8 DE MARZO DE 2024

ANALYSIS REPORT
STUDENT #4

GROUP C-1.047

Acme SF, Inc.

Repository link: https://github.com/Cargarmar18/Acme-SF.git

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1. Executive summary

It is a compilation of analysis records is required, with each record containing essential information such as an exact reproduction of the relevant requirement, comprehensive conclusions drawn from the analysis, and the decisions made to address the requirement.

Additionally, a hyperlink to the validation conducted by an instructor should be included.

It is important to emphasize that commentary is not necessary for every requirement, but only for those that demand a thorough analysis, which are relatively few in number. To streamline the process and encourage instructor feedback, it is advisable to share the analysis records on the forum. This not only allows the instructor to review them but also simplifies the provision of a link to the instructor's validation.

2. Revision table

Revision number	Date	Description
1.0.0	08/03/2024	Document elaboration.

3. Introduction

This analysis report navigates the requisites of D02, considering both managerial and supplementary requirements, #02, #03, #04, #05, #013, #014, #015 and #016. Taking into account that the only managerial requisites are the #02, #03, #04, #05 and it task are about the creation of entities, the dashboards and the sample data of them. And the four supplementary, #013, #014, #015 and #016, are focused on creation of an additional entity and the resulted reports of the work for D02.

This analysis report have been manufactured in alignment with the annex. As have been defined it commences with a cover page featuring the author's report credentials. A version

table follows, delineating modifications made in this document, classified by number and accompanied by their respective dates, and a brieve description of what have been added. After this, an executive summary is presented with the according information indicated in the annex. And this introduction that works as a precedent of the actual contents specified before.

4. Contents

The listing of requirements and their corresponding breakdowns can be found as follows.

Requirement 002:

The sponsorships are related to a project with the aim of achieving greater visibility in the market. The system must store the following data about them: a code (pattern "[A-Z]{1,3}-[0-9]{3}", not blank, unique), a moment (in the past), a duration (after the moment, at least one month long), an amount (positive), a type of sponsorship ("Financial", "In kind"), an optional contact email, and an optional link with further information.

An exhaustive examination of the requirement has been undertaken through consultations with the client, elucidating the following ambiguities:

1. Constraints

The constraints found in this requirement that may need further analysis are described as follows:

- **Explicit constraint:** the "duration" date must be after the "moment" date and at least one month long. This means that this constraint must be implemented in the service, adding the task to the workload of the project in its D03 version.
- **Implicit constraint:** lower limit for dates. The lower limit for dates is 2000/01/01 00:00, that is, all dates must correspond to a moment after the lower limit date. This lower limit must be implemented in the service as well.
- **Implicit constraint:** upper limit for dates. The upper limit for dates is 2200/12/31 23:59, that is, all dates must correspond to a moment before the upper limit date. This constraint must be implemented in the service as well.
- **Implicit constraint:** all attributes that are not explicitly mentioned as optional are mandatory.
- **Implicit constraint:** URLs must have a maximum length of 255 characters.

It is worth noting that the mentioned implicit constraints where agreed upon the client.

2. Estimated total time data type

This particular attribute, due to its lack of explicit specification regarding the associated requirement, introduces uncertainty into the implementation process. It could be interpreted as an Integer, a Duration, or alternatively as a Double. Additionally, the designated unit of time for storing said attribute is not specified (whether in hours, minutes, days, etc.).

The alternatives given to the client were the following:

- **Alternative 1:** Using Integer to store integer values, like whole days or whole hours, with the pro of being easy to implement and handle data, and the con that it may not be correctly modelled.
- **Alternative 2:** Using Duration, with the pro of adjusting better to store real times, and the cons of being pretty complex and the probability of arising errors.
- **Alternative 3:** Using Double, with the pro of being easy to implement and handle data, and the cons of ambiguities in the interpretation of the values (2.50 hours can be two hours and a half or two hours, fifty minutes) and not knowing what "total time" stands for.

The client, after being consulted, has concluded that the time will be measured in whole hours (choosing alternative 1), with the rounding of numbers offsetting those rounded upwards and those rounded downwards among them. This consulting will be applied for the rest of the entities that need a similar solution.

3. Relationships and extras.

For the sponsorship entity we can see the relationship with project is of many to one where many sponsorships could be related to one project.

Furthermore, it was mentioned in the follow-up sessions with the client that we will need a navigable attribute to know which sponsor did the sponsorship. That resulted in a relationship of many to one where many sponsorships are connected with one sponsor.

