Assignment Project Report

Association Rule Mining: Market Basket Analysis

Name : Meghna Maan

Course : AI & ML (Batch 4)

Given Question

Apriori is a statistical algorithm for implementing associate rule mining, that primarily relies on three components: Life, Support and Confidence. Using this algorithm try to find the rules that describe the relation between each of the products that were brought by the customers as described in

Dataset Link: Store Data

https://drive.google.com/file/d/1y5DYn0dGoSbC22xowBq2d4po6h1JxcTQ/view?usp=sharing

Prerequisites

1. Software:

    Python 3

2. Tools:

    - Numpy

    - Pandas

- Matplotlib

- Seaborn

Methods Used

Association Rule Mining is used when we want to find an association between different objects in a set or find frequent patterns in a transaction database or relational databases. The applications of Association Rule Mining are found in Marketing, Basket Data Analysis (or Market Basket Analysis) in retailing, clustering and classification. It can be used to find what items do customers frequently buy together by generating a set of rules called Association Rules.

Implementation

1. Loading Libraries and Dataset

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

```
data = pd.read_csv('/Users/prahaladsinghmaan/Desktop/store_data.csv')
data.head()
```

2. Pre processing data

```
transactions = []
for i in range(0, data.shape[0]):
    transactions.append([str(data.values[i, j]) for j in range(0, 20)])

print(transactions[0])
```

3. Implementing Model

```
transactions = []
for i in range(0, data.shape[0]):
    transactions.append([str(data.values[i, j]) for j in range(0, 20)])

print(transactions[0])
```

```
['burgers', 'meatballs', 'eggs', 'nan', 'nan', 'nan', 'nan', 'nan', 'nan', 'nan', 'nan', 'nan', 'nan', 'nan', 'nan'
, 'nan', 'nan', 'nan', 'nan', 'nan']
```

4. Final Result by Transferring the list to a table

```
results = pd.DataFrame(results)
results.head(5)
```

	items	support	ordered_statistics
0	(chicken, light cream)	0.004533	[((light cream), (chicken), 0.2905982905982906...
1	(mushroom cream sauce, escalope)	0.005733	[((mushroom cream sauce), (escalope), 0.300699...
2	(pasta, escalope)	0.005867	[((pasta), (escalope), 0.37288135593220345, 4....
3	(honey, fromage blanc)	0.003333	[((fromage blanc), (honey), 0.2450980392156863...
4	(herb & pepper, ground beef)	0.016000	[((herb & pepper), (ground beef), 0.3234501347...

```
results['ordered_statistics'][0]
```

```
[OrderedStatistic(items_base=frozenset({'light cream'}), items_add=frozenset({'chicken'}),
confidence=0.2905982905982906, lift=4.843304843304844)]
```