

**Real-Life Assessment (RLA)**  
**E-Commerce & Dashboard Web Application**  
EPITA  
Program: L1  
Project Type: Real-Life Assessment (RLA)  
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## **1. Introduction**

This Real-Life Assessment (RLA) project focuses on solving a real-world problem faced by a merchant selling artisanal cosmetic products. The merchant is overwhelmed by large volumes of data related to sales, inventory, and customer interactions. The goal of this project is to design and develop a professional web-based solution that provides online visibility while also supporting informed decision-making through data exploitation.

## **2. Real-Life Context and Problem Statement**

The client is the owner of an Indian cosmetic brand who wishes to expand their market reach. Currently, product data, inventory, and customer information are scattered and difficult to analyze. The lack of an online platform limits growth opportunities and makes decision-making inefficient.

## **3. Project Objectives**

The objectives of this project are:

- To build a functional e-commerce website for online presence.
- To develop a Python-based backend using Flask.
- To store and manage data using a MySQL database.
- To display available cosmetic products dynamically.
- To create a dashboard-like structure for activity tracking.
- To interact with the client to gather and refine requirements.
- To implement additional features such as maps and email subscriptions.

## **4. Integrative Learning Approach**

This RLA integrates knowledge from multiple courses including programming, databases, web development, and communication skills. Students apply theoretical concepts to a professional scenario, simulating real engineering tasks such as requirement analysis, system design, and implementation.

## **5. Team Organization and Collaboration**

The project was completed by a team of three members. Tasks were distributed among backend development, frontend design, and database management. Regular internal meetings and discussions helped in reaching the goal.

## **6. Client Interview and Requirement Analysis**

A simulated client interview was conducted using the Gemini Live feature. The client expressed the need for a clean, professional website that highlights products, tracks store activity, and remains easy to use. The interview helped define priorities such as simplicity, usability, and scalability.

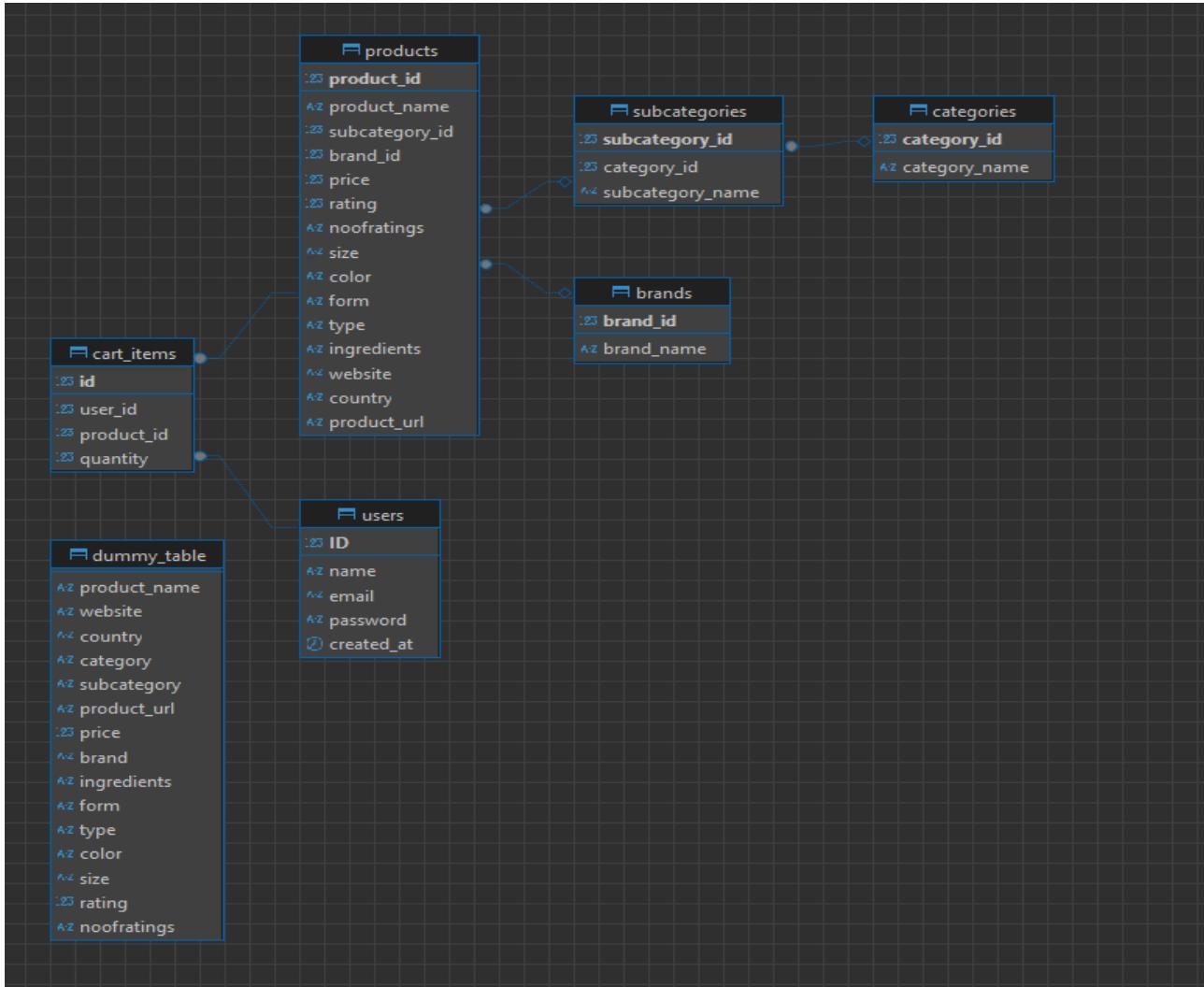
Details of client interview are shared in ClientInterview Documentation.

