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ACME-SF

G1.007

**Analysis report S05-D02**

07/03/2024



# Cover

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| **Repository:** <https://github.com/Pablo-Caballero-Maria/Acme-One-24.1.0-C1.07> | |
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# Executive summary

The Analysis Report S05-D02, completed on March 7th, 2024, represents a comprehensive evaluation of the ACME-SF project by a team of five students from different technical backgrounds, each contributing to the development, operation, testing, and analysis of the project.

The document meticulously outlines the process of code auditing, a critical step in ensuring the project's quality, by detailing the requirements for storing data related to code audits, including unique codes, execution dates, types of audits, lists of proposed corrective actions, marks, and optional informational links. It addresses two main challenges: the implementation of the "mark" attribute, which is derived from other entities and requires complex validation, and the implementation of a "period" attribute for audit records, which necessitates the differentiation between start and end times or the creation of a custom data type to satisfy the requirement of indicating duration.

The report discusses proposed solutions, weighing the benefits and drawbacks of each, and ultimately selects the most viable options based on guidance from tutorial forums. This decision-making process illustrates the team's analytical approach to problem-solving and their commitment to adhering to project specifications and criteria.

# Revision table

|  |  |  |
| --- | --- | --- |
| Number | Date(dd/mm/yyyy) | Description |
| 1.0 | 07/03/2024 | Document done in its entirety, reviewed by peers. No major errors were found. |

# Introduction The purpose of this document is to provide a detailed analysis report on the functional and managerial requirements of the project "ACME-SF" for the course "Design and Testing 2". Specifically, this analysis focuses on addressing the critical aspects outlined within the supplementary requirements sections attributed to student #5, particularly under the "Managerial requirements" subsection.

# This document thoroughly examines the challenges and proposed solutions associated with the code audit entity implantation process, an essential component of project. Moreover, it tackles complex implementation issues, such as the derivation and validation of the "mark" attribute and the conceptualization of the "period" attribute within audit records. By exploring the selected solutions and their alignment with the project's standards and criteria, this document aims to illuminate the strategic decision-making process and the analytical approach undertaken by the team to fulfill the project's requirements and ensure its success within the context of "Design and Testing 2".

# Contents

* Student #5. Information Requirements 2: Code Audit.

Code audits are essential pieces to ensure the quality of a project. The system must store the following data about them: a code (pattern “[A-Z]{1,3}-[0-9]{3}”, not blank, unique), an execution date (in the past), a type (“Static”, “Dynamic”), a list of proposed corrective actions (not blank, shorter than 101 characters), a mark (computed as the mode of the marks in the corresponding auditing records; ties must be broken arbitrarily if necessary), and an optional link with further information.

* + Problem presented

Implement the "mark" attribute, as it appears to be derived from another entity of a second mandatory requirement, and would need more complex validation, since they ask for a tiebreaker.

* + Proposed Solutions:

1. Compute “mark” through a @OneToMany association to the record entity along with a custom method.

This would allow us to calculate the attribute as a derived property. In exchange we would use the @OneToMany association, which is not recommended by the subject criteria

1. Calculate the attribute “mark” in the service layer of the application.

This would allow us to eliminate the @OneToMany implementation, which is not recommended for use in the context of the subject.In exchange, it would be necessary to postpone the implementation of the correct functionality of the "mark" attribute to the D03 derivable.

* + Selected alternative:

Following the instructions given in the "Tutorials" forum, we will decide to opt for the second alternative and the logic will be implemented to calculate the "mark" attribute in the services layer in the following deliverable (D03)

Link to the forum where the problem was discussed: <https://ev.us.es/webapps/discussionboard/do/message?action=list_messages&course_id=_85092_1&nav=discussion_board_entry&conf_id=_405265_1&forum_id=_234042_1&message_id=_405313_1>

NOTE: This conversation was not carried out by any of the members of the group but has been taken into account to select an alternative.

* Student #5. Information Requirements 3: Audit Record.

The result of each code audit is based on the analysis of their audit records. The system must store the following data about them: a code (pattern “AU-[0-9]{4}-[0-9]{3}”, not blank, unique), the period during which the subject was audited (in the past, at least one hour long), a mark (“A+”, “A”, “B”, “C”, “F”, or “F-”), and an optional link with further information.

* + Problem presented

Implementing the duration attribute offers a problem and that is that it can be understood that it is a numerical value that indicates how much time is assigned to that objective, however, since it mentions that said duration must begin after the moment of instantiation, we cannot create it as a duration attribute. type "int", it would be necessary to create it as an attribute of type "Date".

* + Proposed Solutions:

1. Implement the attribute “period” as 2 different attributes of type "Date", one when the period begins and another when it ends.

Thanks to this implementation, it can be compared with the instantiation moment attribute to verify that it is later and does not require the creation of a custom data type. However, this implementation would require the creation of 2 different attributes when it could be solved with just 1 attribute.

1. Use a custom data type that has as attributes an end time and a derived attribute of type double that is the difference in hours between the instantiation time and the end time.

In one hand, it would fulfill the meaning of the word duration, an amount of time, and it can also be compared with the instantiation moment attribute to verify that it is later.

On the other hand, it would be necessary to create a custom data type, increasing the complexity of the solution.

* + Selected alternative:

Following the instructions given in the "Tutorials" forum, we will decide to opt for the first alternative, It is a simple and direct solution whose only drawback is that it is not reusable, as a datatype would be. But it's not the right time now to implement it.

Link to the forum where the problem was discussed: <https://ev.us.es/webapps/discussionboard/do/message?action=list_messages&course_id=_85092_1&nav=discussion_board&conf_id=_405265_1&forum_id=_234042_1&message_id=_403018_1>

NOTE: This conversation was not carried out by any of the members of the group but has been taken into account to select an alternative.

# Conclusions

# Bibliography

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