PERFUME
Recommendation

2022 Spring
CIS4120 - EMWA
Group 3
Xianglin Chen

ONLINE SHOP

Business Problem

Customer A:
There's no way
A Lab On Fire
could relocate
to Los Angeles
and not pay
tribute to
L.A.'s most
iconi...

Reviews for fragrances are hard to read online

- largely based on individual opinions

- complex perfume scents

KPIS

5 products and brands with the most "positive" comments

5 products and brands with the most "negative" comments

6 different topics for comments

01

DATA INFO

ABOUT US

Data Source

Bansa, Nandini. "Perfume Recommendation Dataset". *Kaggle.* 2021.

Shape of perfume dataset: (2191, 5)

2184 perfume products in 244 brands

1869 different unique Notes (perfume ingredients)

	Name	Brand	Description	Notes	Image URL
0	Tihota Eau de Parfum	Indult	Rapa Nui for sugar, Tihota is, quite simply, ...	Vanilla bean, musks	https://static.luckyscent.com/images/products/...
1	Sola Parfum	Di Ser	A tribute to the expanse of space extending f...	Lavender, Yuzu, Lemongrass, Magnolia, Geraniu...	https://static.luckyscent.com/images/products/...
2	Kagiroi Parfum	Di Ser	An aromatic ode to the ancient beauty of Japa...	Green yuzu, green shikuwasa, sansho seed, cor...	https://static.luckyscent.com/images/products/...
3	Velvet Fantasy Eau de Parfum	Montale	Velvet Fantasy is a solar fragrance where cit...	tangerine, pink pepper, black coffee, leat...	https://static.luckyscent.com/images/products/...
4	A Blvd. Called Sunset Eau de Parfum	A Lab on Fire	There's no way A Lab On Fire could relocate t...	Bergamot, almond, violet, jasmine, leather, s...	https://static.luckyscent.com/images/products/...