In addition, it is worth mentioning the creation of a enumerator for the type of sponsorship used with two values: *("Financial", "In kind").*

Requirement 003:

Each sponsorship is billed through the use of invoices. The system must store the following data about them: a code (pattern "IN-[0-9]{4}-[0-9]{4}", not blank, unique), a registration time (in the past), a due date (at least one month ahead the registration time), a quantity (positive not nought), the tax that it is applied (positive or nought), the total amount (calculated by adding together the quantity and the tax applied), and an optional link with further information.

An exhaustive examination of the requirement has been undertaken through consultations with the client, elucidating the following ambiguities:

1. Time period implementation

The "time period" implementation, due to its lack of explicit specification regarding the associated requirement, introduces uncertainty into the implementation process. It could be interpreted as a Date, a numerical type or a custom data type.

The alternatives given to the client were the following:

- **Alternative 1:** Using Date, with the pro of being comparable with other date attributes (needed for a constraint) and the con that it does not make much sense with the concept of "time period".
- **Alternative 2:** Using a numerical type, with the pro that it matches the concept of "time period" and the con that the constraint cannot be checked directly in the entity.
- **Alternative 3:** Using a custom data type, with the pros that the solution would be reusable and would match the concept of "time period", but the cons of the high complexity and the probability of arising errors.

The client, after being consulted, has concluded that the time periods or the duration attributes must be addressed as two new attributes of the Date type; one referring to the beginning moment and other referring to the end moment, with a correct set of constraints. In addition, the client elucidated that a time period or duration cannot be under an hour long.

Some other decisions taken by our client in follow-up meetings were the use of the datatype money to the total amount of the sponsorship, the tax that must be a percentage (delimited from 0 to 100) and the URLS that must have a length of 255. Those decisions will follow the same pattern for the rest of requirements.

2. Constraints

The constraints found in this requirement that may need further analysis are described as follows:

- **Explicit constraint:** the beginning moment previously mentioned by the client must be at least one month ahead the creation moment of the training module. This means that this constraint must be implemented in the service, adding the task to the workload of the project in its D03 version.
- **Explicit constraint:** the end moment previously mentioned by the client must be at least one month after the beginning moment of the training session. This constraint must be implemented in the service as well.
- **Implicit constraint:** upper limit for dates. The upper limit for dates is 2200/12/31 23:59, that is, all dates must correspond to a moment before the upper limit date. This constraint must be implemented in the service as well.
- **Implicit constraint:** lower limit for dates. The lower limit for dates is 2000/01/01 00:00, that is, all dates must correspond to a moment after the lower limit date. This lower limit must be implemented in the service as well.
- **Implicit constraint:** URLs must have a maximum length of 255 characters.

Again, the implicit constraints were agreed upon the client.

3. Relationships and extras.

Invoices are the way in which sponsorships are billed, therefore, the sponsorships could have many invoices related to them. This result in a many to one relationship from many invoices to one sponsorship.

Requirement 004:

The system must handle sponsor dashboards with the following data: total number of invoices with a tax less than or equal to 21.00%; total number of sponsorships with a link; average, deviation, minimum, and maximum amount of the sponsorships; average, deviation, minimum, and maximum quantity of the invoices.

In this requirement, commenting on analysis has not been deemed necessary due to its simplicity.

Requirement 005:

Produce assorted sample data to test your application informally. The data must include two sponsor accounts with credentials "sponsor1/ sponsor1" and "sponsor2/ sponsor2".

In this requirement, it is worth mentioning that the production of assorted sample data to test the application informally implicitly involves generating sample data for the entities (sponsorship and invoices). This sample data will imply generating data by exploring potential values that may lead to errors within the constraints of the entity.

Requirement 013:

There is a new project-specific role called sponsor, which has the following profile data: name (not blank, shorter than 76 characters), a list of expected benefits (not blank, shorter than 101 characters), an optional web page with further information, and an optional email contact.

An exhaustive examination of the requirement has been undertaken through consultations with the client, elucidating the following ambiguities:

1. Constraints

The constraints found in this requirement that may need further analysis are described as follows:

- **Explicit constraint:** limits are explicit of the maximum number of characters with name and benefits.
- **Implicit constraint:** URLs must have a maximum length of 255 characters.

Once again, the implicit constraints where agreed upon the client.

Requirement 014:

Produce a UML domain model.

In this requirement, commenting on analysis has not been deemed necessary due to its simplicity.

Requirement 015:

Produce an analysis report.

In this requirement, commenting on analysis has not been deemed necessary due to its simplicity.

Requirement 016:

Produce a planning and progress report.

In this requirement, commenting on analysis has not been deemed necessary due to its simplicity.

5. Conclusions

As a conclusion, this analysis report means a strategic guide in understanding what the student must make in order to satisfy the projects requisites proposed by the evaluators of this subject.

6. Bibliography

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