

Analyzing Cosmetic Products

Data science for safer, more effective skincare choices.

M.V. Sri Lasya (2023003411)

M. Sai Dheeraj (2023002482)



Project Overview

1 Objective

Analyze ingredients for safety and efficacy.

2 Data Collection

Gathered from Kaggle, which is the results of webscraping the data from the Sephora website.

3 Machine Learning

Clustering and classification techniques applied.

4 NLP

Analyze user reviews for sentiment.



Problem and Goal

Challenge

Ingredient safety concerns complicate cosmetic choices.

Goal

Use Natural Language Processing to compare products effectively.



Methodology

1

Data Preprocessing

Clean and normalize ingredient data.

2

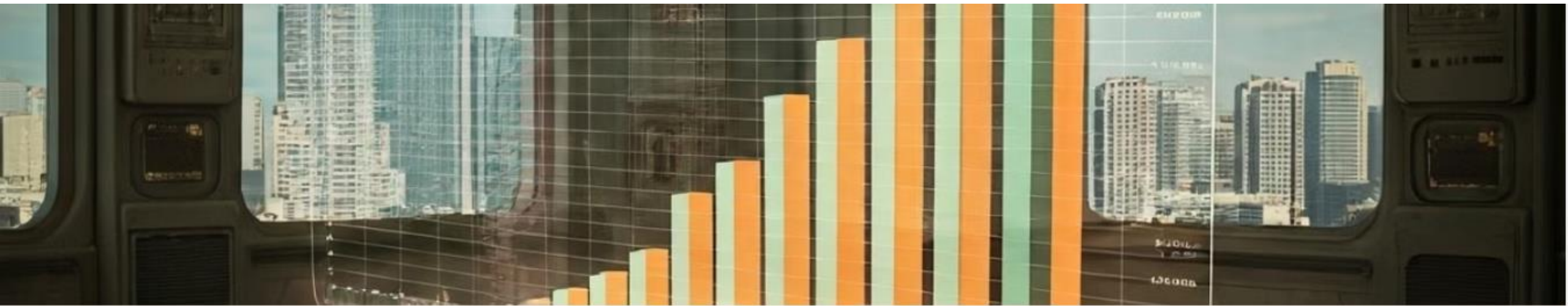
NLP Techniques

Tokenization, stopword removal, and vectorization.

3

Clustering Analysis

Group similar products based on ingredients.



Machine Learning Models

Model	Accuracy
Random Forest	61%
LSTM	52%
GRU	46%

Random Forest excels in capturing feature patterns.

Conclusion and Future Work

1

Outcome

Successful analysis of the product and ingredients correlation.

2

Future Models

Implement advanced NLP like BERT.

3

Data Expansion

Analyze ingredient interactions and expand dataset.

4

User Interface

Develop user-friendly recommendation system.





References



Literature

1. Chowdhary, KR1442, and K. R. Chowdhary. "Natural language processing." Fundamentals of artificial intelligence (2020): 603-649.
2. Graves, Alex, and Alex Graves. "Long short-term memory." Supervised sequence labelling with recurrent neural networks (2012): 37-45.
3. Fu, Rui, Zuo Zhang, and Li Li. "Using LSTM and GRU neural network methods for traffic flow prediction." 2016 31st Youth academic annual conference of Chinese association of automation (YAC). IEEE, 2016.
4. Kim, Sung Guen, and Juyoung Kang. "Analyzing the Discriminative Attributes of Products Using Text Mining Focused on Cosmetic Reviews." Information Processing & Management 54.6 (2018): 938-957.



Datasets

Kaggle Dataset Link : <https://www.kaggle.com/datasets/raghadalharbi/all-products-available-on-sephora-website>



Similar Projects

Similar project link : <https://github.com/satyam9090/Comparing-Cosmetics-by-Ingredients>