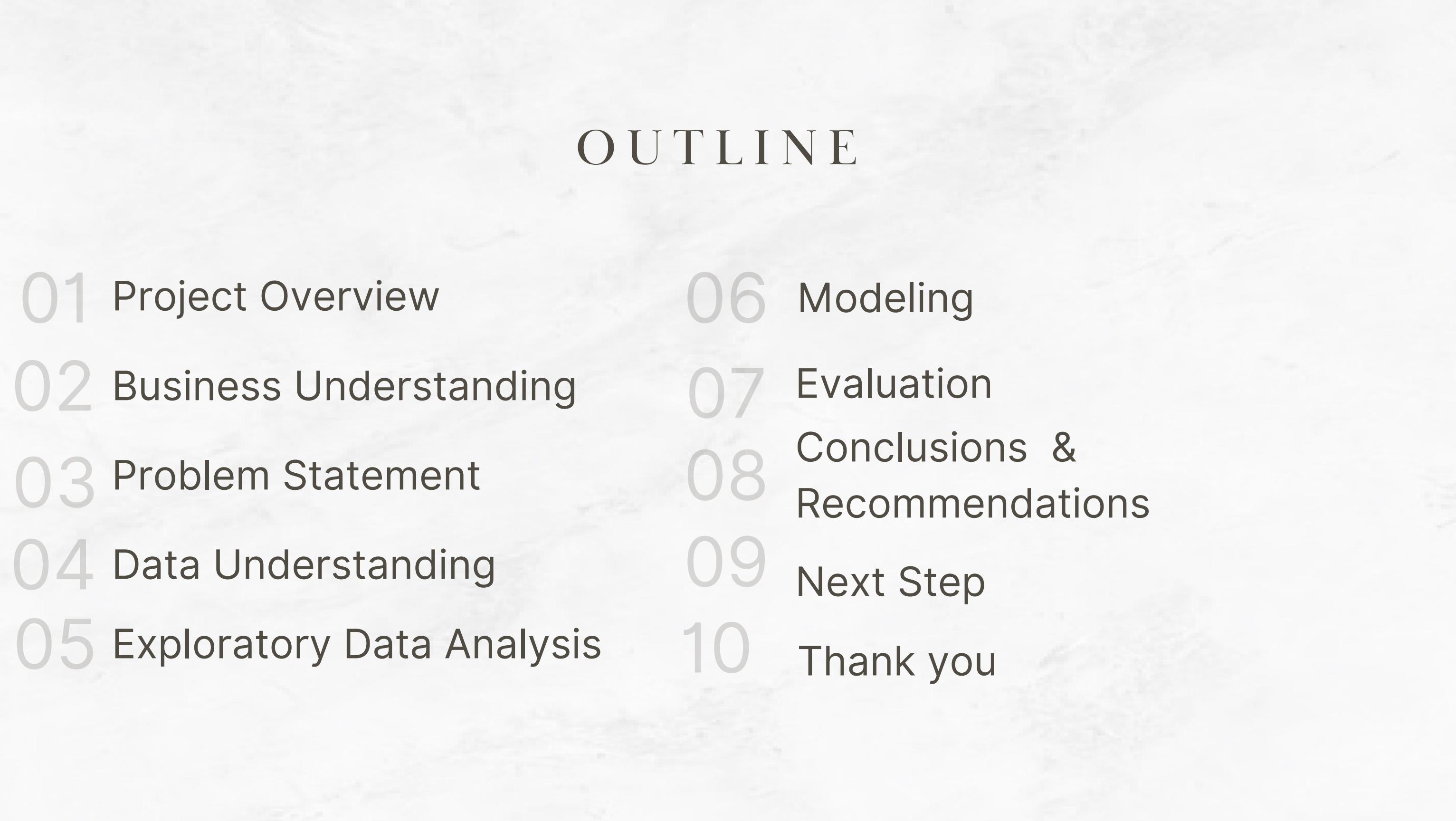


SKINCARE RECOMMENDATION SYSTEM



BY DATA SENSEIS

OUTLINE

- 
- 01 Project Overview
 - 02 Business Understanding
 - 03 Problem Statement
 - 04 Data Understanding
 - 05 Exploratory Data Analysis
 - 06 Modeling
 - 07 Evaluation
 - 08 Conclusions & Recommendations
 - 09 Next Step
 - 10 Thank you

PROJECT OVERVIEW

The project focuses on developing a cutting-edge Skincare Recommender System utilizing the Sephora Dataset. By leveraging advanced machine learning techniques and Sephora's extensive product information, we aim to revolutionize the way skincare products are recommended to users.





