

NEW SHELF LAYOUT FOR THE STORE

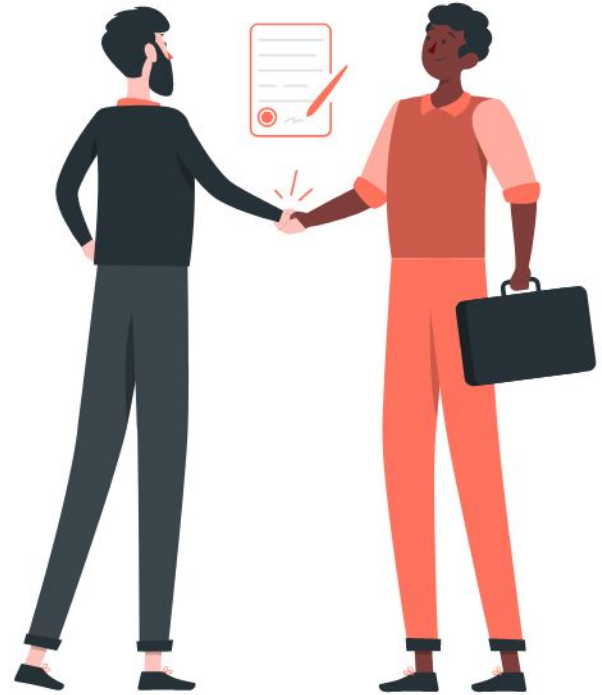


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About the Project



OUR DATA SCIENCE TEAM

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WHAT WE ARE WORKING ON



Maximising Profitability

Increasing the profitability with the best product combinations



Best possible shelf structure

Easy access to all products for the customers to increase sales

OUR DATA



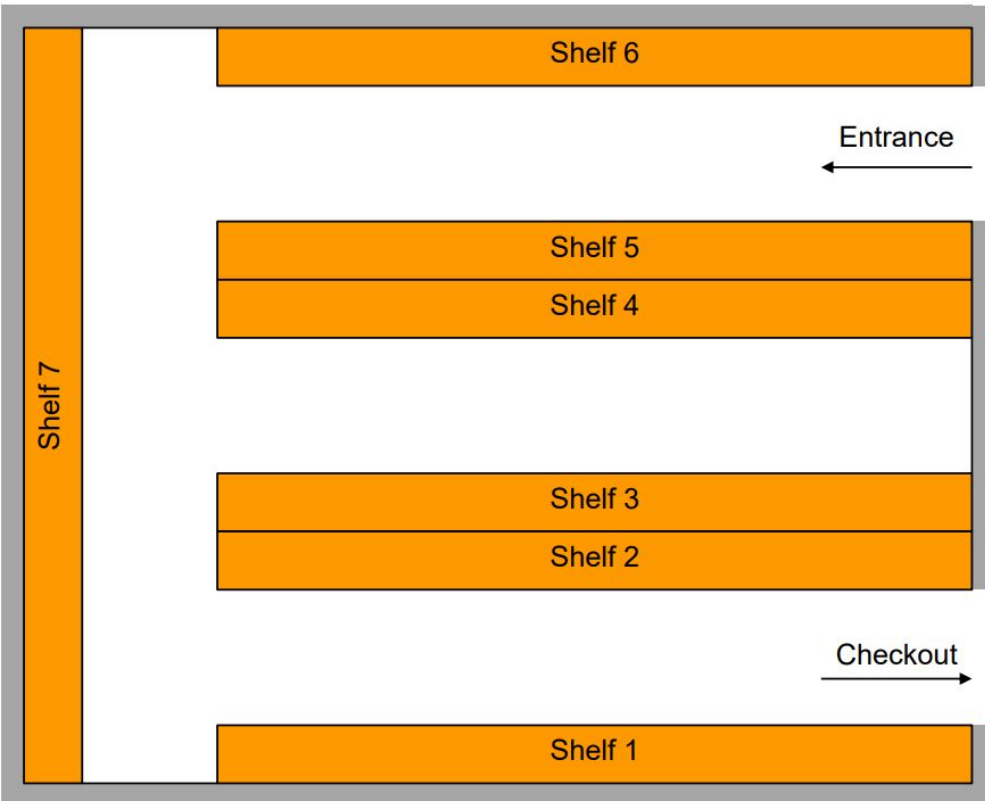
Source

The data comes from another store's sales. The layout is different but it shows which products were purchased together.



Data set

The data set contains 9835 transactions with 169 unique items (SKU's).



