# Report about testing a WIS



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# Executive Summary

This report discusses the testing approaches used for Web Information Systems (WIS), comparing Unit Testing and End-to-End (E2E) testing. It outlines the unit testing practices previously followed, such as the AAA pattern and the use of Mockito for simulating dependencies. The report also highlights the shift towards E2E testing, which focuses on verifying the entire application flow from the user's perspective, without relying on mocks.

# Revision Table

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| **Revision Number** | **Date** | **Description** |
| 1.0 | 20/02/2025 | Intial version – all sections added |

# Introduction

This report outlines the testing approaches for Web Information Systems (WIS), focusing on the transition from Unit Testing to End-to-End (E2E) testing. It discusses the principles and structure of our previous unit testing method, including the use of the AAA pattern and Mockito for simulating dependencies. The report then examines the shift to E2E testing, which aims to validate the full application flow without relying on mock objects. Key differences between these testing approaches and their implications for project development will be explored throughout the report.

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In Web Information Systems (WIS), testing typically follows an End-to-End (E2E) approach, verifying the entire application flow from the user's perspective. However, before this subject, our focus had primarily been on Unit Testing, which is more granular and executes faster.

**Unit Testing Approach**

Previously, we followed strict rules for unit testing:

- Tests had to be easy to execute, automated, and independent.

- We structured tests using the AAA pattern:

* **Arrange**: Set up the test scenario.
* **Act**: Perform the operation being tested.
* **Assert**: Verify the expected outcome.

To ensure test coverage, we created both:

- Positive cases, where everything works as expected.

- Negative cases, where we test irregular behaviours and failure scenarios.

**Use of Mockito**

For simulating dependencies, we used Mockito to create mock objects and avoid real interactions with external services. However, in E2E testing, mocks are generally not used, as the goal is to test the real system behaviour.

# Conclusion

In conclusion, this report highlights the differences between Unit Testing and End-to-End (E2E) testing within the context of Web Information Systems (WIS). Our previous approach focused on Unit Testing, where we adhered to strict guidelines such as using the AAA pattern for structuring tests and leveraging Mockito to simulate dependencies. This allowed us to test individual components quickly and efficiently, ensuring reliable functionality in isolated units of the system.

However, with the transition to E2E testing, the focus shifted to validating the entire application flow from the user's perspective. This approach emphasizes testing the system as a whole, without the use of mocks, to better replicate real-world interactions. E2E testing provides a more comprehensive evaluation of the application, ensuring that all components work seamlessly together and that the user experience is as expected.

The shift from Unit Testing to E2E testing marks an important development in our testing strategy, moving towards more holistic and user-centered validation. Moving forward, both testing approaches will play crucial roles in ensuring the robustness and reliability of the system, with Unit Testing addressing individual components and E2E testing validating the overall system functionality.

# Bibliography

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