BUSINESS UNDERSTANDING

- Cosmetics and skincare industry underutilize machine learning recommender systems.
- Our project develops a comprehensive skincare recommender system for personalized product recommendations.
- Revolutionizing cosmetic recommendations by considering factors like skin type, tone, user choices, and budget.

PROBLEM STATEMENT



Problem:

- Matching customers with personalized beauty and cosmetics products is challenging. Most users rely on influencers and promotions for choice of the products.

Solution:

- Develop a data-driven recommender system using historical data to accurately match customers with personalized products, reducing reliance on influencers and promotions.

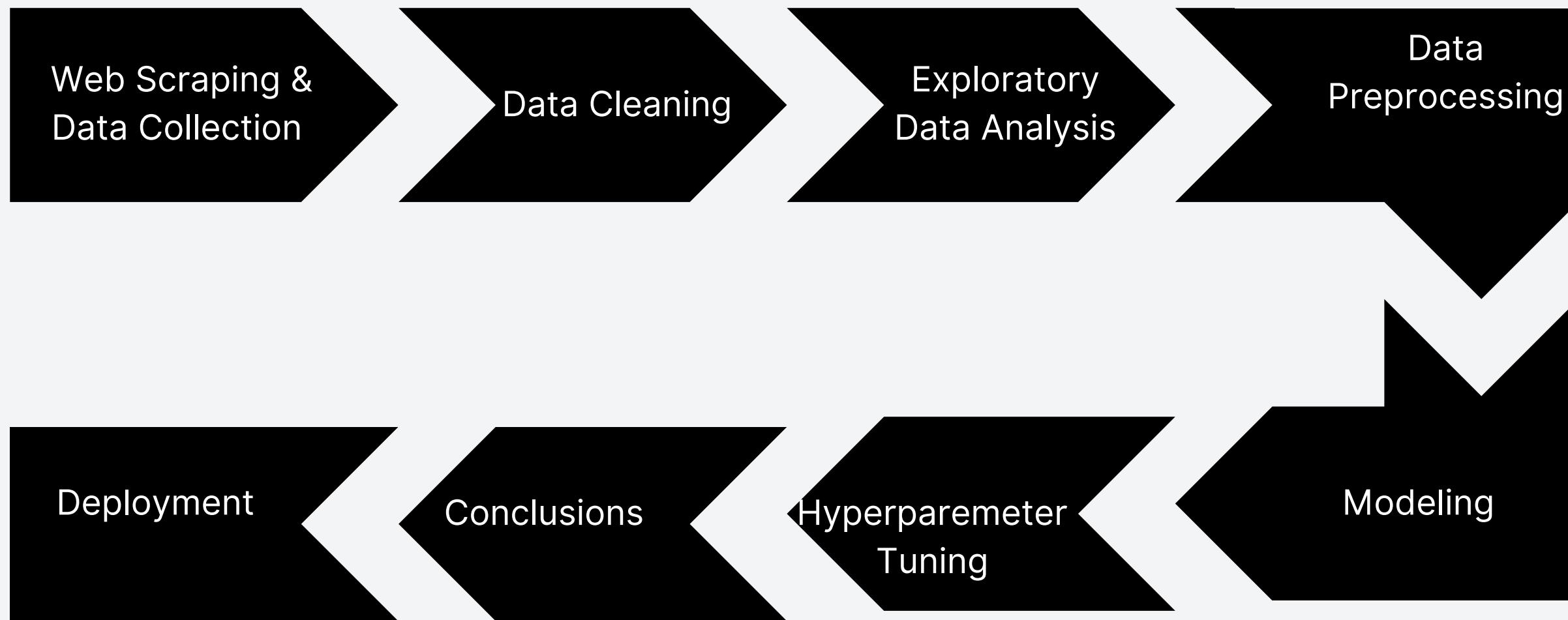
DATA UNDERSTANDING

The project utilizes a combination of scraped data from the Sephora website and the Kaggle dataset that was scraped in March 2023. It contains...

