▾ Apriori

▾ 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
```

▾ 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)])
```

▾ Training the Apriori model on the dataset

```
from apyori import apriori
rules = apriori(transactions = transactions, min_support = 0.003, min_confidence = 0.2, min_l
```

▾ Visualising the results

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

```
results = list(rules)
```
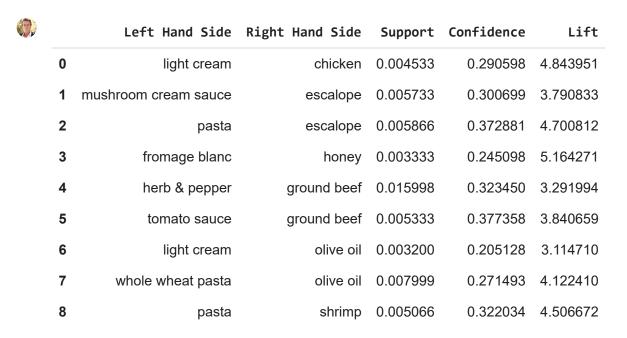
```
results
```

```
[RelationRecord(items=frozenset({'chicken', 'light cream'}), support=0.0045327289694707:
 RelationRecord(items=frozenset({'mushroom cream sauce', 'escalope'}), support=0.0057325
 RelationRecord(items=frozenset({'pasta', 'escalope'}), support=0.005865884548726837, on
 RelationRecord(items=frozenset({'honey', 'fromage blanc'}), support=0.0033328889481402
 RelationRecord(items=frozenset({'ground beef', 'herb & pepper'}), support=0.0159978669!
 RelationRecord(items=frozenset({'tomato sauce', 'ground beef'}), support=0.005333622317
 RelationRecord(items=frozenset({'olive oil', 'light cream'}), support=0.00319957339021
 RelationRecord(items=frozenset({'olive oil', 'whole wheat pasta'}), support=0.00799893:
 RelationRecord(items=frozenset({'pasta', 'shrimp'}), support=0.005065991201173177, orde
```

▾ 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]
    confidences = [result[2][0][2] for result in results]
    lifts       = [result[2][0][3] for result in results]
    return list(zip(lhs, rhs, supports, confidences, lifts))
resultsinDataFrame = pd.DataFrame(inspect(results), columns = ['Left Hand Side', 'Right Hand
```

▾ Displaying the results non sorted

```
resultsinDataFrame
```

	Left Hand Side	Right Hand Side	Support	Confidence	Lift
0	light cream	chicken	0.004533	0.290598	4.843951
1	mushroom cream sauce	escalope	0.005733	0.300699	3.790833
2	pasta	escalope	0.005866	0.372881	4.700812
3	fromage blanc	honey	0.003333	0.245098	5.164271
4	herb & pepper	ground beef	0.015998	0.323450	3.291994
5	tomato sauce	ground beef	0.005333	0.377358	3.840659
6	light cream	olive oil	0.003200	0.205128	3.114710
7	whole wheat pasta	olive oil	0.007999	0.271493	4.122410
8	pasta	shrimp	0.005066	0.322034	4.506672

▾ Displaying the results sorted by descending lifts

```
resultsinDataFrame.nlargest(n = 10, columns = 'Lift')
```