

DSBDA LAB 5

RAVITEJ.R
160119733160

AIM: To apply apriori algorithm on a given dataset

DESCRIPTION:- Apriori algorithm refers to the algorithm which is used to calculate the association rules between objects. It means how two or more objects are related to one another. In other words, we can say that the apriori algorithm is an association rule learning that analyzes that people who bought product A also bought product B. The primary objective of the apriori algorithm is to create the association rule between different objects. The association rule describes how two or more objects are related to one another. Apriori algorithm is also called frequent pattern mining. Generally, you operate the Apriori algorithm on a database that consists of a huge number of transactions.

CODE:-

```
!pip install apyori
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import io

from apyori import apriori
df = pd.read_csv('Market_Basket_Optimisation.csv')
df.head()
records = []
for i in range(0, 187):
    records.append([str(df.values[i, j]) for j in range(0, 20)])

association_rules = apriori(records, min_support=0.01, min_confidence=0.2, min_lift=3,
min_length=2)
association_results = list(association_rules)
print("There are {} Relation derived.".format(len(association_results)))

for i in range(0, len(association_results)):
    print(association_results[i][0])

for item in association_results:
    pair = item[0]
    items = [x for x in pair]
    print("Rule: " + items[0] + " -> " + items[1])
    print("Support: " + str(item[1]))
    print("Confidence: " + str(item[2][0][2]))
```

```
print("Lift: " + str(item[2][0][3])) print("\n\n\n")
```

OUTPUT:-

	shrimp	almonds	avocado	vegetables mix	green grapes	whole weat flour	yams	cottage cheese	energy drink	tomato juice	low fat yogurt	green tea	honey	salad	mineral water	salmon	antioxydant juice	frozen smoothie	spinach
0	burgers	meatballs	eggs	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1	chutney	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2	turkey	avocado	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	mineral water	milk	energy bar	whole wheat rice	green tea	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	low fat yogurt	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

```
print("There are {} Relation derived.".format(len(association_results)))
```

There are 1348 Relation derived.

```
for i in range(0, len(association_results)):
    print(association_results[i][0])
```

```
frozenset({'bug spray', 'soup'})
frozenset({'corn', 'burgers'})
frozenset({'grated cheese', 'burgers'})
frozenset({'meatballs', 'burgers'})
frozenset({'oil', 'burgers'})
frozenset({'white wine', 'burgers'})
frozenset({'cake', 'cooking oil'})
frozenset({'frozen smoothie', 'cake'})
frozenset({'carrots', 'ground beef'})
frozenset({'carrots', 'milk'})
frozenset({'carrots', 'soup'})
frozenset({'escalope', 'champagne'})
frozenset({'chicken', 'honey'})
frozenset({'chicken', 'light mayo'})
frozenset({'chicken', 'pancakes'})
frozenset({'chicken', 'pasta'})
frozenset({'chicken', 'pepper'})
frozenset({'chicken', 'shrimp'})
frozenset({'chicken', 'tomatoes'})
frozenset({'chocolate', 'cottage cheese'})
```

Rule: chocolate -> milk
Support: 0.0106951871657754
Confidence: 0.3333333333333326
Lift: 10.388888888888886

Rule: chocolate -> mineral water
Support: 0.016042780748663103
Confidence: 0.5
Lift: 7.791666666666666

Rule: chocolate -> nan
Support: 0.0213903743315508
Confidence: 0.2222222222222222
Lift: 8.311111111111111

Rule: chocolate -> frozen vegetables
Support: 0.0106951871657754
Confidence: 0.3333333333333326
Lift: 7.791666666666665