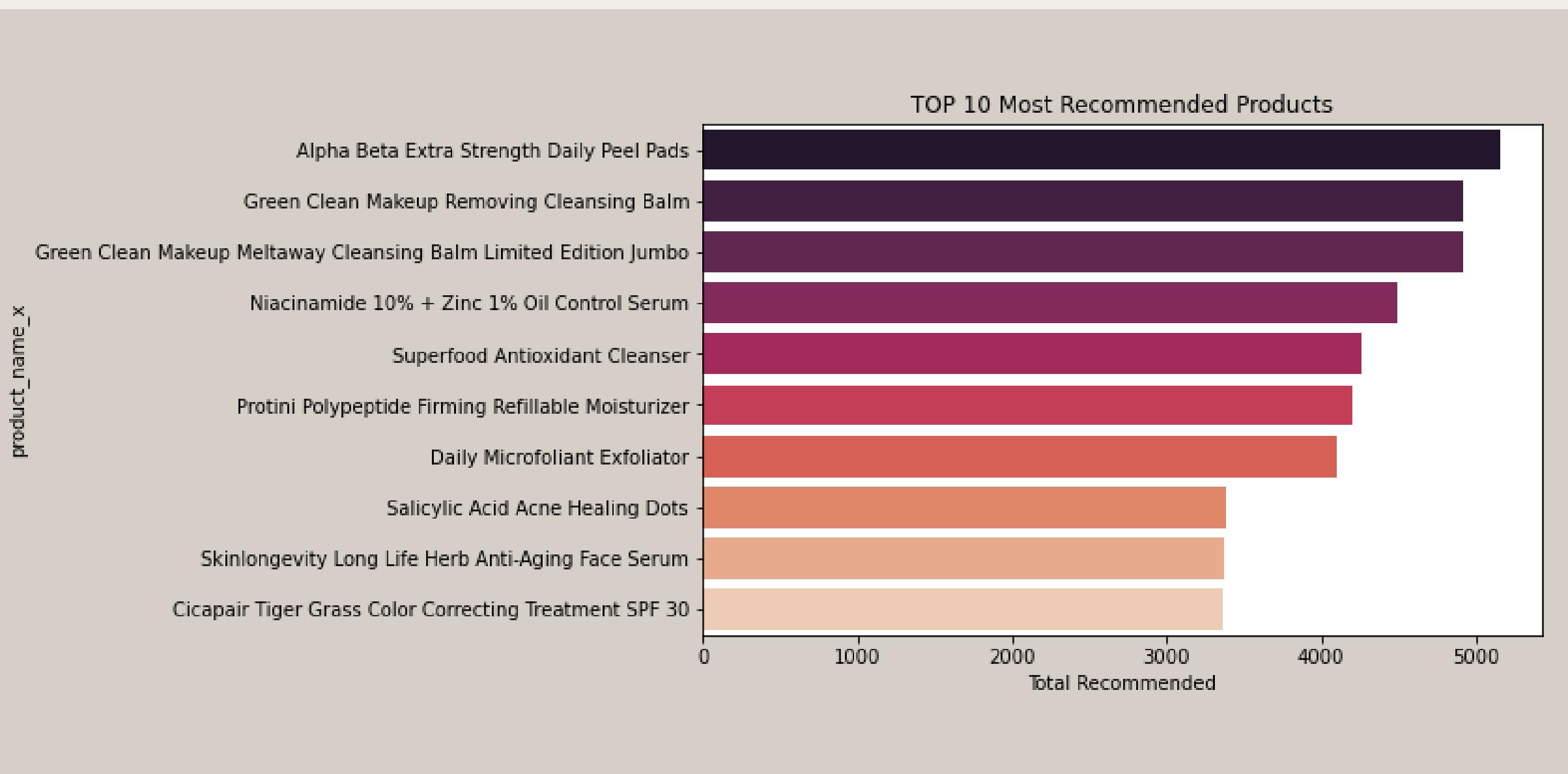
- * information about all beauty products (over 9,000) from the Sephora online store, including product and brand names, prices, ingredients, ratings, and all features.
- * user reviews (over 1 million on over 2,000 products) of all products from the Skincare category, including user appearances, and review ratings by other users



