Experiment-9

write a python program to generate frequent item sets / association rules using Apriori algorithm.

Apriori Algorithm:

Apriori is an algorithm for frequent item set mining and association rule learning over relational databases. It proceeds by identify-ing the frequent individual items in the database and extending them to larger and larger item sets as long as those item sets appear sufficiently often in the database.

Steps of the Apriori Algorithm:

1. Computing the support for each individual item.
2. Deciding on the support threshold.
3. selecting the frequent items.
4. Finding the support of the frequent item sets.
5. Repeat for larger sets.
6. Generate Association Rules and compute confidence.

7. compute lift.

Association rules using Apriori Algorithm

program:

```
!Pip install apyori
import numpy as np
import matplotlib.pylot as plt
import pandas as pd
from apyori import apriori
market_data = pd.read_csv('/content/sample-data/
        Market-Basket-optimisation.csv', header=None)
transacts = []
for i in range(0, len(market_data));
  transacts.append([str(market_data.values[i,j]) for
                    j in range(0,20)])
  rules = apriori(transactions = transacts, min-support =
          0.003, min-confindence = 0.2, min-lift=3,
          min-length = 2, max-length=2).
  def inspect(output):
    Left-Hand-Side = [tuple(result[2][0][0])[0] for result
                     in output]
    Support = [result[1] for result in output]
    Support-Confidence [result[2][0][2] for result in output]
    lift = [result[2][0][3] for result in output]
    Right-Hand-Side: [tuple(result[2][0][1])[0] for
                     result in output].
```

```
return list(zip(Left_Hand_Side, Support, Confindence,
                lift, Right_Hand_Side))

output = list(rules)
output_data = pd.DataFrame(inspect(output), columns
  =['Left_Hand_sided', 'Support', 'Confidence',
   'Lift', 'Right_Hand_Side'])
Print(output_data)
Print(output_data.nlargest(n=5, columns='Lift'))
```