



# Make Up Products Analysis with Prediction

- Nice One Website -

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# Introduction

**RAMADAN MUBARAK!** 🌙 ✨



Are you ready to glow this Eid with stunning new makeup? Or perhaps you're a beginner eager to dive into the beauty world without spending a fortune? No matter what brings you here, you've come to the right place!

From budget-friendly must-haves to luxurious beauty essentials, we've got everything you need to create your perfect look.



# Problem Statement

Customers often struggle to find makeup products that fit their budget and preferences. This project aims to use K-means clustering to group makeup products based on price, discount price, makeup type, brand name, and review count, helping users discover low-cost, affordable, and luxury options more easily.





# Objectives

**1**

Explore the dataset to uncover trends in pricing, ratings, and customer preferences.

**2**

Perform feature engineering to enhance the dataset for modeling.

**3**

Build predictive models to analyze patterns.

**4**

Providing meaningful insights

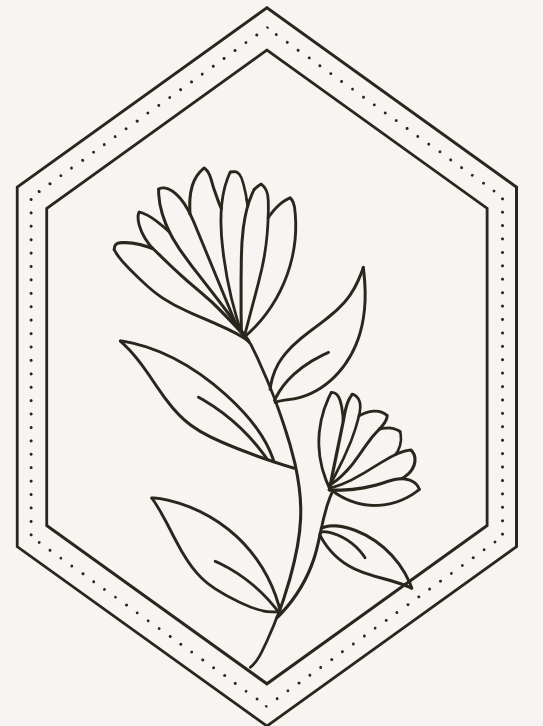




## Data Collection

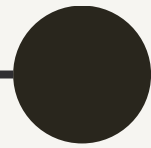
In the Data Collection phase, we gathered data from the makeup section of the Nice One website. A script was developed to extract detailed information for each product, including:

- Product name
- Brand name
- Original price
- Discounted price
- Rating number
- Reviews number
- Skin type
- Makeup type
- Product texture

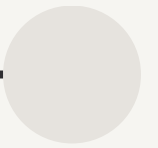
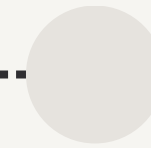




Data Collection

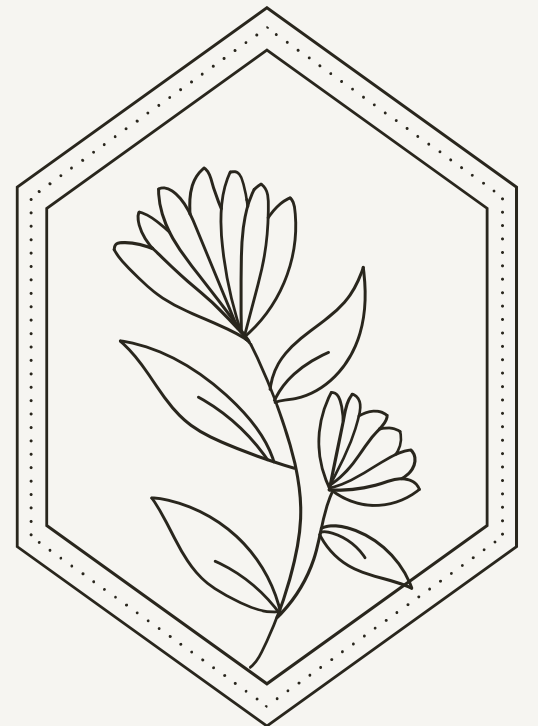


EDA



## Feature Engineering:

- **Retain only the rows where categorical features appear more than three times in the dataset.** This ensures that infrequent categories are excluded to improve model robustness.
- **Encoding Categorical Features :** Apply Frequency Encoding to transform categorical features into numerical representations based on their occurrence frequency in the dataset.
- **Feature Scaling:** Standardize or normalize the features to ensure they are on the same scale.
- **Feature Selection:** Focus on key features for the analysis, such as:
  - Original Price
  - Price After Discount
  - Brand Name
  - Makeup Type
  - Review Count



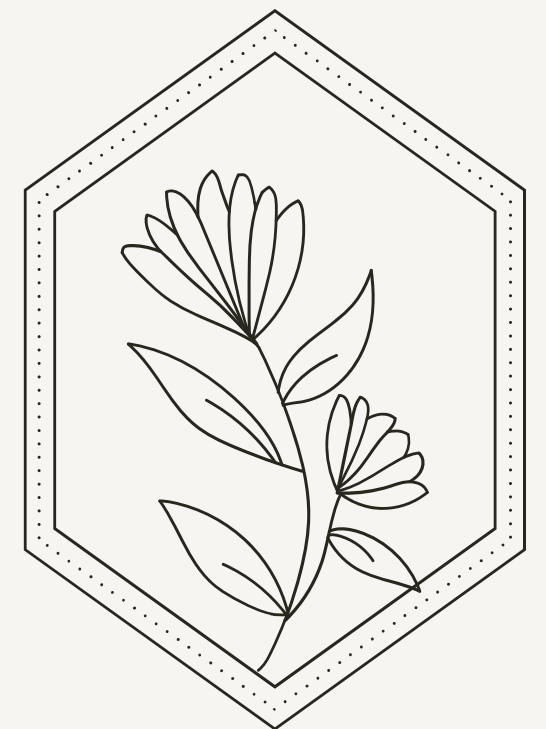




**Model:** K-means clustering

**Purpose:** To categorize makeup products into distinct groups based on key features such as price, discounted price, makeup type, brand name, and review count. This approach helps users effortlessly discover products that match their preferences and budget, including:

