

Wine Recommendation System

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Overview

- Business Problem
- Data Collection
- Exploratory Data Analysis
- Preprocessing
- Modeling
- Results
- Streamlit
- Next Steps



Business Problem / Proposal

- Tons of wines from around the world
- Find similar wines
- Educate consumers to make informed selections
- Wineries can recommend other bottles



Data Collection

- Scraped from Vivino.com
- 1800 wines

winery: str, the winery that makes that specific wine

wine_name: str, the name of the wine

wine_type: str, the classification of the wine (ie red, white..)

wine_country: str, the country in which the wine was made

average_rating: float, the average rating of the wine on Vivino

num_of_ratings: int, the number of ratings for that wine on Vivino

wine_price: float, the price per bottle

grapes: str, the grapes utilized in the wine (ie Chardonnay, Malbec..)

alcohol_content: the percent alcohol in the wines

reviews: str, descriptive text reviews of the wine

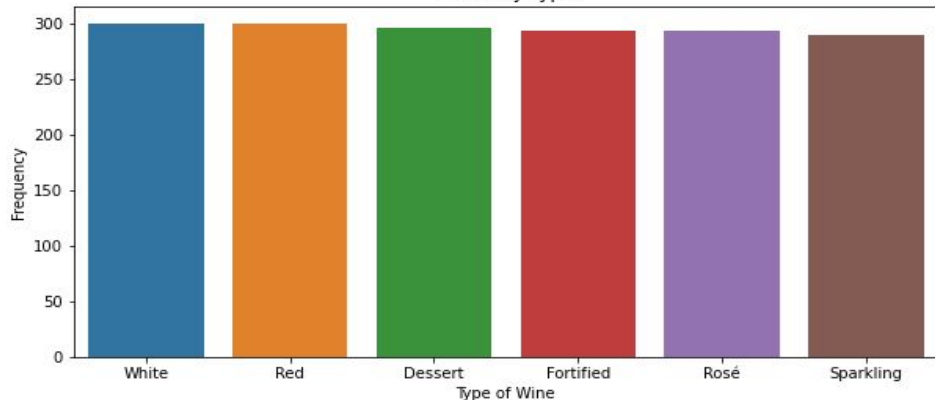


Exploratory Data Analysis

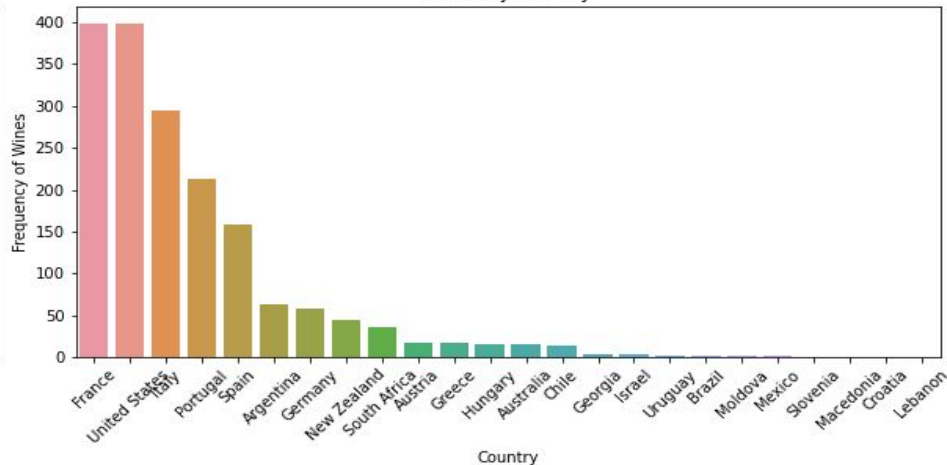
- Even distribution of wine by type
- Wines from countries around the world



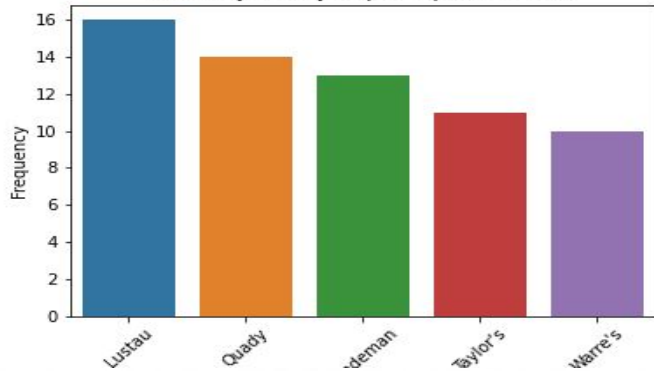
Wines by Type



Wines by Country



Wines by Winery (Top 5 Representation)



