

MARKET BASKET ANALYSIS

PGP-DSBA

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3 PROBLEM STATEMENT

- A grocery store shared the transactional data with you. Your job is to conduct a thorough analysis of Point of Sale (POS) data, identify the most commonly occurring sets of items in the customer orders, and provide recommendations through which a grocery store can increase its revenue by popular combo offers & discounts for customers.

4 AGENDA & EXECUTIVE SUMMARY OF THE DATA

- Agenda:
 - ✓ Understand the buying behaviour of the customers.
 - ✓ Provide insights about the Market Basket Analysis from the transactions.
- Executive Summary:
 - ✓ The data is from an grocery store having the transaction of their buyers over the past three years.

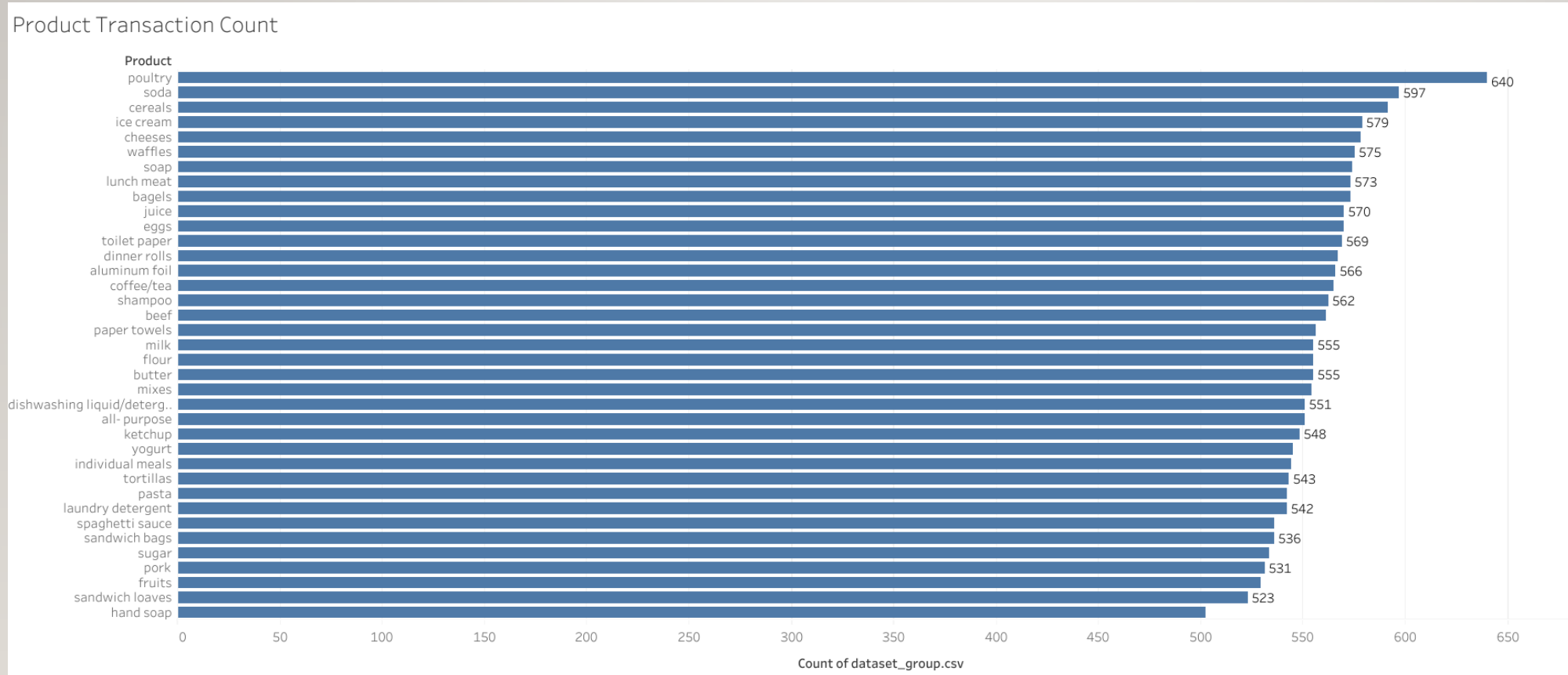
5 ABOUT DATA

- The Data has 20641 Rows and 3 Columns.
- It has 1 Numerical, 1 String and 1 date fields.
- The Data Explorer Node in the KNIME has excluded the Date field for Descriptive Statistics.

6 DESCRIPTIVE STATISTICS - NUMERICAL DATA

- The order id is the only numerical column and it should not be continuous so there is not much need for descriptive statistics for this dataset.

