Cheers!

Content Based & Collaborative Filtering Beer Recommendation Systems

By: Ashli Dougherty

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Methods & Models

Content Based &
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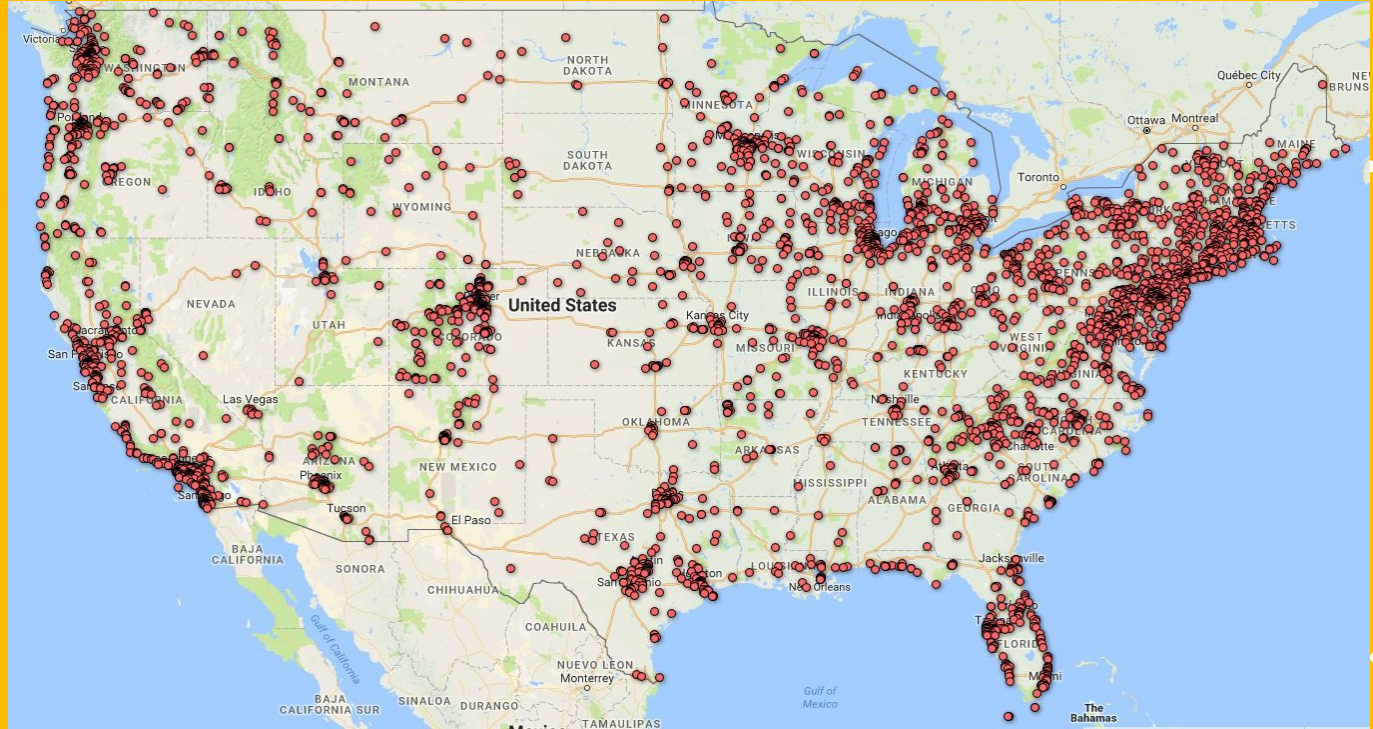## App & Conclusion

App deployment & next
steps

About me:

ashli.d.dougherty@gmail.com

Business Problem

In 2021:
- Over **9,000** craft breweries
- **$26 billion** in retail sales

Business Problem

- Track & rate
- What's next for both the new and established enthusiast?