## **7. Data Source and Database Design**

The dataset used for this project is the 'E-commerce Cosmetic Products' dataset from Kaggle. This data was cleaned and stored in a MySQL database. Tables were designed to store product details, pricing, inventory status, and subscription data.

First of all we transferred all the data to dummy table. After that we create different tables like categories, products, users, subcategories. This really helped us in working with database.

We fetched data on our website by using SQL queries and join the tables.



## 8. System Architecture

The application follows a client-server architecture. The frontend communicates with the Flask backend through HTTP requests. Flask handles business logic and database operations, while MySQL ensures persistent data storage.

## 9. Backend Development (Flask)

The backend was developed using Flask due to its lightweight and modular nature. Flask routes handle product retrieval, database queries, and data processing. The backend acts as a bridge between the frontend interface and the MySQL database.

## 10. Frontend Development

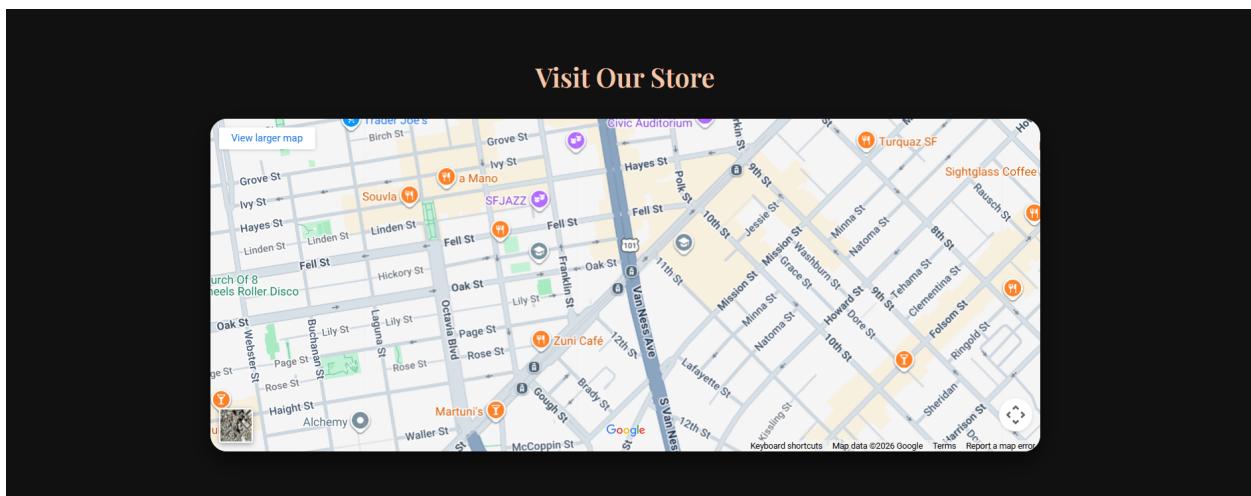
The frontend was built using HTML, CSS, and JavaScript. It provides a user-friendly interface to browse products and interact with features such as maps and email subscriptions. Flask templates are used to dynamically render content.

