Music streaming platform

L.D. Muñoz, student member, and J.D. Alvarez, student member, Universidad Distrital Francisco José de Caldas

Abstract—At this moment of the present time and the great growth of the music industry, the demand for music has also increased. Under that idea this paper focuses on the creation of a music streaming platform, using the object oriented paradigm and a design pattern for this case. This paper explains how to satisfy the needs of the listeners and artists of this platform by offering a simple and quality platform. The paper shows the main functions such as search, saves, likes, dislikes, music uploads, among others. Different tools are used including but not limited to python, databases and design patterns. We also have performance and optimization tests, performing various tests to ensure the quality of the platform. The paper ends with a test to guarantee the performance of the platform.

I. INTRODUCTION

IN these moments of the present time the music distribution has increased a lot, for the same reason the market that offers these services has grown a lot, with all this to create a music platform can be very risky if it is not carried out with the due care, for that reason it is about giving a simple service and of quality that can compete in this market.

This paper focuses on the presentation of a project that wants to compete in the streaming music market through a platform that allows you to search, save, like or dislike if you are a listener or upload, delete or review the statistics of an artist's song.

In this context, it is very important that the platform works properly, under almost any situation, so special care will be taken to maintain quality in order to offer a quality service to the users.

In summary, this paper shows an overview of the project of a music streaming platform that competes in the current difficult market. To overcome this situation, you must have high quality and make sure you do not have problems to avoid losing users and therefore profitability.

II. MATERIALS AND METHODS

To develop a platform for transmitting music, a variety of tools and technologies are necessary that must be selected with caution to avoid missing tools or having them left over and not being used. Below, the different methods and materials necessary to offer an efficient and quality service will be shown.

Database: Databases are needed to correctly fulfill the functions of the platform since they are necessary to store the necessary songs, albums and playlists.

Entity-relationship model: since a database will be used, an entity-relationship model is also essential since without it the database could be poorly designed.
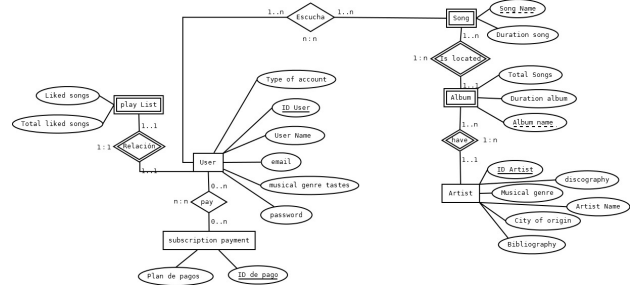

Fig. 1. entity-relationship model.

Relational model: it is also crucial for the creation of efficient databases because of its organised structure, scalability, data handling and other features.
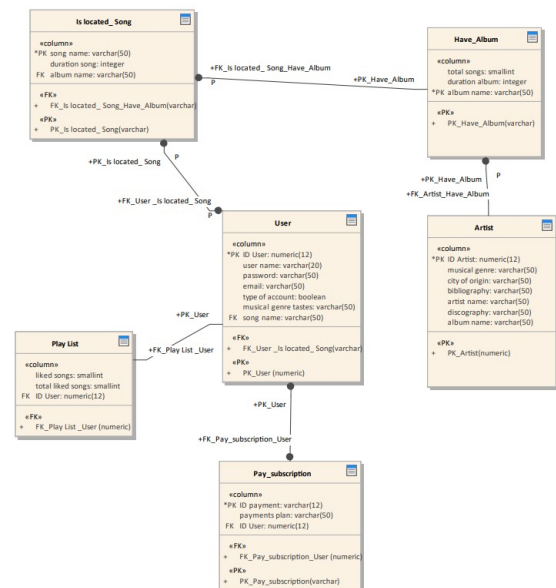

Fig. 2. relational model.

Python: This is the language that will be used for the backend of the platform, it has been chosen for the ease of implementing design patterns with the object-oriented paradigm, python version 3.11.0 will be used.