THIS IS NOW

105 products are
already placed in
the shelves

- Integrate 64 new SKU's into the shelves
- Develop the most profitable store setup

02

Project Goals

03

Data Analysis

1. Calculate all the possible combinations of two products (product already placed + product to be placed)

2. Calculate the metrics: support, lift, leverage and confidence for each combination

	Items placed	Items to place	Support	Lift	Leverage	Confidence
0	shopping bags	Instant food products	0.001118	1.413385	0.000327	0.011352
1	shopping bags	bags	0.000000	0.000000	-0.000040	0.000000
2	shopping bags	baking powder	0.001525	0.875058	-0.000218	0.015480
3	shopping bags	berries	0.004982	1.521049	0.001707	0.050568
4	shopping bags	beverages	0.003050	1.189532	0.000486	0.030960

3. Calculate which is the item placed that maximizes each metric

		Items placed	Items to place	Support	Lift	Leverage	Confidence
Combination with best lift for jam	1712	beef	jam	0.001220	4.315928	0.000937	0.023256
Combination with best leverage for jam	3827	root vegetables	jam	0.001932	3.289285	0.001344	0.017724
Combination with best confidence for jam	1712	beef	jam	0.001220	4.315928	0.000937	0.023256

4 . Store the item already placed that gets the best value for each metric

Item to place	Item with best Lift	Item with best Leverage	Item with best Confidence
jam	beef	root vegetables	beef

5. Calculate the product that appears the most for each item to place (in the example: beef)

6. Assign the new product to that shelf (jam goes to shelf 3, where beef is)

ASSOCIATION RULES: METRICS

Support:

Measures the frequency with which itemsets appear in transactions

Leverage:

Similar to lift, but lies in -1 and +1 range

Lift:

Measure how much more often a combination occurs than we would expect if it was by chance

Confidence:

The probability that we will purchase Y, given that we have purchased X

By choosing the combinations of products that maximize these metrics we encourage customers to buy the new products



04

Results of the Analysis

What we add to each shelf

	Shelf 1	Shelf 2	Shelf 3	Shelf 4	Shelf 5	Shelf 6	Shelf 7
1	baking powder	beverages	canned fish	bags	berries	domestic eggs	butter milk
2	cat food	liquor (appetizer)	canned vegetables	dental care	dessert	grapes	cream cheese
3	coffee	meat spreads	chicken	detergent	organic products	herbs	frozen fish
4	flower soil/fertilizer	misc. beverages	flour	dish cleaner	seasonal products	liver loaf	frozen vegetables
5	potted plants	nut snack	ham	dishes		mayonnaise	hard cheese
6	sugar		Instant food products	female sanitary products		onions	ice cream
7			jam	house keeping products		semi-finished bread	margarine
8			meat	oil		soups	processed cheese
9			mustard	soap		specialty fat	sliced cheese
10			onions	vinegar			soft cheese
11			packaged fruit/vegetables				UHT-milk
12			pasta				whipped/sour cream
13			pickled vegetables				
14			roll products				
15			rubbing alcohol				
16			salt				
17			sweet spreads				
18			tidbits				
19			turkey				

Final layout of the shelves

Products are easy to find and sales are encouraged

Shelf 1	Shelf 2	Shelf 3	Shelf 4	Shelf 5	Shelf 6	Shelf 7
shopping bags newspapers long life bakery product, cling film/bags flower (seeds) pet care photo/film candles dog food rice instant coffee kitchen towels light bulbs preservation products sound storage medium baking powder cat food coffee flower soil/fertilizer potted plants sugar	soda bottled water bottle beer canned beer fruit/vegetable juice red/blush wine white wine liquor sparkling wine rum brandy cocoa drinks prosecco liqueur whisky liquor (appetizer) meat spreads nut snack misc. beverages beverages	rolls/buns sausage pastry brown bread frankfurter pork beef white bread waffles hamburger meet zwieback cereals syrup fish honey chicken turkey meat Instant food products canned fish canned vegetables flour ham jam mustard onions packaged fruit/vegetables pasta pickled vegetables roll products rubbing alcohol salt sweet spreads tidbits	napkins hygiene articles softener cleaner male cosmetics abrasive cleaner skin care bathroom cleaner decalcifier hair spray make up remover toilet cleaner baby cosmetics kitchen utensil baby food female sanitary products dental care bags detergent dish cleaner dishes house keeping products, oil soap vinegar	chocolate salty snack specialty chocolate candy specialty bar chewing gum cake bar chocolate marshmallow popcorn nuts/prunes artif. sweetener snack products cookware cooking chocolate pudding powder berries dessert organic products seasonal products	other vegetables root vegetables tropical fruit citrus fruit pip fruit sauces spices ketchup tea canned fruit potato products organic sausage ready soups specialty vegetables salad dressing domestic eggs grapes herbs liver loaf semi-finished bread soups specialty fat onions mayonnaise	whole milk yogurt butter curd frozen meals spread cheese frozen dessert condensed milk specialty cheese frozen potato products finished products curd cheese cream frozen fruits frozen chicken UHT-milk butter milk cream cheese cream cheese frozen fish frozen vegetables hard cheese ice cream margarine processed cheese sliced cheese soft cheese whipped/sour cream,

THANK YOU!

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