## 11. Frontend–Backend Connection

The connection between frontend and backend is achieved using Flask routing and templating. Data fetched from MySQL is passed from Flask to HTML templates. JavaScript is used to enhance interactivity and handle asynchronous operations where needed.

## 12. Map Feature Integration

A map feature was added to enhance real-world usability. It allows customers to view store locations or service areas. This improves customer trust and provides geographical context to the business.



## 13. Shop and Add to Cart

In shop page we displayed all the items along with their names and price. We couldn't display the pictures because items list was too long. If the items were less we would have attached the pics as well. Other than that when you click on BUY button under the object it will take you to the website whose link is shared with each object in database. If you click on Add to cart it will be added to the cart only if you are login. If you aren't login it will ask you to first login and then add to cart.

On shop page we also added some of the filters like categories and price range.

## Your Cart

Product	Price	Qty	Total
CHARLENE SPRAY MIST PERFUME 30 - INTIMATE (PACK OF 1)	\$149.00	1	<b>\$149.00</b>
La French Niche Edition Luxury Perfume Gift Set 4x20   Extra Long Lasting Fragrance   Eau De Parfum Scent   Euphoria   Mood Swing   Happiness   Invoke   Unisex Gift Set (Luxury Perfume Gift Set)	\$475.00	1	<b>\$475.00</b>
CHARLENE SPRAY MIST PERFUME 30 - INTIMATE (PACK OF 2)	\$298.00	1	<b>\$298.00</b>
Denver Hamilton Perfume - 100   Long Lasting Perfume Body Scent for Men	\$422.00	1	<b>\$422.00</b>
Carlton London Incense Eau da parfum, Premium Long Lasting & Refreshing Perfume for Men - 100	\$599.00	3	<b>\$1797.00</b>
Oatmilk Calendula Moisturizing Bubble Bath and Wash	\$1429.75	1	<b>\$1429.75</b>

[Continue Shopping](#) [Checkout](#)

## Shop Our Products

### Filter

CATEGORY

- [All](#)
- [body](#)
- [eyes](#)
- [face](#)
- [hair](#)
- [lips](#)
- [skincare](#)

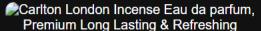
PRICE RANGE

 —  [Apply](#)

SORT

- [Price ↑](#)
- [Price ↓](#)

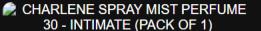
[Clear all](#)



Carlton London Incense Eau da parfum, Premium Long Lasting & Refreshing Perfume for Men - 100

\$599.00

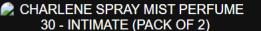
[Add to Cart](#) [Buy Now](#)



CHARLENE SPRAY MIST PERFUME 30 - INTIMATE (PACK OF 1)

\$149.00

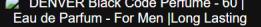
[Add to Cart](#) [Buy Now](#)



