

# What is Your Routine?

## Crowdsourcing Sephora's User Reviews for a Recommendation System

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Project 5  
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# The World of Skincare:

- ❖ The global skin care product market size is valued at 134.8 billion.
- ❖ With the rise of social media, more people are being exposed to the world of skincare either by celebrities or influencers.



IPSY

ULTA  
BEAUTY

# The World of Skincare:

- ❖ Skincare is an incredibly daunting world to navigate!
- ❖ How do you know which product will work for you?



DAY

CLEANSER

STEP 1

TONER

STEP 2

ANTIOXIDANT SERUM

STEP 3

EYE CREAM

STEP 4

ACNE SPOT TREATMENT

STEP 5

MOISTURIZER

STEP 6

SUNSCREEN

STEP 7

# The World of Skincare:



**iamcardib** ✓

@iamcardib



I been breaking out lately and my face is extremely dry.I don't think these products are working.I think it's the water out here .....What are some good products for little black heads break outs and dry skin on your face?

1:55 PM · Jan 25, 2021 · Twitter for iPhone

**732** Retweets   **438** Quote Tweets   **21.8K** Likes

- ❖ What if any of us had the ability to crowdsource recommendations?
- ❖ Our Project will focus on harnessing other's reviews for our own benefit!

# Recommendation Project Focus:

- ❖ Our Recommendation System will be for **Facial Cleansers**!



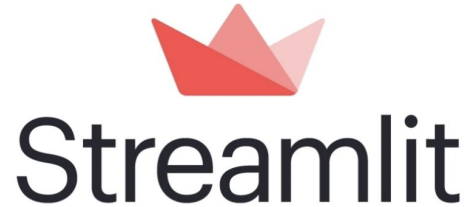
DAY

CLEANSER

STEP  
1



# Data Processing:



For Deploying Recommendation System

## Data Cleaning Highlights:

- ❖ Removed all negative comments (2 stars or lower) to avoid unwanted recommendations.

Example:

**This product dried out my skin. Won't buy again.**

**Need product that won't dry out my skin**

# Topic Model Results:

## Topic 1: Makeup Removing

makeup, mascara, remove, gentle, eyeliner

## Topic 2: Dry

dry, moisturize, tight, winter, hydrate

## Topic 3: Oil

oil, oily, gentle, strip, texture

## Topic 4: General Cleansing

clean, soft, gentle, fresh, refresh

## Topic 5: Acne

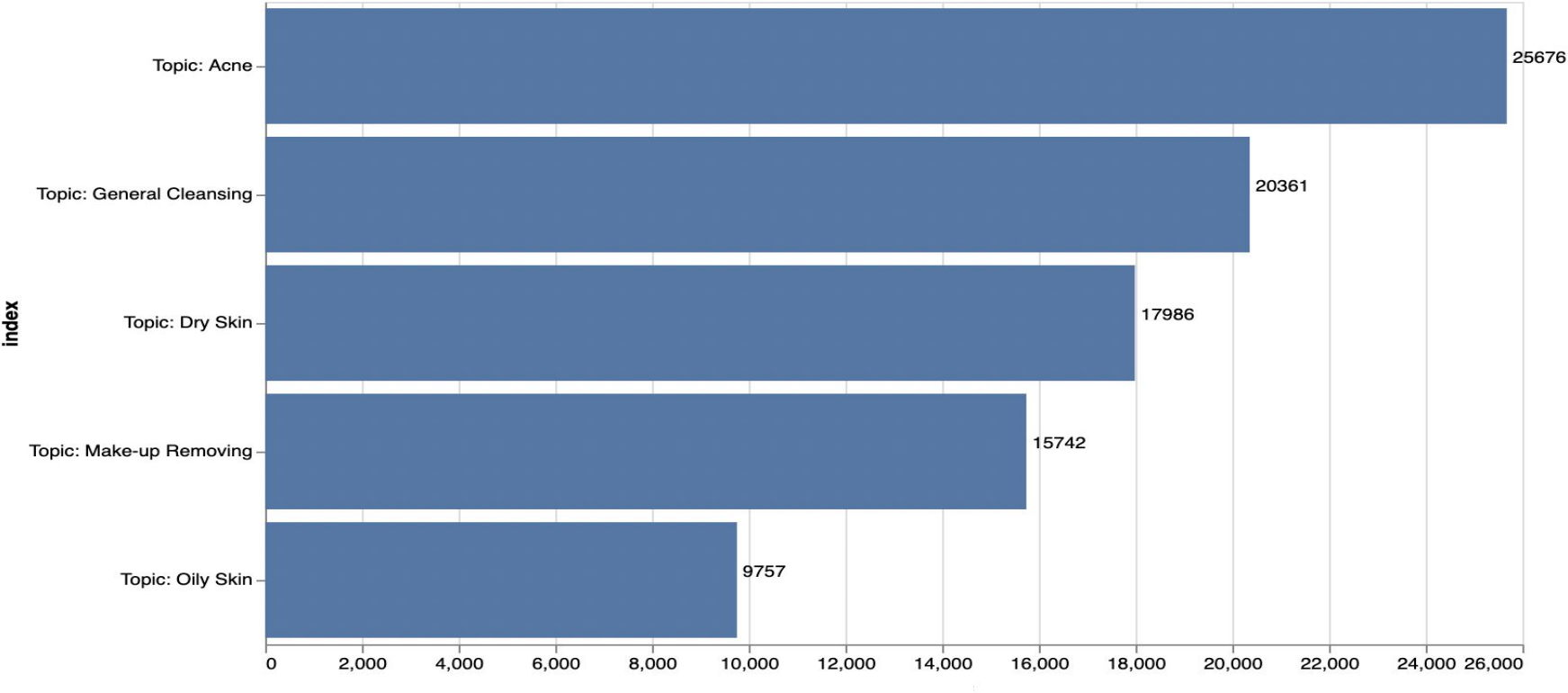
acne, clear, breakout, prone, pore

## NMF Topic Model

- ❖ Using over 88,000 user comments across 189 products, our topic model gave us these topics!



