Up School Data Science Capstone Project

Ayşenur Erbahar

"Know-how"

- Trendyol Recommendation Engine & Web App

- Next Step

- Motivations

- Challenges

"Know-self"

- Up School Journey

Trendyol Recommendation Engine & Web App

- ■ What is the Recommendation Systems?

- ■ Analyzing Trendyol Data

- ■ Explaining Models & Evaluation Metrics

- ■ Web App
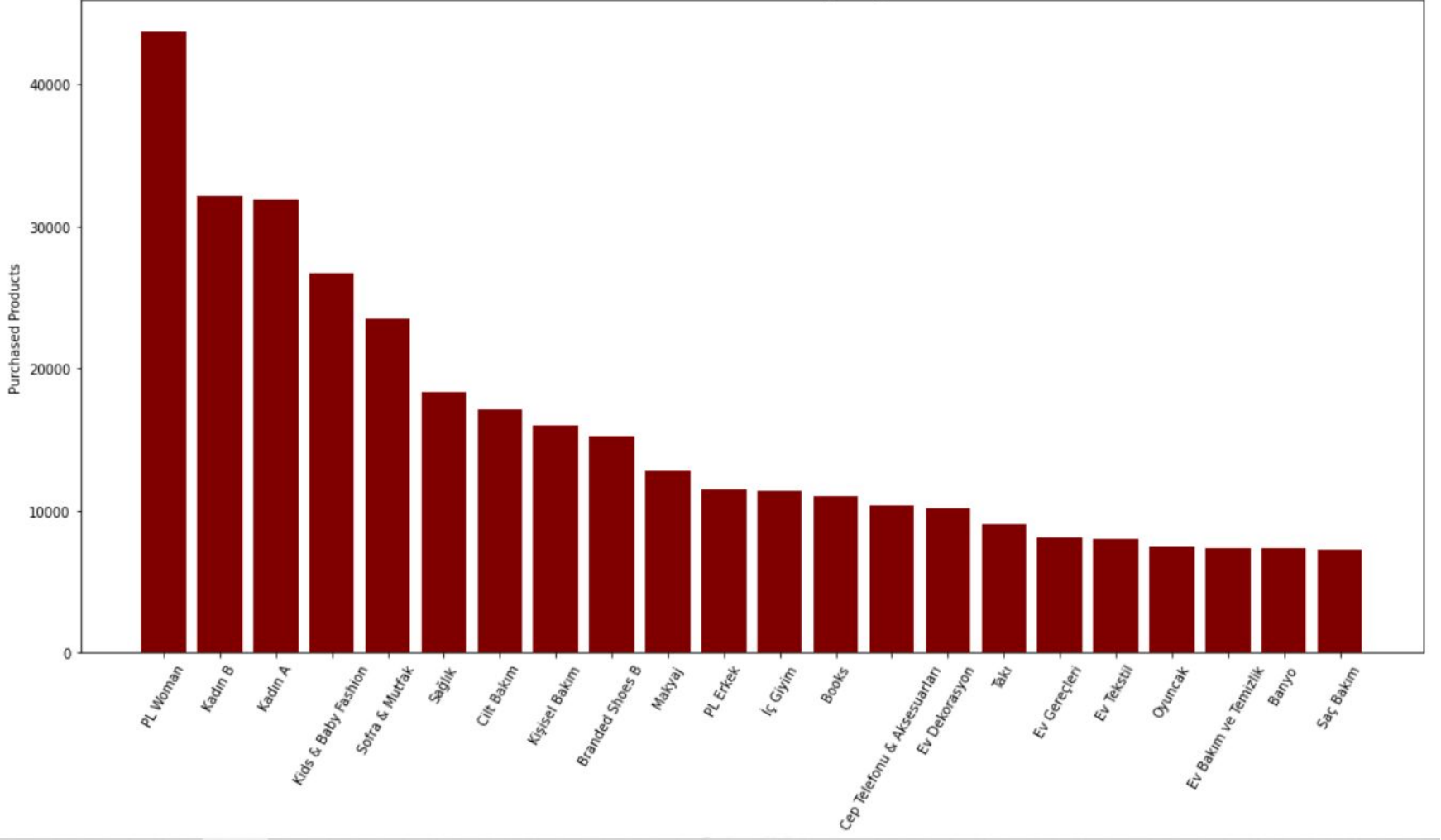
What is the Recommendation Systems?