OUR COMPANY

02

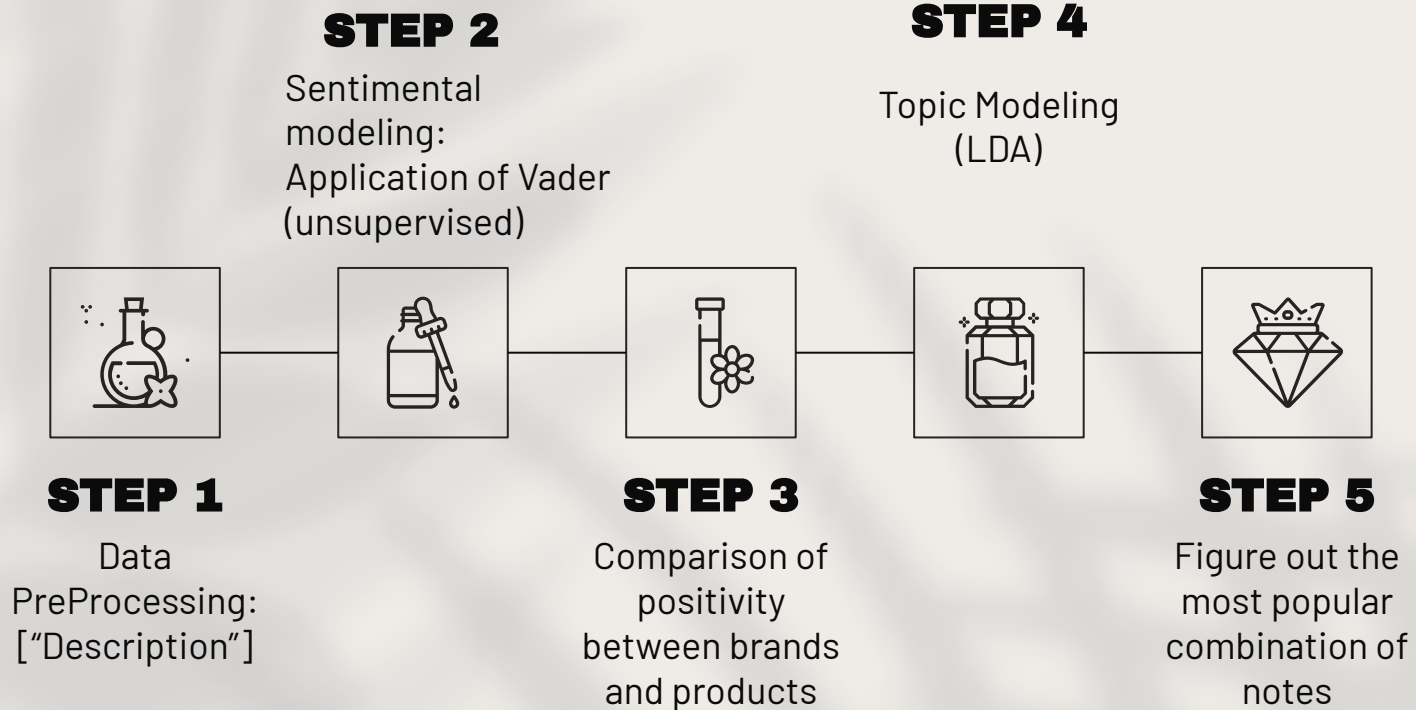# ANALYTICAL PROCESS

TIMELINE

STEP 2

Sentimental modeling: Application of Vader (unsupervised)

STEP 4

Topic Modeling (LDA)

STEP 1

Data PreProcessing: ["Description"]

STEP 3

Comparison of positivity between brands and products

STEP 5

Figure out the most popular combination of notes
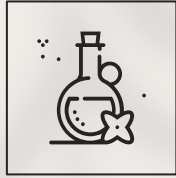
STEP 1 : Data PreProcessing (NLTK)

Tokenizing comments ——— Data ["Description"']

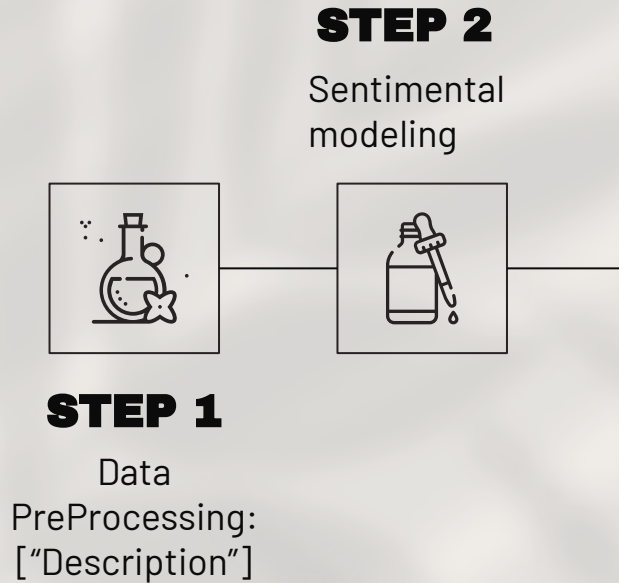**Cleaning** ——— Data ["Cleaned_Description"']
1. Stop words
2. Transfer to lower case

Combining into sentences ——— Data ["New_Sentence"']

STEP 1

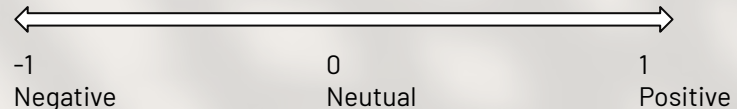Data PreProcessing: ["Description"]

STEP 2 : Sentimental Analysis

STEP 2

Sentimental modeling

STEP 1

Data
PreProcessing:
["Description"]

Model: Vader

- Does not have pre-labeled column

- Social media contents

- Unsupervised training

- Outcomes:
["Positive" ,"Negative", "Neutral",
"**Compound**"]

