

## Project Design

1. Performed Data Cleaning, merged tables together and did Exploratory Data Analysis (EDA).
2. Analyzed customer behaviour, generated insights and built data visualizations.
3. Defined a metric for model evaluation.
4. Created a shopping cart recommender system to recommend items to customers based on their purchase history.

## Recommendation Model

Using Singular Value Decomposition (SVD), we developed a "model-based" recommendation system that generates predictions about a user's rating of a previously ordered item. Rather than taking ratings directly from the user like in the movie recommendation system, We used the frequency of purchase of an item as an implicit rating, We chose to use the number of times a user has purchased an item as a stand-in for an actual rating. On a scale of 1 to 5, the rating was given. For each user, we produced a personalised re-ranking of recommended products.

To add variety to recommended products and successfully recommend products to even users who have relatively less order history, we designed a model to first find out the customers that have reordered before and the items that have been reordered before. Then calculate the cosine similarity between all those users and products. Then generate a list of 8 recommendations.

# Files

- DataOverview (Notebook) - In this file, we performed EDA on data to achieve certain insights and statistical measures that are essential for the recommendation model. And to define and refine our important features variable selection, that will be used in our model.
  - Flipkart SmartBag(Notebook) - Imported all relevant packages and data files and implemented our recommendation model.
  - App.py - Flask app containing functions to extract recommendations and previous order history from Pickle folder according to the username entered in the home.html page. The data is then sent to the out\_prediction.html page for display.
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TRILOGY

Enter User ID between 1 to 1000

User ID

SUBMIT

OUR RECOMMENDATION

Zero Vitamin Water

Total 2% Lowfat Greek Strained Yogurt with Peach

Total 0% Nonfat Greek Yogurt

Sonoma Traditional Flour Tortillas 10 Count

Red Onion

Oven Roasted Turkey Breast

Strawberry Ice Cream

Spicy Chik'n Veggie Protein Patties

Total 2% All Natural Greek Strained Yogurt with Honey

Bag of Organic Bananas

PREVIOUSLY ORDERED

Vitamin Water Zero Rise Orange

Zero Vitamin Water

Total 2% with Strawberry Lowfat Greek Strained Yogurt

Teriyaki Turkey Jerky

Total 0% Nonfat Greek Yogurt

Total 0% Raspberry Yogurt

Total 2% Lowfat Greek Strained Yogurt with Peach

Natural Artesian Water

Energy Tropical Citrus Vitamin Water Drink

Original Turkey Jerky

Revive Zero Vitamin Water

VitaminWater Zero™ XXX Acai Blueberry Pomegranate

Vitamin Water Zero Squeezed Lemonade