Analyzing Data

Data Structure :

12 Columns

508.227 Rows

Partition Date
Order Parent ID
User ID
Product Content ID
Brand ID
Category ID
Category Name
Gender
Price
Color ID
Business Unit
Image Link

Business Unit Bazında Satış Grafiği

Baseline Model
Sample Output

partition_date	orderparentid	user_id	productcontentid	brand_id	category_id	category_name	gender	price	color_id	business_unit
17.08.2020 11:00	332656280	56062	35608512	40	604	T-Shirt	Kadın	29.99	21.0	PL Woman
18.08.2020 01:00	333156439	87754	35729015	40	1182	Elbise	Kadın	69.99	8.0	PL Woman
31.07.2020 17:00	325605386	71077	36545811	40	590	Bluz	Kadın	49.99	14.0	PL Woman
20.08.2020 10:00	335233614	104474	35166907	40	1186	Jeans	Kadın	99.99	9.0	PL Woman
15.08.2020 06:00	331373767	22031	8671494	40	526	Etek	Kadın	19.99	14.0	PL Woman

localhost:8501

T-Shirt

Elbise

Recommendation Algorithm

USER ID

RECOMMENDATION ENGINE

# of bought products > 5

Yes

No

COLLABORATIVE FILTERING

CONTENT-BASED FILTERING
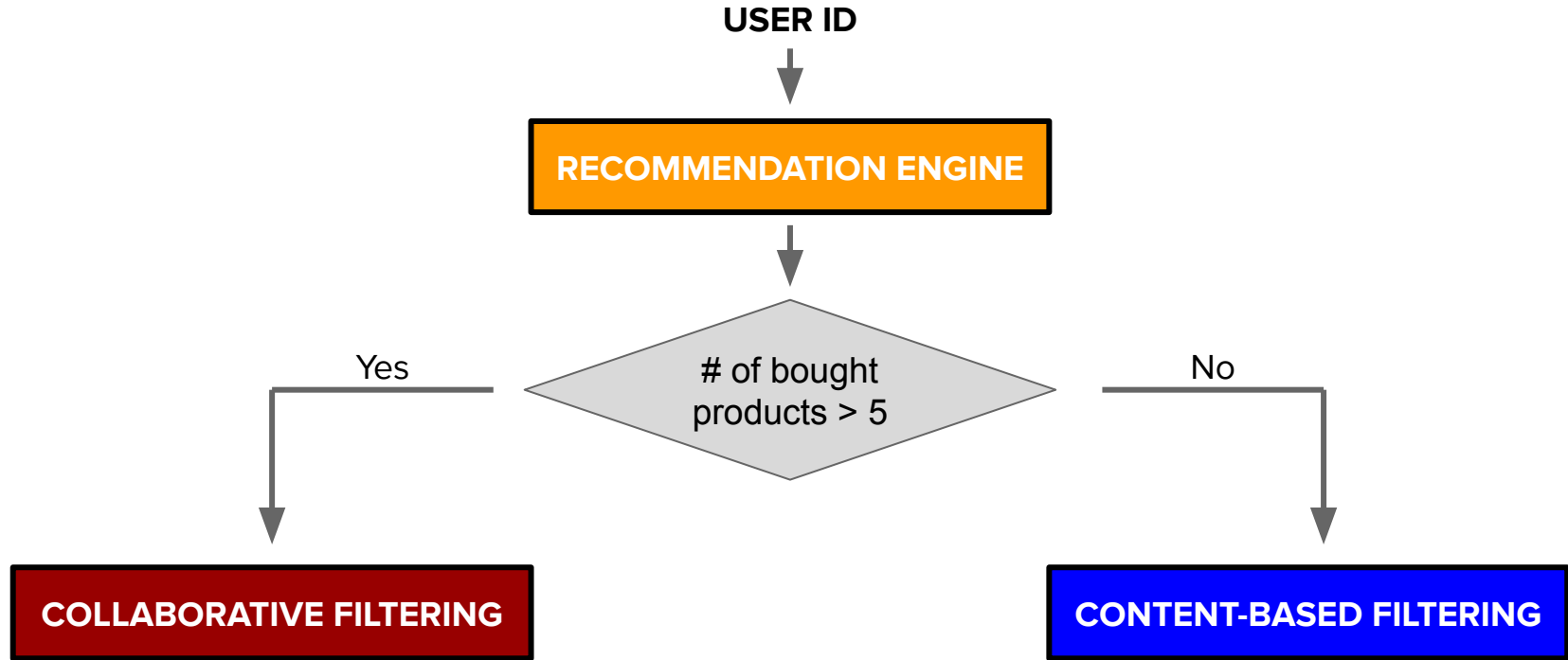
CONTENT-BASED FILTERING