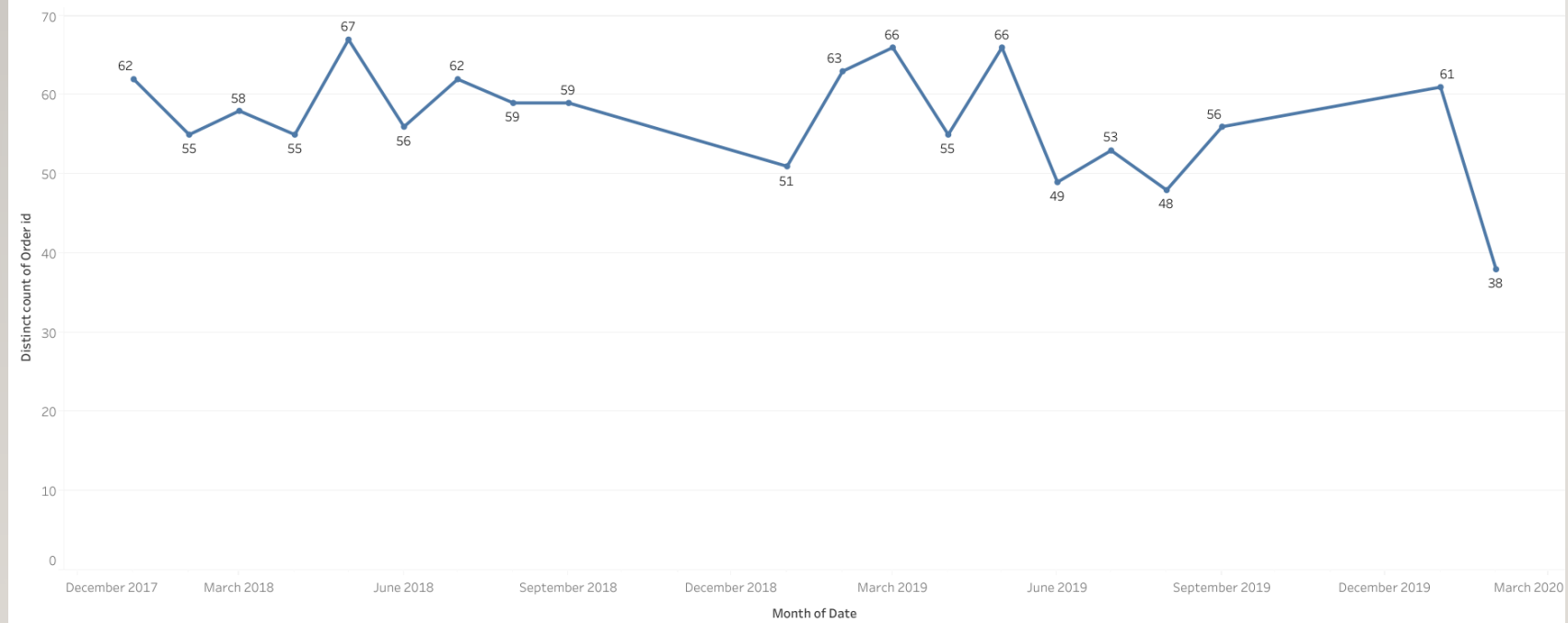
7 EXPLORATORY ANALYSIS AND INFERENCES



- The most purchased product are poultry, soda, cereals, ice cream and cheeses.

8 MONTHLY SALES

Customer Monthly Transaction



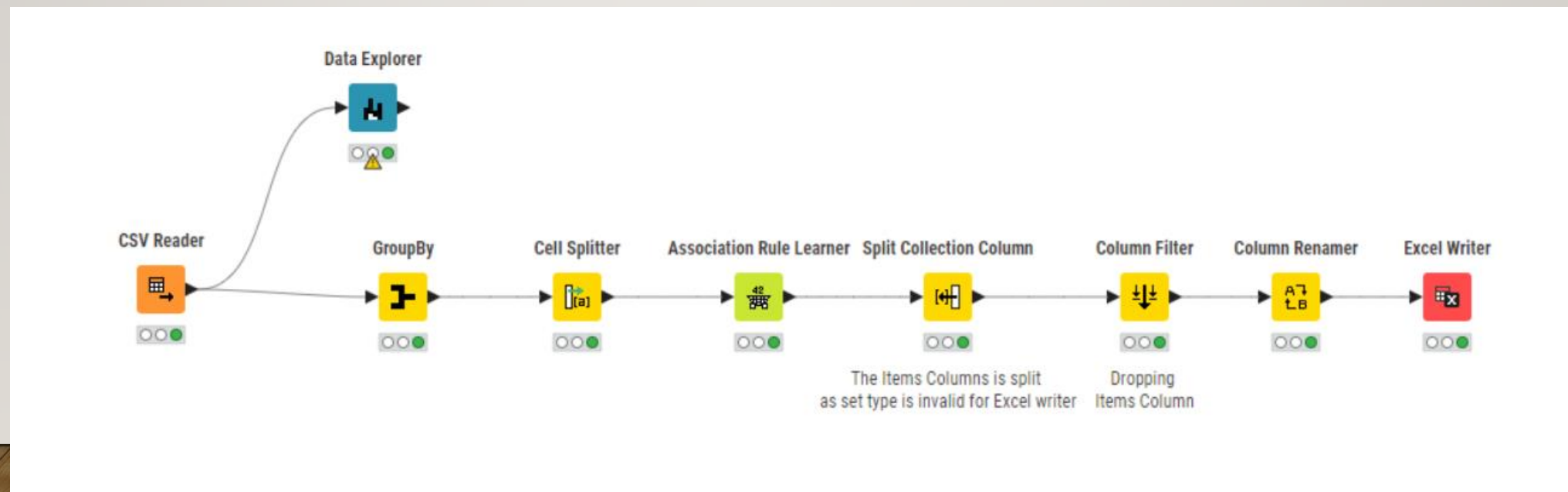
- There is an downward trend in the customers for grocery chop.