The Data

BeerAdvocate

Tasting Profiles with Average Ratings

- 5,558 unique beers
- Description of the beer
- Overall average rating

Collection of User Ratings

- 1.6 million reviews
- 33,388 unique reviewers
- 56,857 unique beers
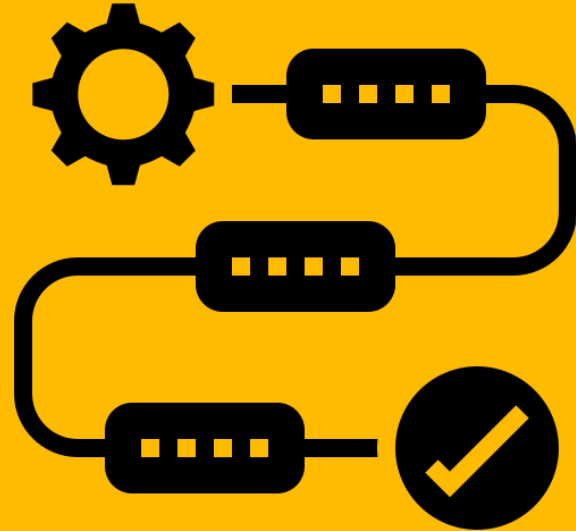
Content Based Recommendations

- Similarity between items
- Good for new users

Content Based Recommendations

Methods:

- TF-IDF vectorizer

- Style

- Numeric tasting profiles

- Cosine similarity

- Function to return top results

Content Examples

	beer_id	Name	Style	Brewery	ABV	Avg Rating
0	2004	Alpha King	Pale Ale	3 Floyds Brewing Co.	Medium	4.26
1	2058	Luciérnaga, The Firefly	Pale Ale	Jolly Pumpkin Artisan Ales	Medium	4.06
2	2108	Smuttynose Shoals Pale Ale	Pale Ale	Smuttynose Brewing Company	Medium	3.84
3	2162	Gaelic Ale	Pale Ale	Highland Brewing	Medium	3.83
4	2192	Jamaica Red Ale	Pale Ale	Mad River Brewing Company	Medium	3.85

