



# BC3: Gift-a-Lot recommender system

Group E



# Agenda

- 01 Data Preparation
- 02 Data Exploration
- 03 Methodology
- 04 Evaluation
- 05 Deployment

# Data Preparation

## Duplicate Removal

5268 Rows

## Incoherencies

4 Major  
Incongruities

## Missing Values

Corrected using  
information from  
other Transactions

## Feature Engineering

Transaction Value

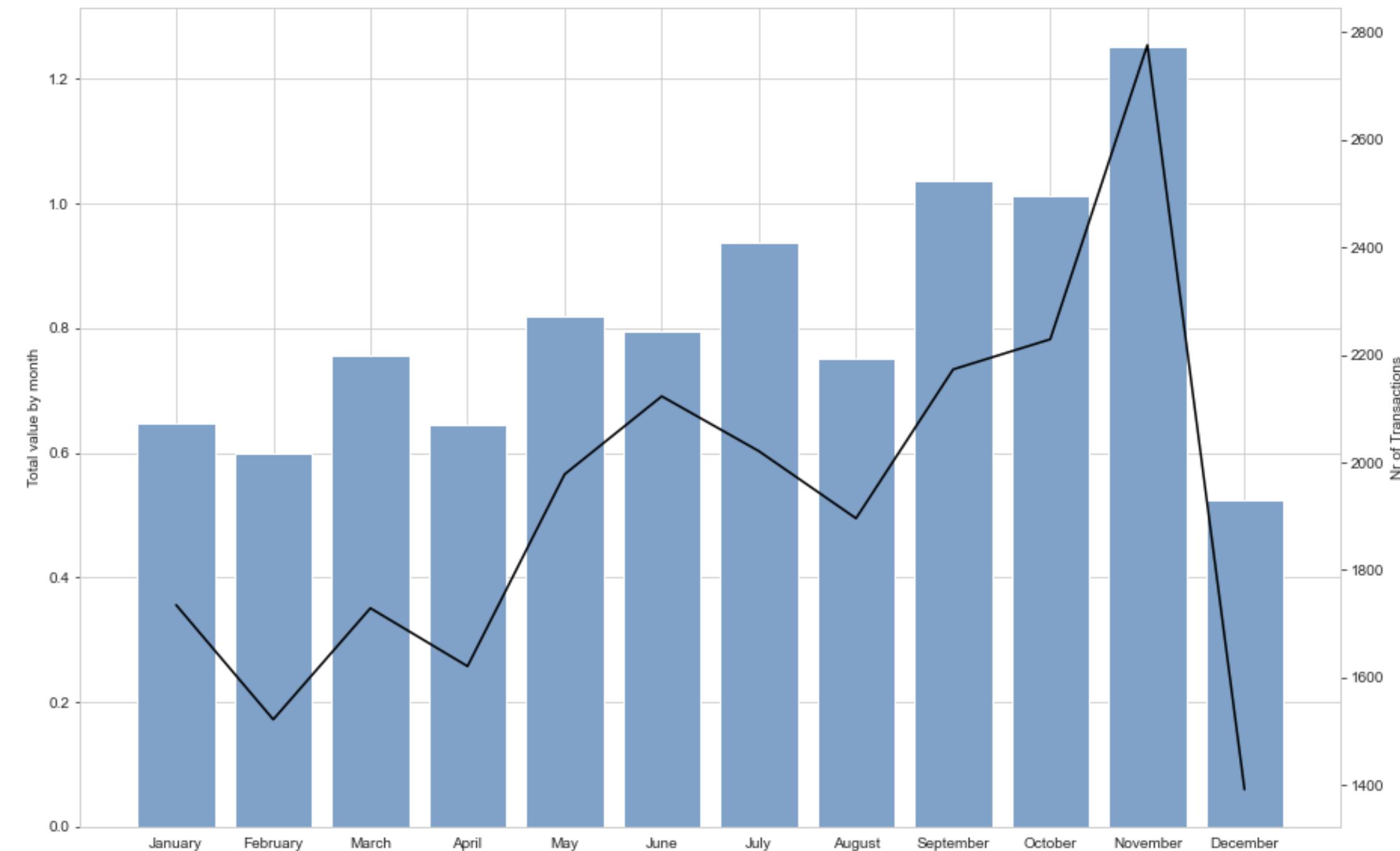


Quantity  $\times$  Unit Price

# Product & Customer Leverage



# Transaction Value vs Number of Transactions



# Methodology

- ✗ K-Nearest Neighbours
- ✗ StockCode Categories



# The Cold-Start Problem



**Top Buying Customer**



**Top 5 Most Bought  
Products**

# Pre Modelling



## Dimensionality Reduction

Binary Matrix:

- 1 if the customer bought the product
- 0 otherwise

## Predictive Techniques

At least one invoice per customer went for testing, excluding users with < 2 transactions