-1	0	1
Negative	Neutual	Positive

STEP 3 : Sentimental Analysis

STEP 2

Sentimental
modeling:
Application of Vader
(unsupervised)
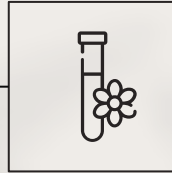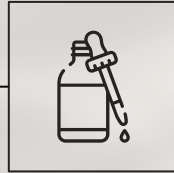
Products:
Score on ["Compound"]

STEP 1

Data
PreProcessing:
["Description"]

STEP 3

Comparison of
positivity
between brands
and products

Brands:
Avg (["Compound"])

-1
Negative

0
Neutual

1
Positive
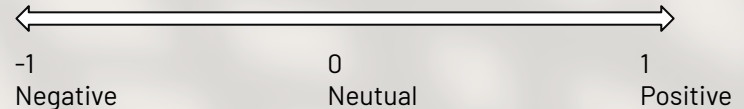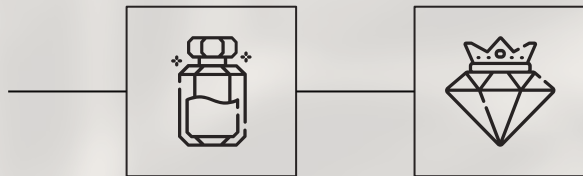
STEP 4&5 : Topic Modeling
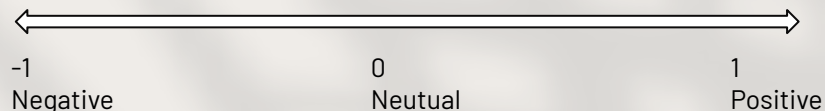
STEP 4

Topic Modeling
(LDA)

STEP 5

Figure out the most popular combination of notes

Model: Latent Dirichlet Allocation (LDA)

- Optimal number: 6

- 6 keywords along with a probability for each keyword for each topic
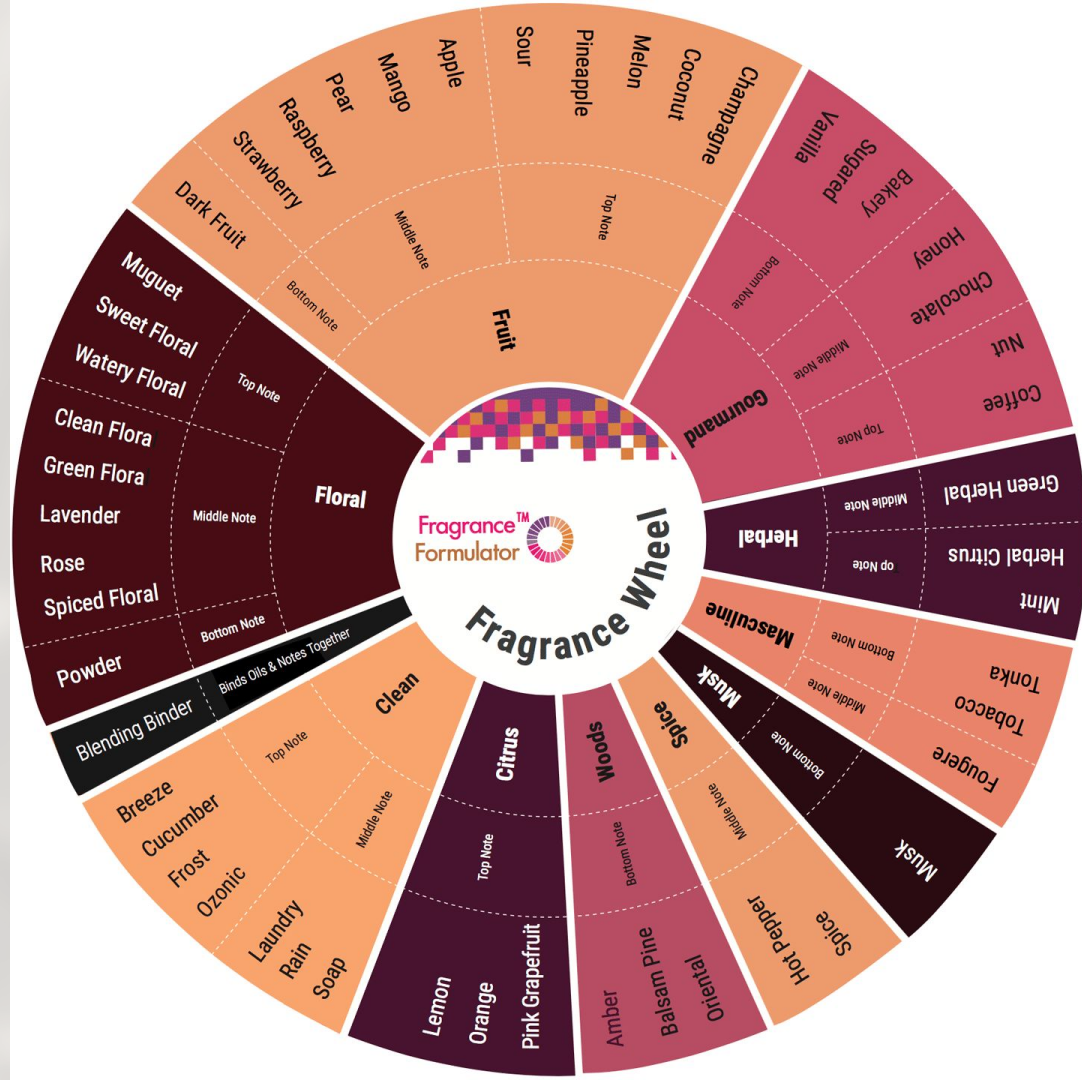
- Frequency distribution

