

APRIORI ALGORITHM (MARKET BASKET ANALYSIS)

CODE

```
1 dataset = [['Milk', 'Onion', 'Nutmeg', 'Kidney Beans', 'Eggs', 'Yogurt'],
2           ['Dill', 'Onion', 'Nutmeg', 'Kidney Beans', 'Eggs', 'Yogurt'],
3           ['Milk', 'Apple', 'Kidney Beans', 'Eggs'],
4           ['Milk', 'Unicorn', 'Corn', 'Kidney Beans', 'Yogurt'],
5           ['Corn', 'Onion', 'Onion', 'Kidney Beans', 'Ice cream', 'Eggs']]
```

```
1 import pandas as pd
2 from mlxtend.preprocessing import TransactionEncoder
3 te = TransactionEncoder()
4 te_ary = te.fit(dataset).transform(dataset)
5 df = pd.DataFrame(te_ary, columns=te.columns_)
```

OUTPUT

	Apple	Corn	Dill	Eggs	Ice cream	Kidney Beans	Milk	Nutmeg	Onion	Unicorn	Yogurt
0	False	False	False	True	False	True	True	True	True	False	True
1	False	False	True	True	False	True	False	True	True	False	True
2	True	False	False	True	False	True	True	False	False	False	False
3	False	True	False	False	False	True	True	False	False	True	True
4	False	True	False	True	True	True	False	False	True	False	False

CODE

```
1 from mlxtend.frequent_patterns import apriori
2 frequent_itemsets = apriori(df, min_support=0.6, use_colnames=True)
3 frequent_itemsets['length'] = frequent_itemsets['itemsets'].apply(lambda x: len(x))
4 frequent_itemsets
```

OUTPUT

	support	itemsets	length
0	0.8	(Eggs)	1
1	1.0	(Kidney Beans)	1
2	0.6	(Milk)	1
3	0.6	(Onion)	1
4	0.6	(Yogurt)	1
5	0.8	(Eggs, Kidney Beans)	2
6	0.6	(Onion, Eggs)	2
7	0.6	(Milk, Kidney Beans)	2
8	0.6	(Onion, Kidney Beans)	2
9	0.6	(Yogurt, Kidney Beans)	2
10	0.6	(Onion, Eggs, Kidney Beans)	3

CODE

```
1 frequent_itemsets[(frequent_itemsets['length'] > 2) &
2                   (frequent_itemsets['support'] >= 0.6)]
```

	support	itemsets	length
10	0.6	(Onion, Eggs, Kidney Beans)	3

CODE

```
1 from mlxtend.frequent_patterns import association_rules
2
3 association_rules(frequent_itemsets, metric="confidence", min_threshold=0.7)
```

OUTPUT

	antecedents	consequents	antecedent support	consequent support	support	confidence	lift	leverage	conviction
0	(Eggs)	(Kidney Beans)	0.8	1.0	0.8	1.00	1.00	0.00	inf
1	(Kidney Beans)	(Eggs)	1.0	0.8	0.8	0.80	1.00	0.00	1.0
2	(Onion)	(Eggs)	0.6	0.8	0.6	1.00	1.25	0.12	inf
3	(Eggs)	(Onion)	0.8	0.6	0.6	0.75	1.25	0.12	1.6
4	(Milk)	(Kidney Beans)	0.6	1.0	0.6	1.00	1.00	0.00	inf
5	(Onion)	(Kidney Beans)	0.6	1.0	0.6	1.00	1.00	0.00	inf
6	(Yogurt)	(Kidney Beans)	0.6	1.0	0.6	1.00	1.00	0.00	inf
7	(Onion, Eggs)	(Kidney Beans)	0.6	1.0	0.6	1.00	1.00	0.00	inf
8	(Onion, Kidney Beans)	(Eggs)	0.6	0.8	0.6	1.00	1.25	0.12	inf
9	(Eggs, Kidney Beans)	(Onion)	0.8	0.6	0.6	0.75	1.25	0.12	1.6
10	(Onion)	(Eggs, Kidney Beans)	0.6	0.8	0.6	1.00	1.25	0.12	inf