

DWM PARTICAL NO 8

Assignment No 8: Write a program of Apriori algorithm using any programming language.

Note: Libraries needed - pip install mlxtend – mlxtend

- pip install pandas - pandas

Code:

```
import pandas as pd
from mlxtend.frequent_patterns import apriori, association_rules

data = [
    ['yes', 'yes', 'no', 'no', 'yes'],
    ['yes', 'no', 'yes', 'no', 'yes'],
    ['no', 'yes', 'yes', 'no', 'no'],
    ['yes', 'yes', 'yes', 'yes', 'yes'],
    ['no', 'no', 'no', 'yes', 'no'],
    ['yes', 'yes', 'yes', 'no', 'yes'],
    ['no', 'yes', 'no', 'yes', 'yes'],
    ['yes', 'yes', 'no', 'yes', 'no'],
    ['yes', 'no', 'no', 'yes', 'yes'],
    ['no', 'no', 'yes', 'yes', 'yes'],
    ['yes', 'yes', 'yes', 'yes', 'yes']
]

# Column names
columns = ['bread', 'milk', 'butter', 'jam', 'eggs']

df = pd.DataFrame(data, columns=columns)

# Convert 'yes'/'no' to True/False for Apriori
df_bool = df.applymap(lambda x: True if x == 'yes' else False)

frequent_itemsets = apriori(df_bool, min_support=0.3, use_colnames=True)

rules = association_rules(frequent_itemsets, metric="confidence", min_threshold=0.7)

print("=== Frequent Itemsets ===")
print(frequent_itemsets)

print("\n=== Association Rules ===")
print(rules[['antecedents', 'consequents', 'support', 'confidence', 'lift']])
```

Output:

=== Frequent Itemsets ===

	support	itemsets
0	0.636364	(bread)
1	0.636364	(milk)
2	0.545455	(butter)
3	0.636364	(jam)
4	0.727273	(eggs)
5	0.454545	(milk, bread)
6	0.363636	(bread, butter)
7	0.363636	(bread, jam)
8	0.545455	(eggs, bread)
9	0.363636	(milk, butter)
10	0.363636	(milk, jam)
11	0.454545	(eggs, milk)
12	0.454545	(eggs, butter)
13	0.454545	(eggs, jam)
14	0.363636	(eggs, milk, bread)
15	0.363636	(eggs, bread, butter)

=== Association Rules ===

	antecedents	consequents	support	confidence	lift
0	(milk)	(bread)	0.454545	0.714286	1.122449
1	(bread)	(milk)	0.454545	0.714286	1.122449
2	(eggs)	(bread)	0.545455	0.750000	1.178571
3	(bread)	(eggs)	0.545455	0.857143	1.178571
4	(milk)	(eggs)	0.454545	0.714286	0.982143
5	(butter)	(eggs)	0.454545	0.833333	1.145833
6	(jam)	(eggs)	0.454545	0.714286	0.982143
7	(eggs, milk)	(bread)	0.363636	0.800000	1.257143
8	(bread, milk)	(eggs)	0.363636	0.800000	1.100000
9	(eggs, butter)	(bread)	0.363636	0.800000	1.257143
10	(bread, butter)	(eggs)	0.363636	1.000000	1.375000