-1
Negative

0
Neutual

1
Positive

OUR GOALS

03

OUTCOMES

Fragrance Formulator — Fragrance Wheel

OUTCOMES - Products

**Top 5 Products
With The Most Positive Comments:**

1. Wonder Of You Eau de Parfum 0.9982
2. Noir Exquis Eau de Parfum 0.9982
3. Elysium Pour Homme Extrait de Parfum 0.9979
4. Fleur de Peau Eau de Parfum 0.9978
5. Royal Sapphire Extrait de Parfum 0.9978

Types: Fruits, Citrus, Floral

Name	Brand	Description	Notes	vader_compound
Wonder Of You Eau de Parfum	ALTAIA	We all love gigantic, luxuriously romantic sc...	Blackcurrant, pink grapefruit, freesia, water...	0.9982
Noir Exquis Eau de Parfum	L'Artisan Parfumeur	The Parisian patisserie is so much more than ...	Chestnut, orange, orange blossom, coffee, map...	0.9982
Elysium Pour Homme Extrait de Parfum	Roja Parfums	Drawn from Greek legend, the Elysian Fields a...	Lemon, bergamot, grapefruit, lime, lavender, ...	0.9979
Royal Sapphire Extrait de Parfum	Thameen	The Imperial State Crown and Sceptre of the U...	Bergamot, mandarin, orange blossom, jasmine, ...	0.9978
Fleur de Peau Eau de Parfum	Diptyque	As part of Diptyque's 50th anniversary celebr...	Aldehydes, pink pepper, rose, iris, ambrette,...	0.9978

OUTCOMES - Products

**5 Products
With The Most Negative Comments:**

1. La Haine Eau de Parfum -0.9274
2. Tyrannosaurus Rex Extrait de Parfum -0.8876
3. Phloem Eau de Parfum -0.8591
4. Iris Silver Mist Eau de Parfum -0.8390
5. Complex Eau de Parfum -0.8183