# Topic Distribution:



# Recommendation System Algorithm:

~Under the Hood~

```
graph LR; A[User Enters SkinCare Concerns] --> B[Run User Input into Topic Model]; B --> C[Calculate Cosine Similarities]; C --> D[Outputs Top 5 Unique Products Based on User Reviews]
```

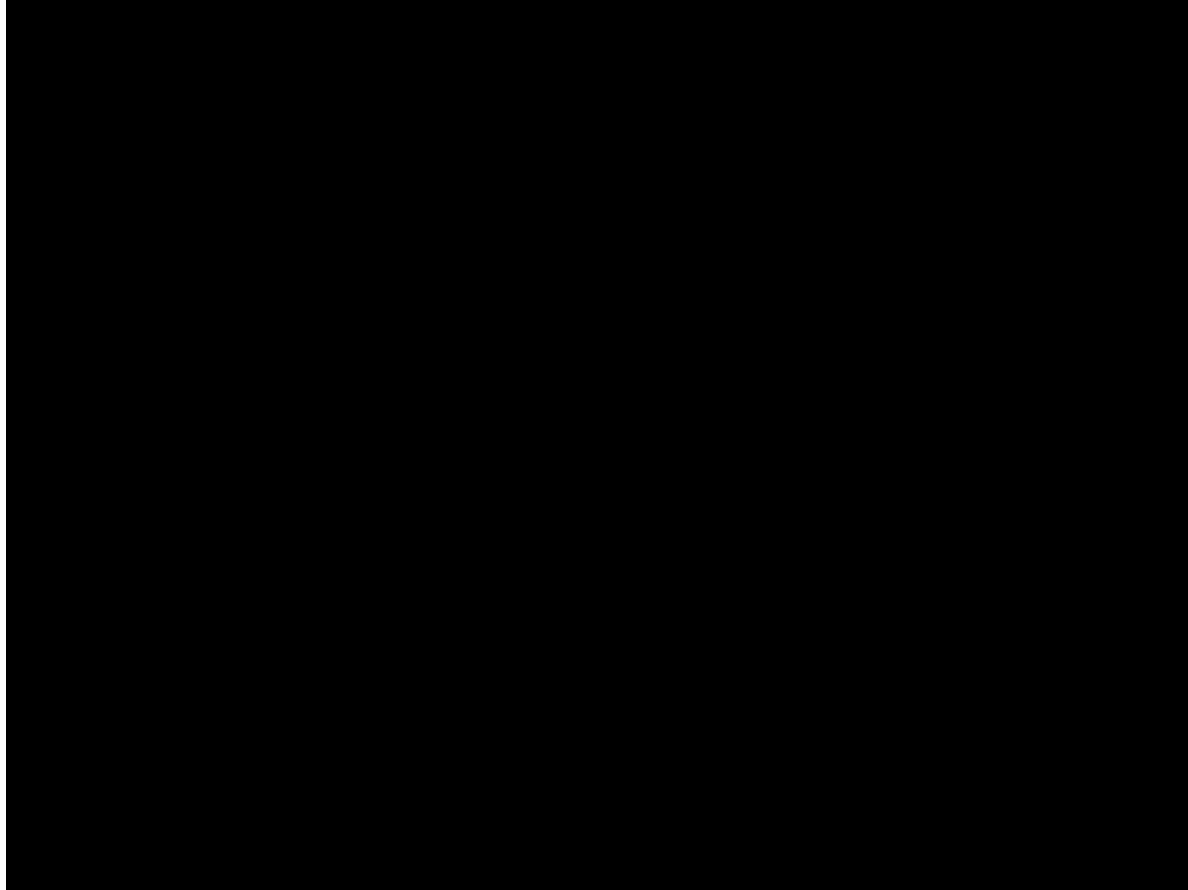
**User Enters  
SkinCare  
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**Run User Input  
into Topic Model**

**Calculate  
Cosine  
Similarities**

**Outputs Top 5  
Unique Products  
Based on User  
Reviews**

# Recommendation System In Action!



# Recommendation System Similar Comment Examples:

## User Input:

*New to skincare. Need acne remover that will remove oils and clear pores*

## Paraphrase Samples of Matched Comments:

- *...This is my new favorite cleanser. It clears up my skin and is so luxurious.*
- *...I have had so many skin issues regarding dryness and acne. This has cleared my skin up very well just within a week! I love how the product is all natural.*

**Both yielded a 0.077 cosine similarity.**

## Future Work:

Continue to tune Topic Model to see if we can increase the cosine similarities.

1. Try inputting only adjectives, adverbs, and verbs into the model.

Incorporate more skin care items so we can create a fully routine!

## Appendix: Additional Recommender In Action Shots