- Multiple products from same winery



Preprocessing

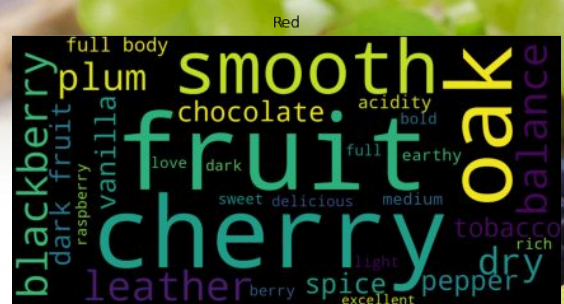
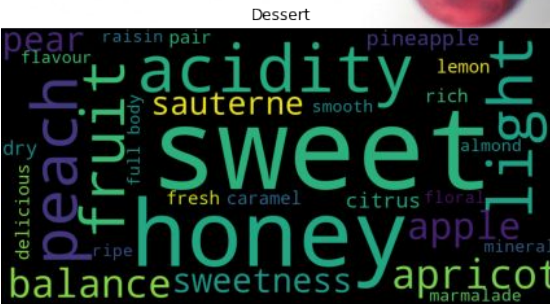
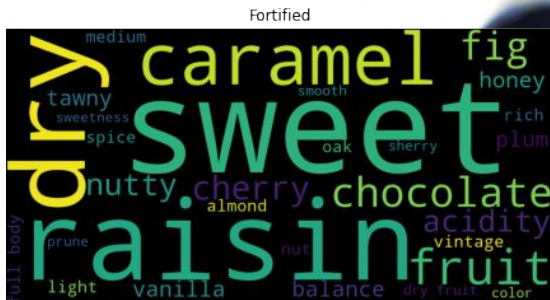
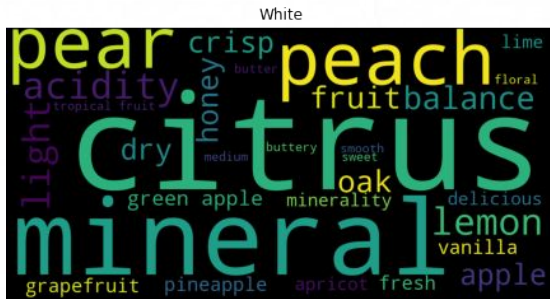
Sample Text Review:

'Possibly my favorite SB. Enjoyed this at the winery. An oaked SB (18/82 new/neutral) that spends months on the lees. This was the first vintage where they used almost completely estate fruit. Delicious and fruity with vivid flavors of Meyer lemon, tangerine, peach, honeysuckle, and just a touch of grass. Really gorgeous.'

- Anonymous User

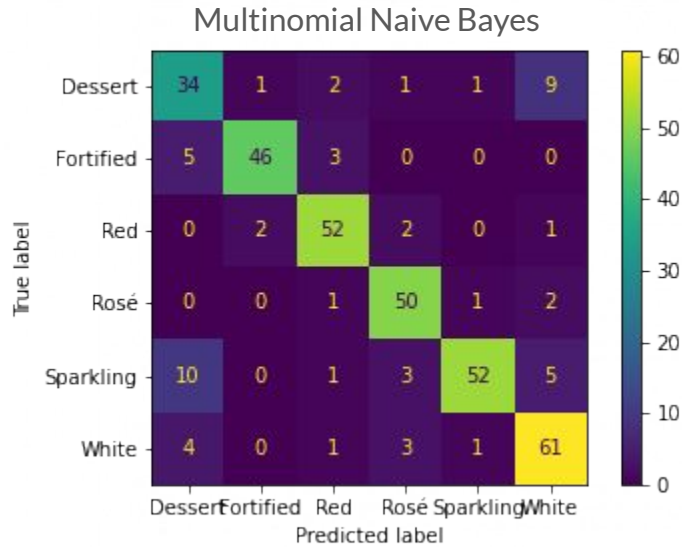


Natural Language Processing →



Modeling

- Predictive Modeling



- Model achieved 83% accuracy
- Reviews would be great assets to the models



More Modeling

- Recommendation Systems

Using Cosine Similarity and Euclidean Distance

Cosine Similarity

title	wine_type	wine_country	grapes
Brown Estate House of Brown Chardonnay 2018	White	United States	Chardonnay
Miner Chardonnay 2018	White	United States	Chardonnay
The Prisoner The Snitch Chardonnay 2018	White	United States	Chardonnay
Buena Vista The Sheriff of Buena Vista 2018	Red	United States	Red Blend
Ministry of The Vinterior Pinot Noir 2017	Red	United States	Pinot Noir
MacRostie Wildcat Mountain Vineyard Chardonnay 2016	White	United States	Chardonnay
Laguna Chardonnay 2017	White	United States	Chardonnay
EnRoute Brumaire Chardonnay 2019	White	United States	Chardonnay
Le Mesnil Blanc de Blancs Brut Champagne Grand Cru	Sparkling	France	Chardonnay
Andresen 20 Year Old White Porto N.V.	Fortified	Portugal	Fortified Blend