# "During" Recommendations

Focus suggestions for Substitute  
Products

**ALS**

Invoice Based

&

Customer Based

**LightFM**

Cosine Similarity

&

Customer Based

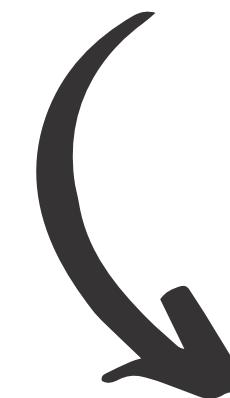


# The “Check-out” Recommendations

Focus suggestions for Complementary Products

## Association Rules

Lift > 1



Sorted by  
Confidence

# Evaluation

ALS

	INVOICE BASED	CUSTOMER BASED
AUC	0.505	0.513
Precision	0.027	0.079
MAP	0.009	0.034

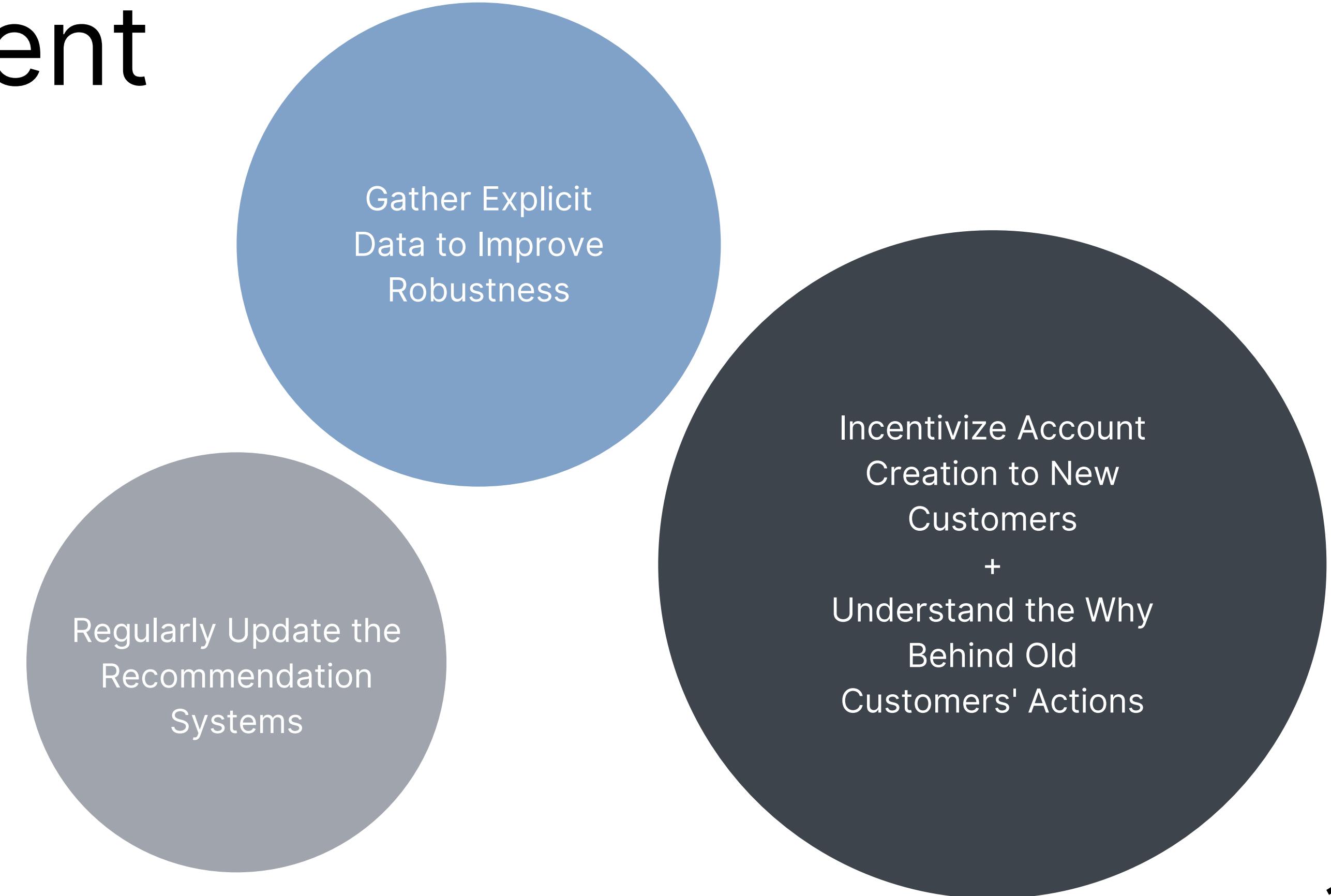
LightFM

	TRAIN	TEST
AUC	0.792	0.79
Precision	0.161	0.086
Recall	0.04	0.042



# Recommendation System Prototype

# Deployment



# Thank You!

D | A | T | A | L | I | N

Bringing Intelligence

