TESTING REPORT

Imagen en blanco y negro

Descripción generada automáticamente con confianza media

DELIVERABLE 4

DESING AND TESTING 2

2023-2024

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GitHub repository: <https://github.com/JesusFern/Acme-SF-D04>

TABLE OF CONTENTS

[Executive Summary 3](#_Toc167735698)

[Revision Table 3](#_Toc167735699)

[Introduction 4](#_Toc167735700)

[Contents 4](#_Toc167735701)

[ Functional Test 4](#_Toc167735702)

[**Contract** 4](#_Toc167735703)

[List-Mine 4](#_Toc167735704)

[List-All 4](#_Toc167735705)

[Show 5](#_Toc167735706)

[Create 5](#_Toc167735707)

[Delete 5](#_Toc167735708)

[Update 5](#_Toc167735709)

[Publish 5](#_Toc167735710)

[**ProgressLog** 6](#_Toc167735711)

[ListMine 6](#_Toc167735712)

[Show 6](#_Toc167735713)

[Create 6](#_Toc167735714)

[Delete 6](#_Toc167735715)

[Update 7](#_Toc167735716)

[ Performance Test 7](#_Toc167735717)

[**Before** 7](#_Toc167735718)

[**After** 8](#_Toc167735719)

[**Before vs After** 8](#_Toc167735720)

[Conclusion 9](#_Toc167735721)

[Bibliography 9](#_Toc167735722)

# Executive Summary

This report provides detailed information obtained through the execution of functional and performance tests for deliverable D04 of the project. In this way, we can thoroughly understand the methodology to follow for conducting these tests and the conclusions we can draw from them.

# Revision Table

|  |  |  |
| --- | --- | --- |
| Revision Number | Date | Description |
| v1r0 | 05/26/2024 | First revision with some mistakes |
| V2r0 | 05/27/2024 | Final revision |
|  |  |  |

# Introduction

The report consists of two main sections. The first section focuses on functional tests, verifying that the system's functionalities meet the specified requirements. The second section focuses on performance tests, ensuring that the system operates within the established performance parameters.

# Contents

## Functional Test

The development of these tests has been carried out following the methodology proposed in the course slides. The highest possible coverage has been achieved, discarding those cases where our natural intelligence indicated that it did not make sense to attempt to cover certain code instructions.

The only setback during development was the appearance of FAILED messages in the console due to the banner and its changing ID, but this did not pose any impediment to the correct execution of the tests. Below are the details of how the tests for each functionality were carried out, as well as the proposed hacking attempts.

### **Contract**

#### List-Mine

The tests for this functionality are straightforward. The procedure involved listing the contracts for a registered client. In terms of hacking, attempts were made to access the associated endpoints without the required permissions, but this was unsuccessful due to the URL structure preventing access. For this test, we achieved a code coverage of 92.6%.

#### List-All

The tests for this functionality are simple. The approach taken was to enumerate the published contracts. Regarding hacking, the only thing we had to check was that of an unauthenticated user. For this test, we attained a code coverage of 91.7%.

#### Show

Similar to the listing operations, the testing process for this functionality has been quite straightforward, ensuring that the various cases of the object's state to be displayed were covered. Regarding hacking, in this case, the initial attempt was to display a client without being logged into the system. Then, once logged in as a client, an attempt was made to access contracts that did not belong to them. We also checked different users with different roles, unauthenticated users, and attempted to access a non-existent contract. The coverage in this case was 96.8%.

#### Create

In this case, following the procedure outlined in the slides, we have covered all possible combinations in the creation form to verify that our validation methods were indeed correct. Regarding hacking, we conducted tests with different roles and unauthenticated users. We achieved a coverage of 93.9%.

#### Delete

The procedure followed was to delete contracts from different clients, with the associated cascade deletion of their ProgressLog entries. As for hacking, attempts were made to perform a delete by modifying the form ID from the page inspector, testing with different roles, unauthenticated users, attempting to delete already published contracts, and from the same role but with a different contract creator. The coverage was 90.0%.

#### Update

On this occasion, we proceeded in a similar manner to the create process, testing multiple combinations of invalid and valid forms. For hacking, we attempted, similar to the delete process, to submit a form by modifying the ID from the page inspector, testing with different roles, unauthenticated users, attempting to delete already published contracts, and from the same role but with a different contract creator. The coverage was 94.5%

#### Publish

This method has been quite simple to test; we only needed to consider the different scenarios that a contract may present before being published. Regarding hacking, similar to previous cases, we modified the ID from the page inspector, with unauthenticated users, different roles, the same role but with a different creator, and with already published contracts, and then submitted the form. The coverage was 94.2%.

### **ProgressLog**

#### ListMine

The tests for this functionality are straightforward. The procedure involved listing the progressLog of a contract for a registered client. In terms of hacking, attempts were made to access the associated endpoints without the required permissions, but this was unsuccessful due to the URL structure preventing access. For this test, we achieved a code coverage of 94.0%.

#### Show

Similar to the listing operations, the testing process for this functionality has been quite straightforward, ensuring that the various cases of the object's state to be displayed were covered. Regarding hacking, in this case, the initial attempt was to display a client without being logged into the system. Then, once logged in as a client, an attempt was made to access progressLog that did not belong to them. We also checked different users with different roles, unauthenticated users, attempted to access a non-existent progressLog and trying to access to a progressLog of a different client. The coverage in this case was 96.8%.

#### Create

In this case, following the procedure outlined in the slides, we have covered all possible combinations in the creation form to verify that our validation methods were indeed correct. Regarding hacking, we conducted tests with different roles, unauthenticated users and trying to access to a progressLog of a different client. We achieved a coverage of 91.6%.

#### Delete

The procedure followed was to delete progressLog from different clients. As for hacking, attempts were made to perform a delete by modifying the form ID from the page inspector, testing with different roles, unauthenticated users, attempting to delete already published contracts, and from the same role but with a different contract creator. The coverage was 87.7%.

#### Update

On this occasion, we proceeded in a similar manner to the create process, testing multiple combinations of invalid and valid forms. For hacking, we attempted, similar to the delete process, to submit a form by modifying the ID from the page inspector, testing with different roles, unauthenticated users, attempting to delete already published contracts, and from the same role but with a different contract creator. The coverage was 92.0%

## Performance Test

The performance has been analyzed before and after the application of the indices, where we see a considerable improvement in performance.

### **Before**

Gráfico, Gráfico en cascada

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The graph allows us to intuitively observe that the average response time of the different instructions is more or less homogeneous, highlighting those operations that need to write to the database and therefore have a considerably longer time.

### **After**

Gráfico

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### **Before vs After**

Interfaz de usuario gráfica, Aplicación, Tabla, Excel

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We observe through the mean that there is an improvement in time. We also see that the interval time for "Before" is [0.00957301, 0.01118953], and for "After" is [0.00839763, 0.00995823]

Tabla

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We conducted a Z-Test between both, receiving a p-value of 0.027674302. Therefore, we can affirm that we have improved performance.

# Conclusion

In summary, we have successfully evaluated our code rigorously and gained detailed insights into its functioning, potential dead code, and bugs. Furthermore, thanks to the performance tests, we have been able to identify which functionalities we may need to improve if a client's requirement for response time arises.

# Bibliography

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