

## Introduction to AI: Market Basket Analysis

---

### Report 3

---

#### Contents

Exercise: .....	2
How many products and transactions are there in this dataset?.....	2
Which are the five most popular products (top selling items) in the store? .....	2
Discover some association rules and decide which one are the strongest ones. ....	2
Based on your Market Basket Analysis, propose and justify some promotions or recommendations which the seller could introduce to their shop to support the customers. ....	3
Link Sources: .....	4

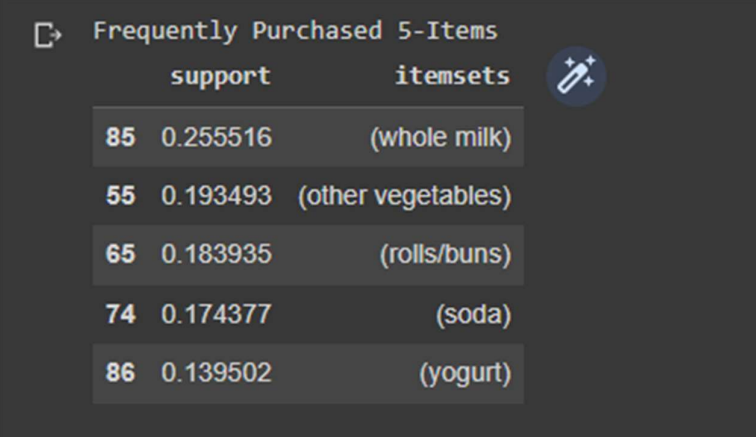
**Exercise:**

How many products and transactions are there in this dataset?

There are 171 products and 9835 transactions

Which are the five most popular products (top selling items) in the store?

Whole milk, other vegetables, rolls/buns, soda and yogurt are the top selling items in the store.



	support	itemsets
85	0.255516	(whole milk)
55	0.193493	(other vegetables)
65	0.183935	(rolls/buns)
74	0.174377	(soda)
86	0.139502	(yogurt)

Discover some association rules and decide which one are the strongest ones. To better choose of the strong rules you might take into account various metrics such as support, confidence, lift, leverage or conviction.

The strongest associations are formed with other vegetables and whole milk in confidence and support.

By lift, conviction and leverage there is a notable association between root vegetables and other vegetables.

	support	confidence	lift	conviction	antecedents	consequents	leverage
303	0.074835	0.386758	1.513634	1.214013	(other vegetables)	(whole milk)	0.025394
302	0.074835	0.292877	1.513634	1.140548	(whole milk)	(other vegetables)	0.025394
358	0.056634	0.307905	1.205032	1.075696	(rolls/buns)	(whole milk)	0.009636
359	0.056634	0.221647	1.205032	1.048452	(whole milk)	(rolls/buns)	0.009636
425	0.056024	0.219260	1.571735	1.102157	(whole milk)	(yogurt)	0.020379
424	0.056024	0.401603	1.571735	1.244132	(yogurt)	(whole milk)	0.020379
372	0.048907	0.191405	1.756031	1.101913	(whole milk)	(root vegetables)	0.021056
373	0.048907	0.448694	1.756031	1.350401	(root vegetables)	(whole milk)	0.021056
282	0.047382	0.434701	2.246605	1.426693	(root vegetables)	(other vegetables)	0.026291
283	0.047382	0.244877	2.246605	1.179941	(other vegetables)	(root vegetables)	0.026291

Based on your Market Basket Analysis, propose and justify some promotions or recommendations which the seller could introduce to their shop to support the customers.

Based on my analysis of the data I would propose to the seller to introduce some loyalty discounts on vegetables since they seem to be the primary selling point, deals with different vegetable matching can have discounts or further loyalty points. Similarly matching dairy products of milk and yogurt, milk and buns, they can be sold in a breakfast promotion something like buy 2 get one free. The last suggestion can be having a client application and tallying up the customer loyalty points mentioned previously in a health bar, encouraging clients to not only return to the shop, but also view the habit as healthy, which will further provide initiative to keep on returning. Certain days of the week can also have mix and match sales for dairy and vegetable combos.

### Link Sources:

Original Collab: <https://colab.research.google.com/drive/1BPj72-dzz1BfT1D8Tzk7W24qtSzvcp-9?usp=sharing>

Link to my own collab:

[https://colab.research.google.com/drive/14n\\_eCzIgbXPgLxI1HXCRZUtpUj0fGt0](https://colab.research.google.com/drive/14n_eCzIgbXPgLxI1HXCRZUtpUj0fGt0)