Class diagram: it will be used to present the classes and the relationships and inheritances that exist between them in order to have quality code.
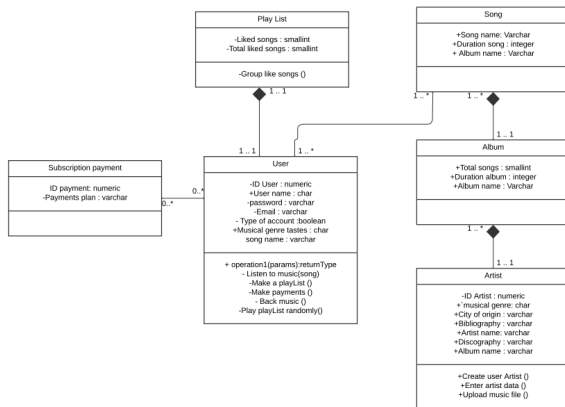

Fig. 3. Class diagram.

Sequence diagrams: are an essential tool in system design and analysis, allowing to visualise and understand the interactions between objects over time.
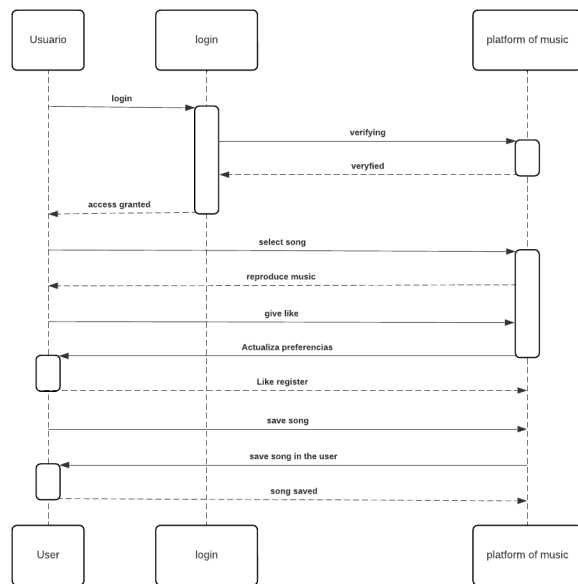

Fig. 4. Sequence diagram.

Pyenv: it was decided to use this tool to implement a virtual environment and to be able to test the platform correctly and without problems.

Design patterns: these patterns will be used to solve the problems generated by the platform in a simple way

Activity diagrams: They will be used to describe in a simple way the processes of the platform, whether like, save or listen to a song, among others.
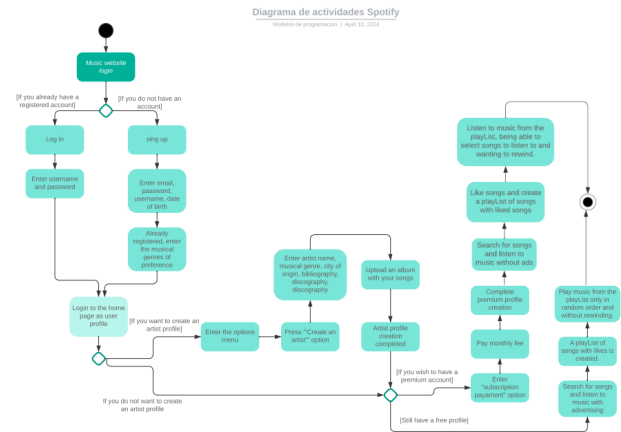

Fig. 5. activity diagram.

III. EXPERIMENTS AND RESULTS

To guarantee the efficiency and quality of the music streaming platform, certain experiments are necessary, so that the operation of the platform can be evaluated.

The experiments that can be carried out are:

Search experiment: to confirm that the search system works correctly and if not, correct it.

Likes and saved experiment: confirm that both the likes and the songs that are saved are saved correctly and if not, correct it.

Song upload and delete experiment: confirm that artists can delete or upload a new song at any time.

The expected results are to see how efficient the platform processes are and if they meet the quality required by the project. If they are met, the project can continue as planned, otherwise changes will have to be made. to achieve the desired quality in the project.

IV. CONCLUSION

In conclusion, this article presents a music streaming platform project. Its composition, the methods and technologies used in its development are addressed, and how the evaluation and testing of the platform will be carried out is discussed.

REFERENCES

C. A. Sierra (2024, March 19). Software modeling [Online]. Available: https://github.com/EngAndres/ud-public/tree/main/courses/software-modeling