Euclidean Distance

title	wine_type	wine_country	grapes
Brown Estate House of Brown Chardonnay 2018	White	United States	Chardonnay
Miner Chardonnay 2018	White	United States	Chardonnay
The Prisoner The Snitch Chardonnay 2018	White	United States	Chardonnay
Ministry of The Vinterior Pinot Noir 2017	Red	United States	Pinot Noir
The Calling Dutton Ranch Chardonnay 2017	White	United States	Chardonnay
Le Mesnil Blanc de Blancs Brut Champagne Grand Cru	Sparkling	France	Chardonnay
Andresen 20 Year Old White Porto N.V.	Fortified	Portugal	Fortified Blend
Laguna Chardonnay 2017	White	United States	Chardonnay
Flor Brut Rosé N.V.	Sparkling	Italy	Pinot Noir
Domaine Carneros Brut 2016	Sparkling	United States	Sparkling Blend

	1000 Stories Chardonnay 2018	Cosine Model	Euclidean Model
Average Rating	4.10	4.220000	4.160000
Wine Price	17.99	29.795587	25.755587

Results

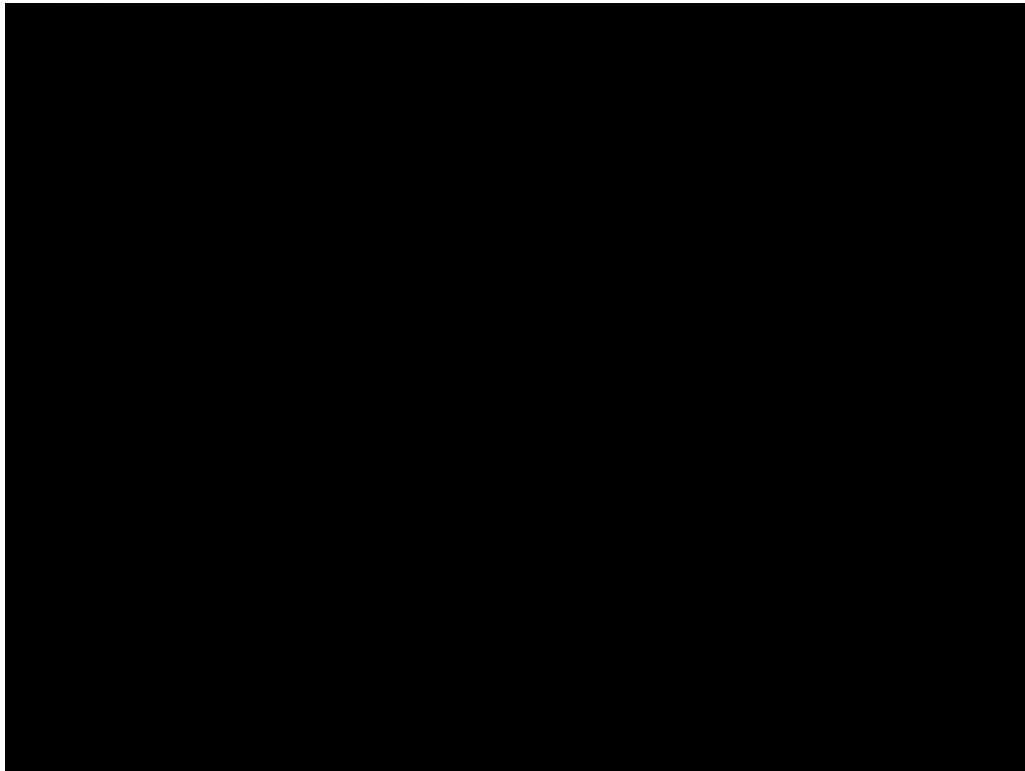
- Rec System by Wine Name using Euclidean Distance



1000 Stories Chardonnay 2018 title	wine_type	wine_country	grapes	average_rating	wine_price	euclidean_distance_scores
Brown Estate House of Brown Chardonnay 2018	White	United States	Chardonnay	4.2	25.00000	14.060775
Miner Chardonnay 2018	White	United States	Chardonnay	4.2	26.99000	14.454876
The Prisoner The Snitch Chardonnay 2018	White	United States	Chardonnay	4.2	24.47000	15.849033
Ministry of The Vinterior Pinot Noir 2017	Red	United States	Pinot Noir	4.3	28.99000	16.072130
The Calling Dutton Ranch Chardonnay 2017	White	United States	Chardonnay	4.1	22.99000	16.322660
Le Mesnil Blanc de Blancs Brut Champagne Grand Cru	Sparkling	France	Chardonnay	4.0	35.19000	16.399854
Andresen 20 Year Old White Porto N.V.	Fortified	Portugal	Fortified Blend	4.2	27.59587	16.411672
Laguna Chardonnay 2017	White	United States	Chardonnay	4.2	18.35000	16.430939
Flor Brut Rosé N.V.	Sparkling	Italy	Pinot Noir	4.1	19.99000	16.435651
Domaine Carneros Brut 2016	Sparkling	United States	Sparkling Blend	4.1	27.99000	16.449608

1000 Stories
Chardonnay 2018

Streamlit App



Next Steps

- Retrieve more wine data
- Use LDA for Topic Modeling
- Add more features to Streamlit App



Thank You!

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