;
import java.util.List;
import org.junit.jupiter.api.TestMethodOrder;
import org.junit.jupiter.api.Order;
import org.junit.jupiter.api.Test;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.boot.test.context.SpringBootTest;
import com.bug.bean.Bug;
import com.bug.bean.Response;
import com.bug.bean.User;
import com.bug.service.BugService;
import com.bug.service.LoginService;
import com.bug.service.UserService;
```

@SpringBootTest

```
class SbBugTrackingApplicationTests {
    @Autowired
    UserService service;
    @Autowired
    LoginService logService;
    @Autowired
    BugService bugService;
    // This object is used to register user and log in as user
    User user1 = new User("Jeyandhan", "12345");

    // This object is used to log as as Admin
    User user2 = new User("aravinds", "12345");
    // This object is used to check the invalid user.
    User user3 = new User("domnic", "7896jd");

    // used to insert a bug
```

```
Bug insBug = new Bug("index out of bound", "siva", "while running array  
program");  
// used to update bug  
Bug upBug = new Bug(5, "index out of bound", "aravind", "while running array  
program", "close", "Your program accessing the out of bound element");
```

```
@Test
```

```
@Order(1)
```

```
void registerUser() {  
    String expect = "inserted";  
    String result = service.registerUser(user1);  
    assertEquals(expect, result);  
}
```

```
@Test
```

```
@Order(2)
```

```
void loginUser() {  
    Response r1 = new Response("User Success");  
    Response r2 = logService.verifyUser(user1);  
    r1.equals(r2);  
}
```

```
@Test
```

```
@Order(3)
```

```
void AdminUser() {  
    Response r1 = new Response("Admin Success");  
    Response r2 = logService.verifyUser(user2);  
    r1.equals(r2);  
}
```

```
@Test
```

```
@Order(4)
```

```
void invalidUser() {  
    Response r1 = new Response("Login Fail");  
    Response r2 = logService.verifyUser(user3);  
    r1.equals(r2);  
}
```

```
@Test
@Order(5)
void registerBug() {
    String expect = "inserted";
    String result = bugService.registerBug(insBug);
    assertEquals(expect, result);
}
```

```
@Test
@Order(6)
void updateBug() {
    String expect = "updated";
    String result = bugService.updateBug(upBug);
    assertEquals(expect, result);
}
```

```
List<Bug> list1 = new ArrayList<Bug>();
Bug bugcheck = new Bug(8, "angular", "dom", "while running the app", "open",
"waiting for debug");
```

```
@Test
@Order(7)
void getBug() {
    list1.add(bugcheck);
    List<Bug> list = bugService.getBug("dom");
    list1.equals(list);
}
}
```

All test cases passed:

The screenshot displays the Eclipse IDE interface during a JUnit test run. The top toolbar includes standard IDE actions like File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, and Help. Below the toolbar, the Package Explorer on the left shows the project structure, including the test suite `SbBugTrackingApplicationTests` and its individual test methods: `registerBug()`, `updateBug()`, `loginUser()`, `registerUser()`, `getBug()`, `invalidUser()`, and `AdminUser()`. The Run Configuration dialog indicates the tests were executed using JUnit 5 and completed successfully after 5.271 seconds, with 7 runs, 0 errors, and 0 failures.

The main editor window shows the source code for `AdminUser()` in `Bug.java`. The code defines a `void AdminUser()` method that interacts with a `logService` to verify users. The method includes a `@Test` annotation and an `@Order(4)` annotation. The code is as follows:

```
71 void AdminUser() {
72
73     Response r1 = new Response("Admin Success");
74     Response r2 = logService.verifyUser(user2);
75     r1.equals(r2);
76
77 }
78
79 @Test
80 @Order(4)
81 void invalidUser() {
82
83     Response r1 = new Response("Login Fail");
84     Response r2 = logService.verifyUser(user3);
85     r1.equals(r2);
86
87 }
88
```

The bottom console window shows the output of the test run, including database logs and application startup information:

```
<terminated> SbBugTrackingApplicationTests (1) [JUnit] D:\Tools\ eclipse-java-2023-06-R-win32-x86_64\ eclipse\ plugins\ org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64.17
Hibernate: update tbl_bugs set bug_name=?,description=?,solution=?,status=?,user_name=? where bug_id=?
Hibernate: select u1_0.user_id,u1_0.password,u1_0.user_name,u1_0.user_type from tbl_user u1_0 where u
Hibernate: insert into tbl_user (password,user_name) values (?,?)
Hibernate: select b1_0.bug_id,b1_0.bug_name,b1_0.description,b1_0.solution,b1_0.status,b1_0.user_name
Hibernate: select u1_0.user_id,u1_0.password,u1_0.user_name,u1_0.user_type from tbl_user u1_0 where u
Hibernate: select u1_0.user_id,u1_0.password,u1_0.user_name,u1_0.user_type from tbl_user u1_0 where u
2024-02-08T16:46:20.927+05:30 INFO 34164 --- [ionShutdownHook] j.LocalContainerEntityManagerFactoryE
2024-02-08T16:46:20.929+05:30 INFO 34164 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource
2024-02-08T16:46:20.940+05:30 INFO 34164 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource
```