Types: Spicy, Woods

Name	Brand	Description	Notes	vader_compound
La Haine Eau de Parfum	Moth and Rabbit	A contemporary black and white masterpiece di...	aldehyde, buchu leaf, bay, birch, cedar, meta...	-0.9274
Tyrannosaurus Rex Extrait de Parfum	Zoologist	A sultry heat wafts across the land, lapped u...	Bergamot, black pepper, fir, laurel leaf, ner...	-0.8876
Phloem Eau de Parfum	Jorum Studio	What a sticky mess. Phloem is a diabolical as...	Passion Fruit, Rhubarb, Mulberry, Nasturtium,...	-0.8591
Iris Silver Mist Eau de Parfum	Serge Lutens	More iris, more, more, more, Serge Lutens fam...	Orris root, galbanum, sandalwood, cedar, clov...	-0.8390
Complex Eau de Parfum	Boadicea the Victorious	The mood is Gothic; the scene, a dungeon; the...	Sage, basil, violet, incense, leather, musk, oud	-0.8183

OUTCOMES - Brands

Top 5 Brands
With The Most Positive Comments:
1. Domenico Caraceni 0.99310
2. Antica Barbieria Colla 0.99305
3. Boris Bidjan Saberi 0.99250
4. Panah London 0.99220
5. The Beautiful Mind Series 0.99095

5 Brands
With The Most Negative Comments:
1. Moth and Rabbit 0.409880
2. Nasomatto 0.421500
3. Maison Louis Marie 0.423233
4. Jorum Studio 0.435817
5. Agonist 0.442733

Brand	vader_compound	vader_negative	vader_neutral	vader_positive
Domenico Caraceni	0.99310	0.0000	0.6610	0.3390
Antica Barbieria Colla	0.99305	0.0320	0.5585	0.4095
Boris Bidjan Saberi	0.99250	0.0330	0.6220	0.3440
Panah London	0.99220	0.0180	0.5935	0.3890
The Beautiful Mind Series	0.99095	0.0155	0.6665	0.3180

Brand	vader_compound	vader_negative	vader_neutral	vader_positive
Moth and Rabbit	0.409880	0.121600	0.651800	0.226600
Nasomatto	0.421500	0.092000	0.789000	0.119000
Maison Louis Marie	0.423233	0.000000	0.816111	0.183889
Jorum Studio	0.435817	0.095667	0.723500	0.180833
Agonist	0.442733	0.028667	0.809667	0.161667

