eclat

November 7, 2024

1 Eclat

1.1 Importing the libraries

[ ]:
```
!pip install apyori
```

```
Requirement already satisfied: apyori in /usr/local/lib/python3.6/dist-packages
(1.1.2)
```

[ ]:
```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
```

1.2 Data Preprocessing

[ ]:
```
dataset = pd.read_csv('Market_Basket_Optimisation.csv', header = None)
transactions = []
for i in range(0, 7501):
  transactions.append([str(dataset.values[i,j]) for j in range(0, 20)])
```

1.3 Training the Eclat model on the dataset

[ ]:
```
from apyori import apriori
rules = apriori(transactions = transactions, min_support = 0.003,␣
↪min_confidence = 0.2, min_lift = 3, min_length = 2, max_length = 2)
```

1.4 Visualising the results

1.4.1 Displaying the first results coming directly from the output of the apriori function

[ ]:
```
results = list(rules)
```

[ ]:
```
results
```

[ ]:
```
[RelationRecord(items=frozenset({'chicken', 'light cream'}),
support=0.004532728969470737,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'light cream'}),
items_add=frozenset({'chicken'}), confidence=0.29059829059829057,
```

```
lift=4.84395061728395)]),
 RelationRecord(items=frozenset({'mushroom cream sauce', 'escalope'}),
support=0.005732568990801226,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'mushroom cream
sauce'}), items_add=frozenset({'escalope'}), confidence=0.3006993006993007,
lift=3.790832696715049)]),
 RelationRecord(items=frozenset({'pasta', 'escalope'}),
support=0.005865884548726837,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'pasta'}),
items_add=frozenset({'escalope'}), confidence=0.3728813559322034,
lift=4.700811850163794)]),
 RelationRecord(items=frozenset({'fromage blanc', 'honey'}),
support=0.003332888948140248,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'fromage blanc'}),
items_add=frozenset({'honey'}), confidence=0.2450980392156863,
lift=5.164270764485569)]),
 RelationRecord(items=frozenset({'ground beef', 'herb & pepper'}),
support=0.015997866951073192,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'herb & pepper'}),
items_add=frozenset({'ground beef'}), confidence=0.3234501347708895,
lift=3.2919938411349285)]),
 RelationRecord(items=frozenset({'ground beef', 'tomato sauce'}),
support=0.005332622317024397,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'tomato sauce'}),
items_add=frozenset({'ground beef'}), confidence=0.3773584905660377,
lift=3.840659481324083)]),
 RelationRecord(items=frozenset({'olive oil', 'light cream'}),
support=0.003199573390214638,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'light cream'}),
items_add=frozenset({'olive oil'}), confidence=0.20512820512820515,
lift=3.1147098515519573)]),
 RelationRecord(items=frozenset({'whole wheat pasta', 'olive oil'}),
support=0.007998933475536596,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'whole wheat
pasta'}), items_add=frozenset({'olive oil'}), confidence=0.2714932126696833,
lift=4.122410097642296)]),
 RelationRecord(items=frozenset({'shrimp', 'pasta'}),
support=0.005065991201173177,
ordered_statistics=[OrderedStatistic(items_base=frozenset({'pasta'}),
items_add=frozenset({'shrimp'}), confidence=0.3220338983050847,
lift=4.506672147735896)])]
```

1.4.2 Putting the results well organised into a Pandas DataFrame

[ ]:
```
def inspect(results):
    lhs         = [tuple(result[2][0][0])[0] for result in results]
    rhs         = [tuple(result[2][0][1])[0] for result in results]
    supports    = [result[1] for result in results]
    return list(zip(lhs, rhs, supports))
resultsinDataFrame = pd.DataFrame(inspect(results), columns = ['Product 1',␣
 ↪'Product 2', 'Support'])
```

1.4.3 Displaying the results sorted by descending supports

[ ]:
```
resultsinDataFrame.nlargest(n = 10, columns = 'Support')
```

[ ]:

	Product 1	Product 2	Support
4	herb & pepper	ground beef	0.015998
7	whole wheat pasta	olive oil	0.007999
2	pasta	escalope	0.005866
1	mushroom cream sauce	escalope	0.005733
5	tomato sauce	ground beef	0.005333
8	pasta	shrimp	0.005066
0	light cream	chicken	0.004533
3	fromage blanc	honey	0.003333
6	light cream	olive oil	0.003200