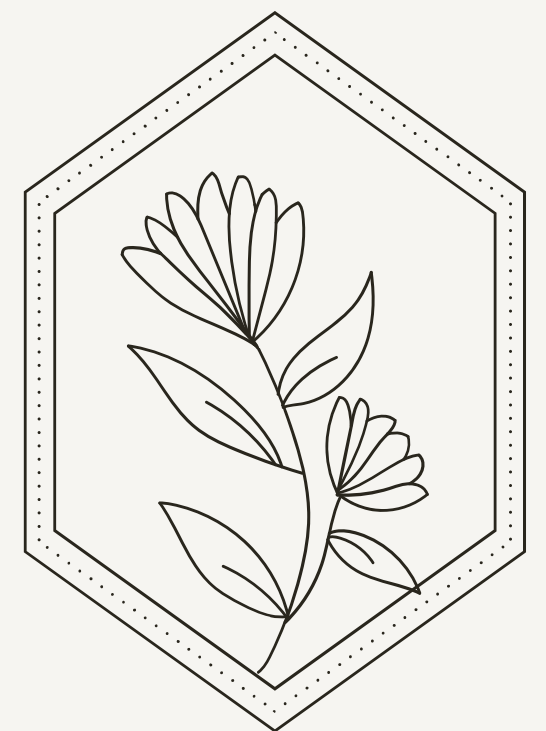
- **Affordable Essentials:** Cost-effective options for everyday use.
- **Affordable Essentials and Tools:** Premium products known for their performance and durability.
- **Luxury Essentials:** High-end, exclusive makeup items for a luxurious experience.
- **Low-Cost Essentials:** Products that combine quality with affordability.



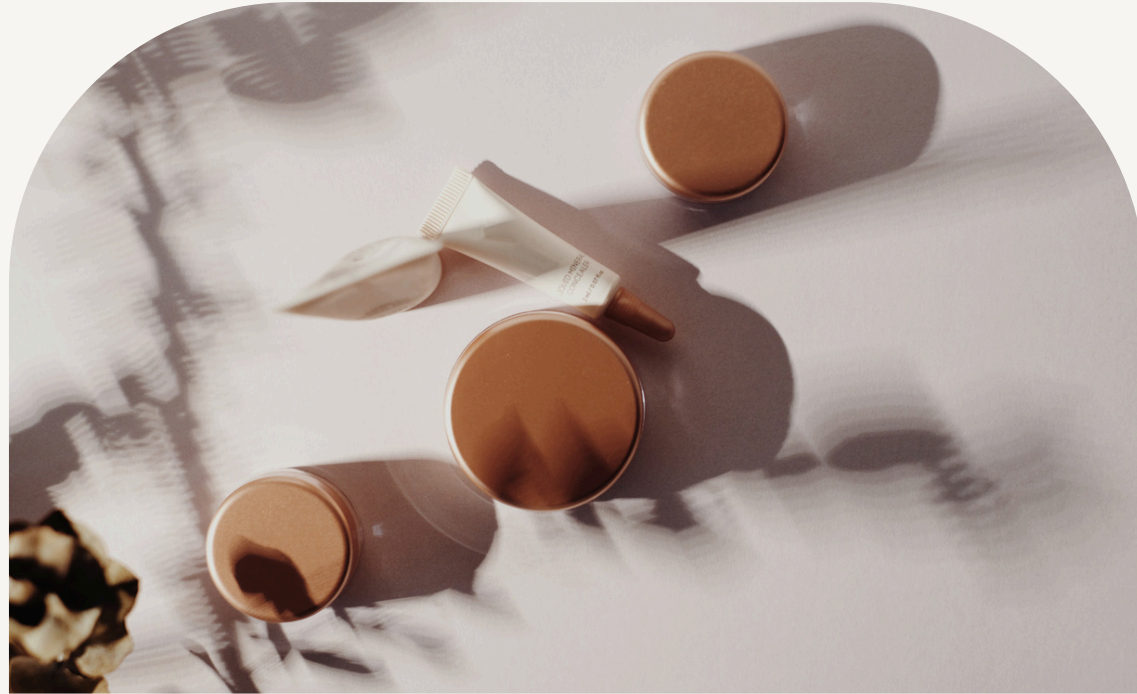


We deployed the model using FastAPI, starting with installing the necessary libraries, then creating a file containing the FastAPI code to run the API. Next, we ran the application locally and tested it via Swagger UI. Later, we uploaded the project to GitHub and deployed it on Render by setting up a Web Service and linking it to the repository, specifying the installation and startup commands. Additionally, we integrated the API with Streamlit to create an interactive user interface for sending data to the model and displaying predictions. After deployment, we could access the API through the final Render URL for use in various applications.

<https://app-app-idrjhys4fh8ndhuqznrprq.streamlit.app>







# Conclusion

Our analysis provided valuable insights into makeup products on Nice One. The integration of Streamlit and FastAPI helps customers find products that match their budget while enabling Nice One to enhance pricing strategies, marketing, and product recommendations. Future improvements could involve analyzing consumer behavior to make recommendations even more personalized.