OUTCOMES - Topics

Topic 0: musk green white tea fragrance fresh

Topic 1: rose vetiver rich vanilla fragrance sweet

Topic 2: oud scent rose fragrance floral fresh

Topic 3: rose green leather amber notes fresh

Topic 4: patchouli chocolate vanilla dark amber like

Topic 5 :oud vanilla scent notes like incense

```
Topic: 0 Word: 0.006*"musk" + 0.005*"green" + 0.005*"white" + 0.005*"tea" + 0.005*"fragrance" + 0.005*"fresh"

Topic: 1 Word: 0.008*"rose" + 0.006*"vetiver" + 0.005*"rich" + 0.005*"vanilla" + 0.005*"fragrance" + 0.005*"sweet"

Topic: 2 Word: 0.013*"oud" + 0.006*"scent" + 0.006*"rose" + 0.005*"fragrance" + 0.005*"floral" + 0.005*"fresh"

Topic: 3 Word: 0.009*"rose" + 0.006*"green" + 0.005*"leather" + 0.005*"amber" + 0.005*"notes" + 0.005*"fresh"

Topic: 4 Word: 0.008*"patchouli" + 0.006*"chocolate" + 0.006*"vanilla" + 0.006*"dark" + 0.005*"amber" + 0.005*"like"

Topic: 5 Word: 0.011*"oud" + 0.006*"vanilla" + 0.005*"scent" + 0.005*"notes" + 0.005*"like" + 0.005*"incense"
```
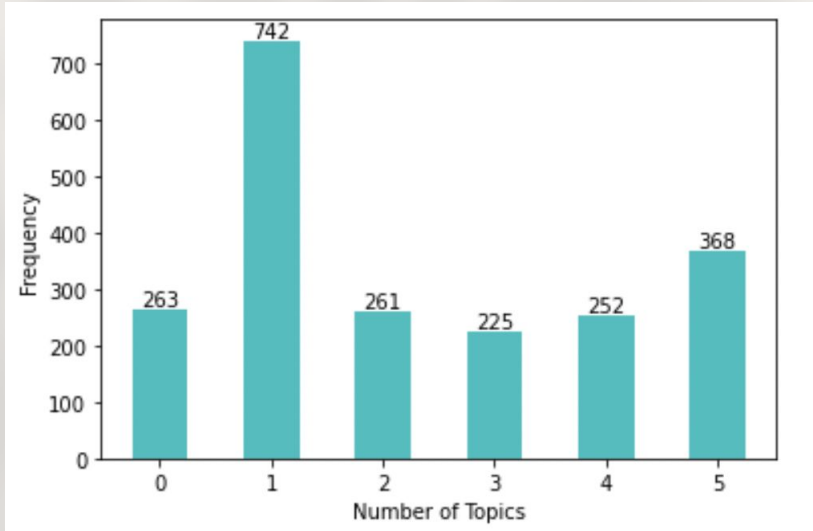
OUTCOMES - Topics

Musk Tea (Topic 0): musk green white tea fragrance fresh

Rose Vetiver (Topic 1): rose vetiver rich vanilla fragrance sweet

Oud Rose (Topic 2): oud scent rose fragrance floral fresh

Rose Leather (Topic 3): rose green leather amber notes fresh

Patchouli Chocolate (Topic 4): patchouli chocolate vanilla dark amber like

Oud Vanilla (Topic 5) :oud vanilla scent notes like incense
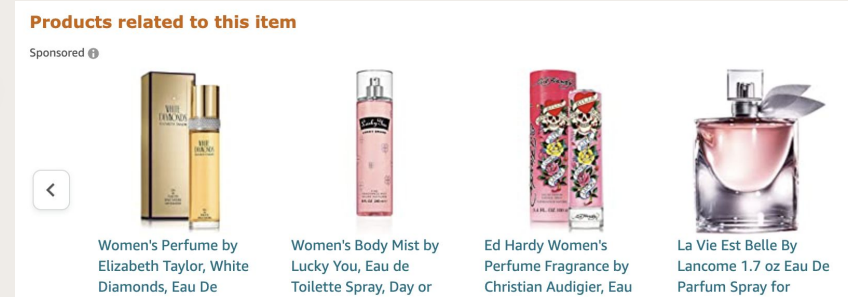
Implications

1. ## Recommendation Algorithm

   "Explore More" section by topic modeling
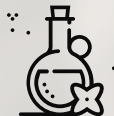
2. ## Marketing Analysis

   Making different marketing plans according to the reflection of perfume (positive/negative)

3. ## AI Scent Creation Tool in the future

   Creating products based on the requests and capabilities of the customer
   Givaudan's Odour Value Map

Products related to this item

Sponsored ⓘ

Women's Perfume by Elizabeth Taylor, White Diamonds, Eau De

Women's Body Mist by Lucky You, Eau de Toilette Spray, Day or

Ed Hardy Women's Perfume Fragrance by Christian Audigier, Eau

La Vie Est Belle By Lancome 1.7 oz Eau De Parfum Spray for

Things Need To Be Improved

Data Sources: Only 2000+ rows of comments
- Extracting more from social media platform
- More rows of comments for each product

Data Diversity: Lack of analytical variables
- Add variables such as product price, pre-labeled columns
- Including some data from "top" products

THANKS!

Bansa, Nandini. "Perfume Recommendation Dataset". *Kaggle*. 2021. https://www.kaggle.com/datasets/nandini1999/perfume-recommendation-dataset.