Knowledge Discovery & Data Mining Lab-06

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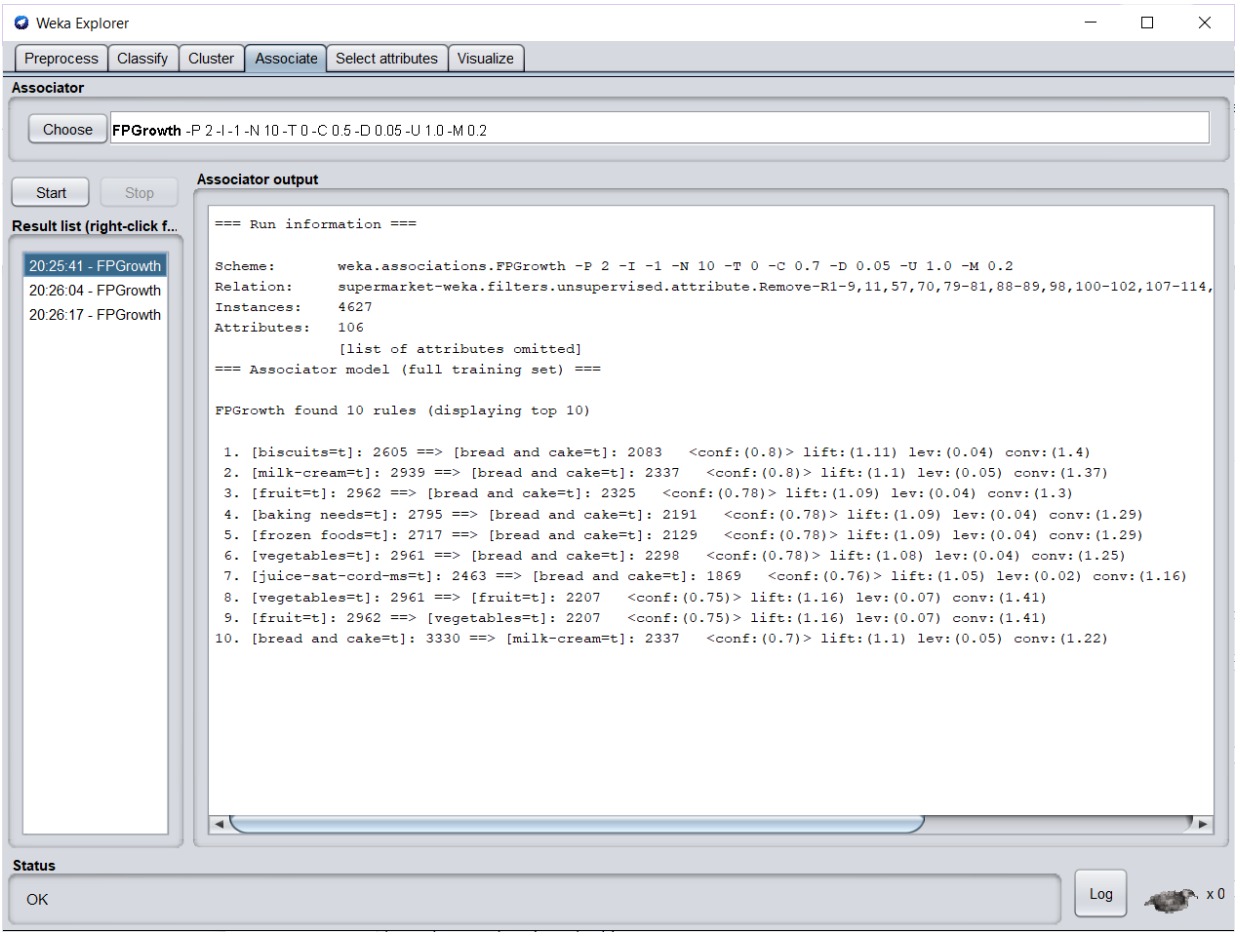
AIM:

To implement the FP-Growth Algorithm using WEKA and python.