COLLABORATIVE FILTERING

Purchased

Similar items characteristics

User

Recommend

Similar user profile

User A

User B
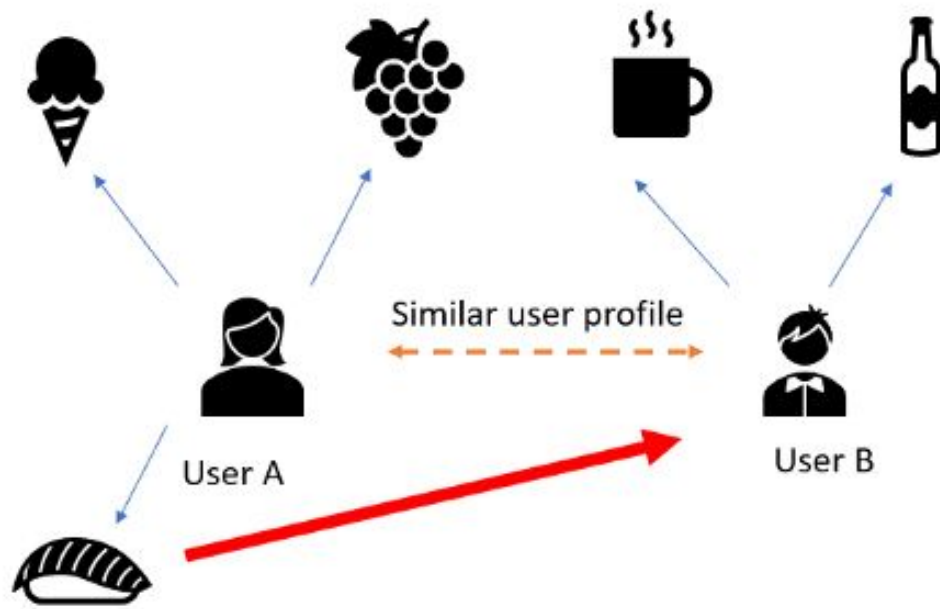
Collaborative Filtering Method Selection

- Normalized data is created from original data
- Turicreate library is used for similarity model and their evaluation
- Recommendation model is selected according to RMSE, precision and recall scores

	Overall RMSE Results
Cosine Similarity	Overall RMSE: 0.11235203021321839
Pearson Similarity	Overall RMSE: 0.08371479631485443

Collaborative Filtering System

Cosine Similarity

Purchased :

Recommended :

user_id: 97220

	productcontentid	category_name
77529	31460997	Dambıllar ve Ağırlık Plakaları
131950	36467888	T-Shirt
332596	32497074	Spor T-Shirt
351024	42422144	T-Shirt
470797	1267762	Havlu&Havlu Seti
470798	40205192	Gömlek
470799	42401502	Mayo

97220

	productcontentid	category_name
22119	39224753	Atlet
22124	32775262	Spor T-Shirt
22128	36960155	Casual Ayakkabı
116279	4475134	Spor T-Shirt
116283	34985951	Oyuncu Klavyesi

Atlet

Spor T-Shirt

Content-Based Filtering Method

- "Combined feature" column is created by merging category and gender features
- Punctuations are cleaned from "combined feature" to prevent any similarity error
- Cosine similarity is applied on data by creating similarity matrix product by product
- Result is processed
- Similar products are recommended

Content-Based Filtering

Cosine Similarity

Purchased

user_id: 41494

	productcontentid	category_name	ImageLink
21513	597649	Bebek Şampuanı	https://cdn.dsmcdn.com//ty9/product/media/images/20200831/14/9214411/8828002/1/1_org_zoom.jpg
21585	3735203	Kaş & Kirpik Serumu	https://cdn.dsmcdn.com//ty6/product/media/images/20200717/15/4981229/15731885/1/1_org_zoom.jpg
22075	31255473	Şarj Edebilir Diş Fırçası	https://cdn.dsmcdn.com//assets/product/media/images/20191014/9/369513/56194043/1/1_org_zoom.jpg

Recommended

user_id: 41494

	productcontentid	category_name	ImageLink
1417	35879127	Biberon & Emzik	https://cdn.dsmcdn.com//assets/product/media/images/20200224/14/3467889/64102501/2/2_org_zoom.jpg
1426	31089036	Park Yatak & Oyun Parkı	https://cdn.dsmcdn.com//assets/product/media/images/20200311/14/4358493/55946745/1/1_org_zoom.jpg
1430	6950624	Valiz & Bavul	https://cdn.dsmcdn.com//Assets/ProductImages/oa/100095/6950624/1/8680560153181_1_org_zoom.jpg
1431	3892490	Biberon & Emzik	https://cdn.dsmcdn.com//ty9/product/media/images/20200822/19/8617175/16189343/1/1_org_zoom.jpg
1432	2833330	Bebek Bezi	https://cdn.dsmcdn.com//ty5/product/media/images/20200717/15/5012314/13629255/1/1_org_zoom.jpg

Valiz & Bavul

Biberon & Emzik

Next Step | Motivation | Challenge

- Brand, price and color features will be added to "combined features"

- Real data

- From user perspective to process

- Team

- Technical problems

- Process oriented

Streamlit

Up School Journey

"Best today, better tomorrow!"

"The meaning of life is to find your gift. Purpose is to give it away."

-Pablo Picasso

THANK YOU!