CHARLENE SPRAY MIST PERFUME 30 - INTIMATE (PACK OF 2)

\$298.00

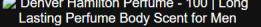
[Add to Cart](#) [Buy Now](#)



DENVER Black Code Perfume - 60 | Eau de Parfum - For Men |Long Lasting Luxury Scent Fragrance

\$245.00

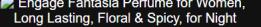
[Add to Cart](#) [Buy Now](#)



Denver Hamilton Perfume - 100 | Long Lasting Perfume Body Scent for Men

\$422.00

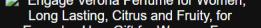
[Add to Cart](#) [Buy Now](#)



Engage Fantasia Perfume for Women, Long Lasting, Floral & Spicy, for Night Occasions, Gift for Women, Free Tester with pack, 100

\$422.00

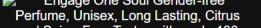
[Add to Cart](#) [Buy Now](#)



Engage Verona Perfume for Women, Long Lasting, Citrus and Fruity, for Everyday Use, Gift for Women, Free Tester with pack, 100

\$422.00

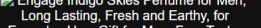
[Add to Cart](#) [Buy Now](#)



Engage One Soul Gender-free Perfume, Unisex, Long Lasting, Citrus and Spicy and Free Tester with pack, 100

\$422.00

[Add to Cart](#) [Buy Now](#)



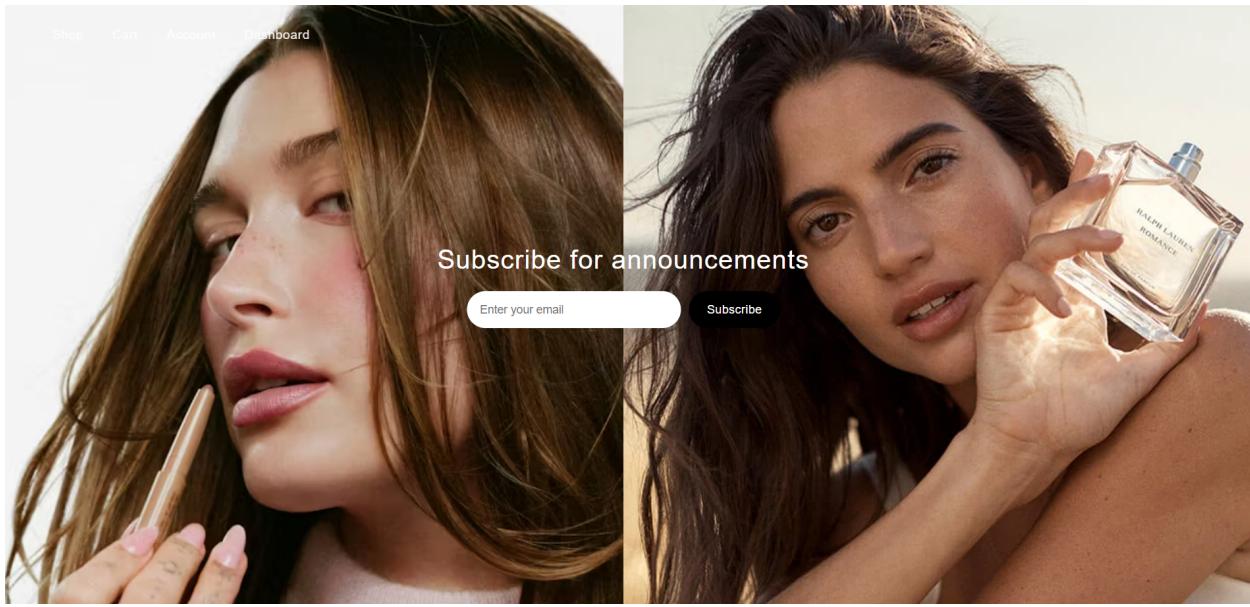
Engage Indigo Skies Perfume for Men, Long Lasting, Fresh and Earthy, for Everyday Use, Gift for Men, Free Tester with pack, 100