9 SUMMARISE THE INFERENCES

- The most purchased product are poultry, soda, cereals, ice cream and cheeses.
- There is an downward trend in the customers for grocery chop.

10 KNIME WORKFLOW

- This is the KNIME Workflow for the MBA Analysis.
- The Excel Output table has Item 1 & 2 with recommended Item along with the support, confidence and lift.



|| MARKET BASKET ANALYSIS

- The Market Basket Analysis is helpful in understanding the items that are purchased together to implement strategies like combo offers, discounts or shelf positions for that items in the store.
- The Association rule implies which items are bought together and their individual probabilities with the recommended items conditional probabilities through support and confidence.
- Lift helps us determine if combining a product with another improves the chances or not.
- The Threshold value for support and confidence are 0.09 and 0.5 respectively.

I2 MBA ANALYSIS - RECOMMENDED ITEMS

		Item I													
		cheeses	dinner rolls	(dishwashing liquid/detergent)	eggs	ice cream	juice	mixes	pasta	poultry	soda	spaghetti sauce	waffles	yogurt	
Item 2	aluminum foil	ice cream	-	-	-	cheeses/cheeses	yogurt/poultry	poultry	-	mixes/ice cream/juice	-	-	-	juice	
	cereals	-	poultry	poultry	-	-	-	-	-	(dishwashing liquid/detergent)/dinner rolls	-	-	-	-	
	cheeses	-	-	-	-	aluminum foil/cheeses	-	-	-	ice cream	-	-	-	-	
	dinner rolls	-	-	-	poultry/pasta/soda	-	-	-	-	-	-	-	-	-	
	ice cream	-	-	-	-	-	-	-	-	aluminum foil/aluminum foil	-	-	-	-	
	juice	-	-	-	-	-	-	-	-	aluminum foil	-	-	-	aluminum foil	
	lunch meat	-	poultry	-	-	-	-	-	-	-	-	-	-	-	
	mixes	-	poultry	poultry	-	-	-	-	-	(dishwashing liquid/detergent)	-	-	-	-	
	pasta	-	soda/eggs	-	dinner rolls	-	-	-	-	-	-	-	-	-	
	poultry	-	spaghetti sauce	mixes	soda/dinner rolls	-	-	-	-	-	-	dinner rolls	-	-	
	Soap	-	-	-	soda	-	-	-	-	-	eggs	-	-	-	
	Soda	-	soda/eggs	-	dinner rolls	waffles	-	-	-	dinner rolls	eggs	-	-	ice cream	-
	spaghetti sauce	-	poultry	-	-	-	-	-	-	-	-	-	-	-	-
	Waffles	-	-	-	-	soda	-	-	-	-	-	-	-	-	-

Note :*/ - indicates Either or choice for the recommendation.*

13 COMBO'S

Combo Packs

soda,dinner rolls,pasta
soda,ice cream,waffles
mixes,poultry,aluminum foil
aluminum foil,ice cream,cheeses
aluminum foil,poultry,ice cream
poultry,dinner rolls,mixes
dishwashing liquid/detergent,poultry,cereals
poultry,dinner rolls,lunch meat
soda,eggs,poultry
dinner rolls,eggs,poultry
eggs,dinner rolls,pasta
ice cream,poultry,cheeses
soda,eggs,soap
dinner rolls,poultry,cereals
yogurt,juice,aluminum foil
soda,eggs,dinner rolls
mixes,dishwashing liquid/detergent,poultry
aluminum foil,poultry,juice
dinner rolls,spaghetti sauce,poultry
poultry,dinner rolls

- **Big – Combo Pack** contains poultry, aluminium foil, soda, eggs and dinner rolls.

14 CONCLUSION

- There are 20 combo's that can be used for the offers or discounts.
- The major items in these combo's are poultry, aluminium foil, soda, eggs and dinner rolls.
- These five items can be combined as an Big Combo.

I5 APPENDIX

- Tableau Link:
 - ✓ MBA - [Tableau Link Part B](#)