PROCESS FLOW

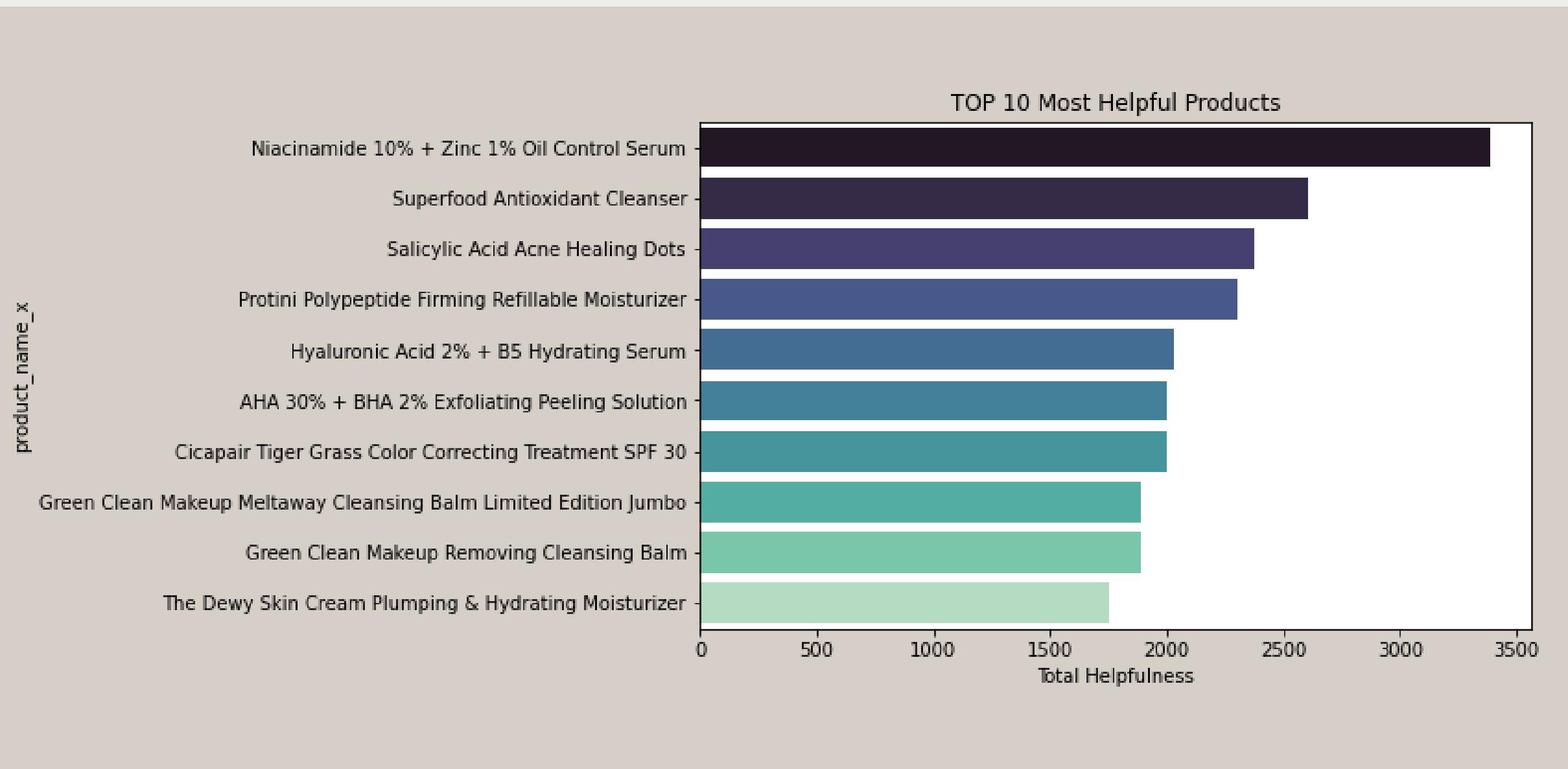


WHAT ARE THE TOP 10 MOST RECOMMENDED PRODUCTS?