\$422.00

[Add to Cart](#) [Buy Now](#)

## 14. Email Subscription Feature

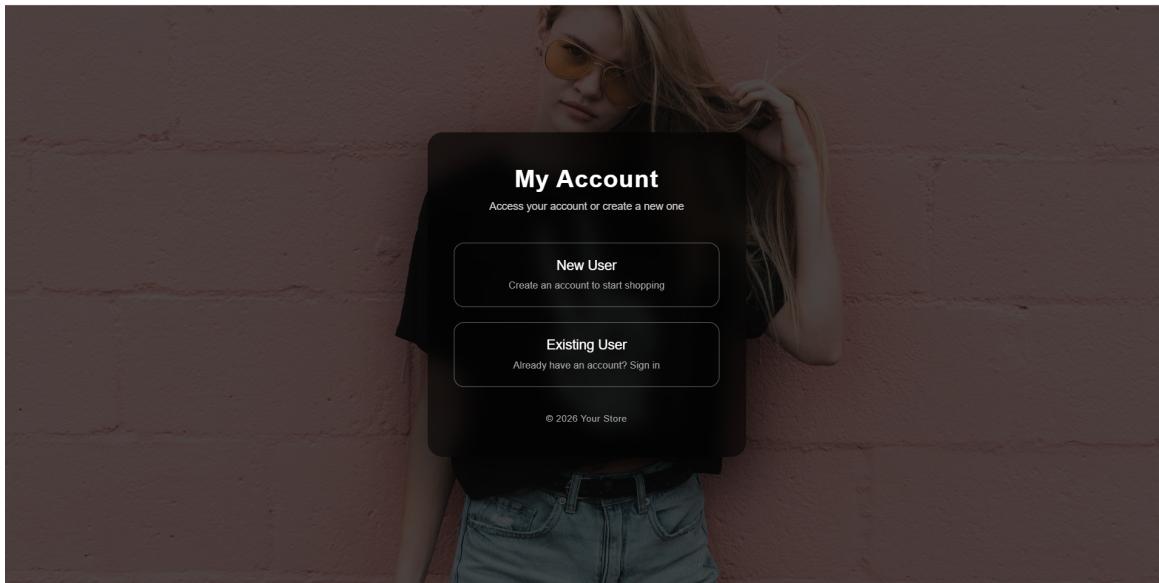
An email subscription feature was implemented using EmailJS. Customers can subscribe to receive updates, promotions, or announcements. This feature helps the merchant maintain engagement without managing a dedicated mail server.



## 15. Login and Registration

We also implemented login/registration in our website. It helped us to store user's data and its ADD\_TO\_CART things. When user logins with his account again all his ADD\_TO\_CART items come back. We did this by making separate tables for users and ADD\_TO\_CART items.

When user registers we also store the password but we keep it confidential. User's password is hashed using bcrypt so that we don't see the password.



## 16. Obstacles and Challenges Faced

Several challenges were encountered during the project:

- Understanding and cleaning the Kaggle dataset.

- Designing an efficient MySQL schema.
- Connecting Flask with MySQL and debugging connection issues.
- Ensuring smooth data flow between frontend and backend.
- Integrating third-party services such as maps and EmailJS.

It was the first time that we connected the backend with the frontend. In the beginning it felt really difficult because of the flask thing. After going through several youtube tutorials and documentations we finally got through it. Now we know how the website actually work. How the requests between frontend and backend are carried out.

Overcoming these challenges strengthened technical and problem-solving skills.

## **17. Conclusion**

This RLA project successfully delivers a complete web-based solution for a real client scenario. The application not only provides an online presence for the merchant but also supports data-driven decision-making. The project reflects readiness for professional software development.

This project really helped us in understanding cores of web development. By this project we also got the opportunity to showcase our creativity. Now heading towards next semester with the hope of seeing something great like this.