Name of beer: Shiner Bock
How many recommendations? 5

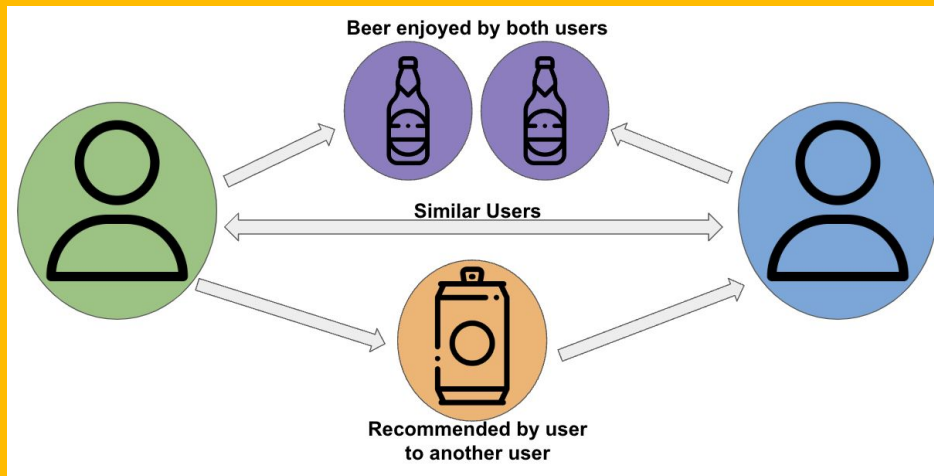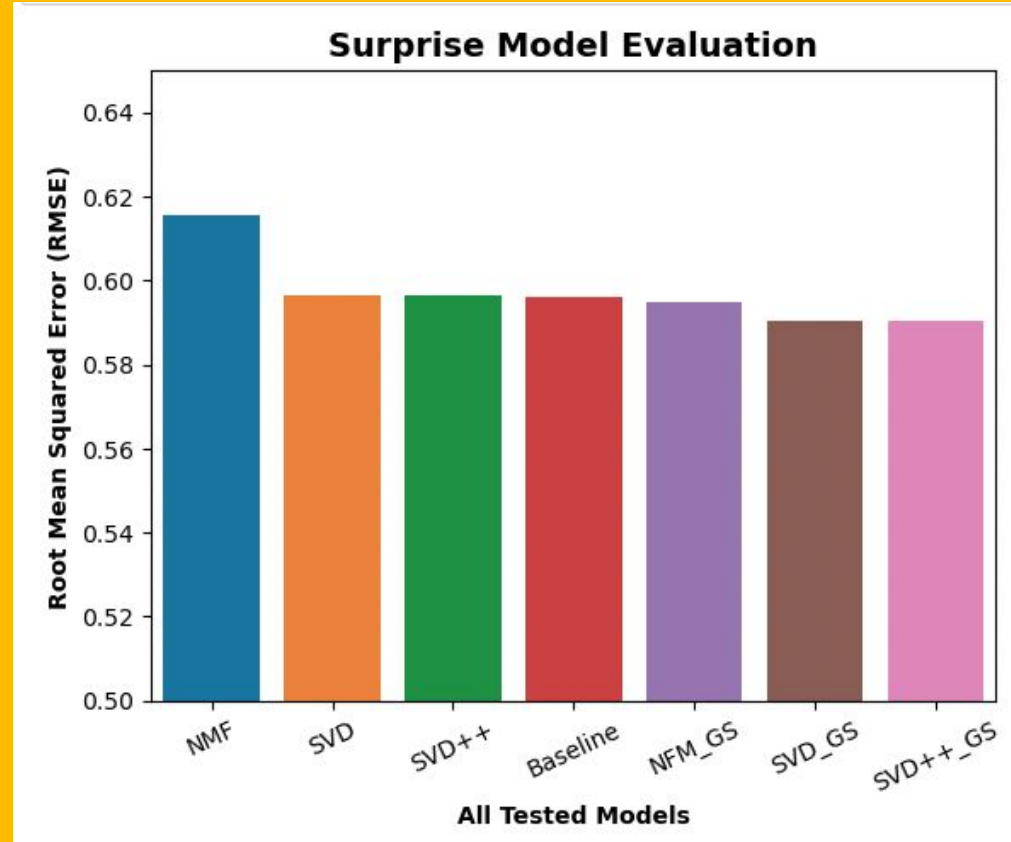|	beer_id	Name	Style	Brewery	ABV	Avg Rating
0	166	Schell's Bock	Bock	August Schell Brewing Company	Medium	3.89
1	103	Mardi Gras Bock	Bock	Abita Brewing Co.	Medium	3.48
2	486	After Dark	Brown Ale	Nelson Brewing Company	Low	3.68
3	4	Salvator	Bock	Paulaner Brauerei	Medium	3.95
4	187	Battlefield Bock	Bock	Red Oak Brewery	Medium	3.92

Collaborative Filtering Model

- Similarity between users
- Good for established reviewers

Collaborative Model

Methods:

- Surprise Library
- Model uses estimated ratings to return top results

Collaborative Examples


```
UserID: 1477
How many recommendations? 5
```

	beer_id	Beer	Brewery	Style	ABV	est_rating
775979	70560	Blacksmith	Guinness Ltd.	Pale Ale	Low	4.898052
88080	62900	Hackenberg Premium Export Pils Lager	Brouwerij Martens NV	Pale Lager	Low	4.785251
896549	57390	Red Storm	The Brew Keeper	Dark Lager	High	4.771756
672052	31811	Alternate Trout	Trout River Brewing Company	Strong Ale	Medium	4.751491
600156	8130	Erlkönig Bügel Weisse	Brauerei Ludwig Erl	Wheat Beer	Medium	4.722765

App Demo

Deployed using Streamlit
Can start getting recommendations here

Conclusion & Next Steps

Confident in recommendations

More/Updated Data

Collab Deployment

Cheers!

Does anyone have any questions?