FP-Growth Algorithm using WEKA



FP-Growth Algorithm using Python

In [1]:
```
import pandas as pd
import numpy as np
from mlxtend.frequent_patterns import fpgrowth
```

In [2]:
```
dataset = [['Milk', 'Onion', 'Nutmeg', 'Kidney Beans', 'Eggs', 'Yogurt'],
           ['Dill', 'Onion', 'Nutmeg', 'Kidney Beans', 'Eggs', 'Yogurt'],
           ['Milk', 'Apple', 'Kidney Beans', 'Eggs'],
           ['Milk', 'Unicorn', 'Corn', 'Kidney Beans', 'Yogurt'],
           ['Corn', 'Onion', 'Onion', 'Kidney Beans', 'Ice cream', 'Eggs']]
```

In [3]:
```
from mlxtend.preprocessing import TransactionEncoder
te = TransactionEncoder()
te_ary = te.fit(dataset).transform(dataset)
df = pd.DataFrame(te_ary, columns=te.columns_)
df
```

Out[3]:

	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

In [4]:
```
fpgrowth(df, min_support=0.6)
```

Out[4]:

	support	itemsets
0	1.0	(5)
1	0.8	(3)
2	0.6	(10)
3	0.6	(8)
4	0.6	(6)
5	0.8	(3, 5)
6	0.6	(10, 5)
7	0.6	(8, 3)
8	0.6	(8, 5)
9	0.6	(8, 3, 5)
10	0.6	(5, 6)

In [5]:
```
res=fpgrowth(df, min_support=0.6, use_colnames=True)
res
```

Out[5]:

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

In [6]:
```
from mlxtend.frequent_patterns import association_rules

# creating asssociation rules
res=association_rules(res, metric="confidence", min_threshold=0.5)

# printing association rules
res
```

Out[6]:

	antecedents	consequents	antecedent support	consequent support	support	confidence	lift	leverage	conviction
0	(Kidney Beans)	(Eggs)	1.0	0.8	0.8	0.80	1.00	0.00	1.0
1	(Eggs)	(Kidney Beans)	0.8	1.0	0.8	1.00	1.00	0.00	inf
2	(Yogurt)	(Kidney Beans)	0.6	1.0	0.6	1.00	1.00	0.00	inf
3	(Kidney Beans)	(Yogurt)	1.0	0.6	0.6	0.60	1.00	0.00	1.0
4	(Onion)	(Eggs)	0.6	0.8	0.6	1.00	1.25	0.12	inf
5	(Eggs)	(Onion)	0.8	0.6	0.6	0.75	1.25	0.12	1.6
6	(Onion)	(Kidney Beans)	0.6	1.0	0.6	1.00	1.00	0.00	inf
7	(Kidney Beans)	(Onion)	1.0	0.6	0.6	0.60	1.00	0.00	1.0
8	(Onion, Kidney Beans)	(Eggs)	0.6	0.8	0.6	1.00	1.25	0.12	inf
9	(Onion, Eggs)	(Kidney Beans)	0.6	1.0	0.6	1.00	1.00	0.00	inf
10	(Kidney Beans, Eggs)	(Onion)	0.8	0.6	0.6	0.75	1.25	0.12	1.6
11	(Onion)	(Kidney Beans, Eggs)	0.6	0.8	0.6	1.00	1.25	0.12	inf
12	(Kidney Beans)	(Onion, Eggs)	1.0	0.6	0.6	0.60	1.00	0.00	1.0
13	(Eggs)	(Onion, Kidney Beans)	0.8	0.6	0.6	0.75	1.25	0.12	1.6
14	(Milk)	(Kidney Beans)	0.6	1.0	0.6	1.00	1.00	0.00	inf
15	(Kidney Beans)	(Milk)	1.0	0.6	0.6	0.60	1.00	0.00	1.0