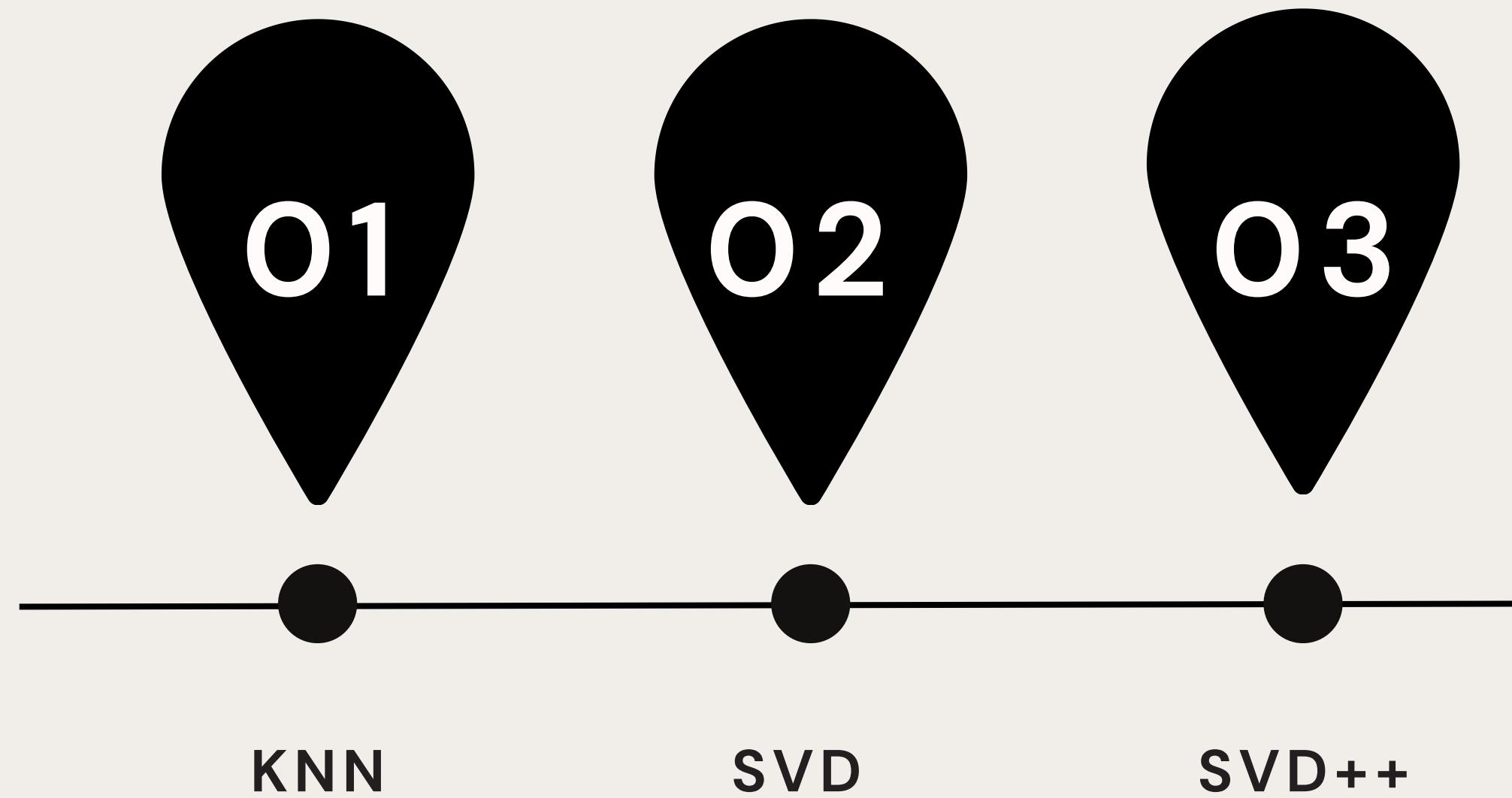
Alpha Beta Extra Strength Daily Peel Pads is the most recommended product, it is a two-step treatment that uses a combination of five potent Alpha and Beta Hydroxy Acids to help even the skin tone and texture, reduce the appearance of wrinkles, and minimize enlarged pores.

