

Database Integration Testing

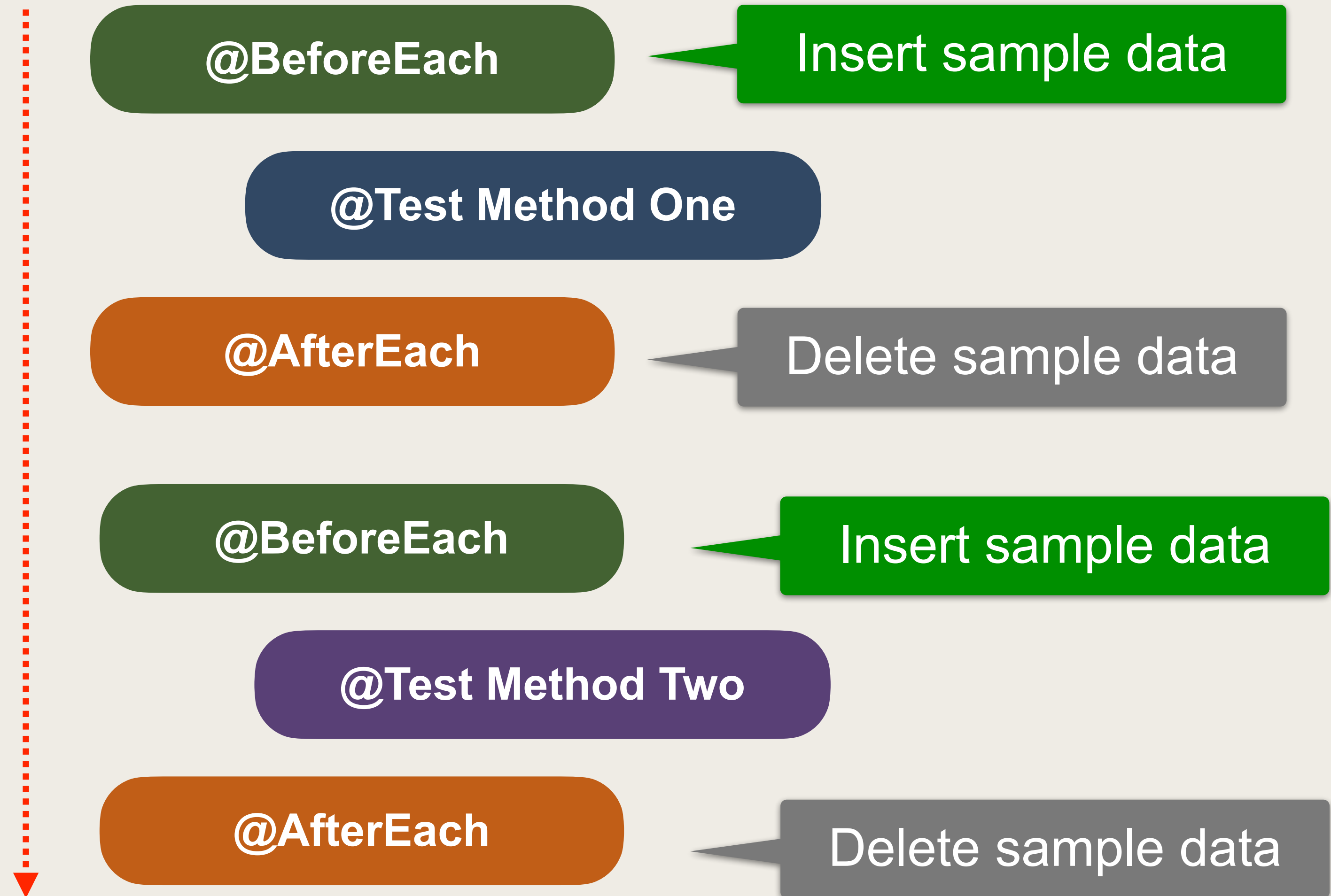


Database Initialization and Cleanup

- When we are performing integration testing with a database
 - Each test should run from a known state
- Before each test, perform initialization
 - Insert sample data
- After each test, perform cleanup
 - Delete the sample data

Testing Approach

• Each test should run from a known state



@Before and @AfterEach

StudentAndGradeServiceTest.java

```
import org.springframework.jdbc.core.JdbcTemplate;
import org.junit.jupiter.api.AfterEach;
import org.junit.jupiter.api.BeforeEach;
...
```

```
@TestPropertySource("/application.properties")
```

```
@SpringBootTest
```

```
public class StudentAndGradeServiceTest {
```

```
@Autowired
```

```
private JdbcTemplate jdbc;
```

```
@BeforeEach
```

```
public void setupDatabase() {
```

```
    jdbc.execute("insert into student(id, firstname, lastname, email_address) " +
        "values (1, 'Eric', 'Roby', 'eric.robby@luv2code_school.com')");
```

```
}
```

```
@AfterEach
```

```
public void setupAfterTransaction() {
```

```
    jdbc.execute("DELETE FROM student");
```

```
}
```

```
}
```

From the Spring Framework

Insert sample data

Delete sample data

```
...
public class StudentAndGradeServiceTest {

    @Autowired
    private JdbcTemplate jdbc;

    @BeforeEach
    public void setupDatabase() {
        jdbc.execute("insert into student(id, firstname, lastname, email_address) " +
            "values (1, 'Eric', 'Roby', 'eric.roby@luv2code_school.com')");
    }

    @Test
    public void isStudentNullCheck() {
        assertTrue(studentService.checkIfStudentIsNull(1));
        assertFalse(studentService.checkIfStudentIsNull(0));
    }

    @AfterEach
    public void setupAfterTransaction() {
        jdbc.execute("DELETE FROM student");
    }
}
```

Returns true since
id 1 exists in database

Returns false since
id 0 does not exist in database