WHAT ARE THE TOP 10 MOST HELPFUL PRODUCTS?



Niacinamine 10% + Zinc 1% Control Serum is the most helpful product, it is a water-based serum that boosts skin brightness, improves skin smoothness and reinforces the skin barrier over time.

MODELS USED



SVD++ MODEL (FINAL MODEL)

After tuning the model...

- **Performance:** Outstanding with the lowest RMSE of 0.0283 and MAE of 0.0099.
- **Accuracy:** Exceptional, minimizing the deviation between actual and predicted ratings.
- **Precision:** 0.9998, indicating highly relevant recommendations.
- **Recall:** 1.0, successfully identifying all relevant recommendations.

```
# Example usage
price_range = 'medium'
tertiary_category = 'Moisturizers'
skin_type = 'oily'
skin_tone = 'light'

product_name, ingredients = generate_recommendation(price_range, tertiary_category, skin_type)

if product_name is not None:
    print("Recommended Product:", product_name)
    print("Ingredients:", ingredients)
else:
    print("No recommendation found for the given input criteria.")

user: new_user    item: P504044    r_ui = None    est = 4.71    {'was_impossible': False}
Recommended Product: Pro-Retinol Megamoisture Face Cream
Ingredients: ['Aqua (Water)', Caprylic/Capric Triglyceride, Triethylhexanoin, Glycerin, Solanum Tuberosum (Potato) Pulp Extract, Squalane, Dicapryl Succinate, C12-16 Alcohols, Octyldodecyl
```

Python

DEPLOYMENT

Skin Care Product Recommendation

Select Product Category
Makeup Removers

Select Skin Type
normal

Select Skin Tone
medium

Enter your Budget in KSH
5000.00

Generate Recommendations

Recommended Product:

Product Name: Hydro Ungrasp Makeup Removing Cleansing Balm

Brand Name: MILK MAKEUP

Price in KSH: 5040.0

Reviews Rating (out of 5): 4.66 ★★★★

The screenshot shows a user interface for a skin care product recommendation system. At the top, the title "Skin Care Product Recommendation" is displayed. Below it is a form with four dropdown menus: "Select Product Category" (set to "Makeup Removers"), "Select Skin Type" (set to "normal"), "Select Skin Tone" (set to "medium"), and a budget input field showing "5000.00". A "Generate Recommendations" button is located below the form. Below the form, a green box labeled "Recommended Product:" contains the details of a recommended item: "Product Name: Hydro Ungrasp Makeup Removing Cleansing Balm", "Brand Name: MILK MAKEUP", "Price in KSH: 5040.0", and "Reviews Rating (out of 5): 4.66 ★★★★".

CONCLUSIONS & RECOMMENDATIONS

Conclusions

- Developed various collaborative filtering models for personalized skincare recommendations.
- Achieved high performance in precision, recall, and accuracy scores.
- Tuned SVDpp model stood out as the top performer, delivering accurate recommendations.
- Deployed a user-friendly system using Streamlit for easy input and personalized skincare suggestions.

Recommendations

- Expand product offerings to include face serums, based on their high rating for being helpful.
- Gather reviews from diverse racial backgrounds to enhance the accuracy of the recommendation system.
- Collaborate with skincare experts and professionals for valuable insights on product quality and safety.
- Provide educational resources like skincare guides and tutorials to help users make informed decisions and address specific skin concerns.



NEXT STEP

- Utilize NLP techniques to analyze user reviews and product descriptions for better insights into preferences.
- Explore deep learning models to capture complex skincare patterns and relationships.
- Integrate external data sources like social media and blogs for diverse insights.
- Implement a user feedback loop to continuously improve recommendations.
- Collaborate with skincare brands for real-time data and personalized offers.
- Conduct A/B testing and user studies for evaluation and user feedback.





THE TEAM

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THANK
YOU

