

```
In [1]: import numpy as np
import matplotlib.pyplot as plt
import pandas as pd

In [2]: dataset = pd.read_csv('C:/Users/Acer/Desktop/5th Sem/DWM Lab/Datasets-master/store_transactions.csv')
transactions = []
for i in range(0,7501):
    transactions.append([str(dataset.values[i,j]) for j in range(0,20)])

In [3]: from apyori import apriori

In [4]: rules= apriori(transactions,
    min_support = 0.003,
    min_confidence = 0.2,
    min_lift = 3,
    min_length = 2)

In [5]: MB = list(rules)

In [6]: Result = [list(MB[i][0]) for i in range(0,len(MB))]

In [7]: for item in Result:
    # first index of the inner list
    # Contains base item and add item
    pair = item[0]
    items = [x for x in pair]
    print("Rule: " + item[0] + " -> " + item[1])
    print("Support: " + str(item[1]))
    #third index of the list located at 0th
    #of the third index of the inner list
    print("Confidence: " + str(item[1][2][0]))
    print("Lift: " + str(item[1][2][0]))
    print("=====")
```

```
Rule: light cream -> chicken
Support: chicken
Confidence: i
Lift: i
=====
Rule: escalope -> mushroom cream sauce
Support: mushroom cream sauce
Confidence: s
Lift: s
=====
Rule: escalope -> pasta
Support: pasta
Confidence: s
Lift: s
=====
Rule: fromage blanc -> honey
Support: honey
Confidence: n
Lift: n
=====
Rule: ground beef -> herb & pepper
Support: herb & pepper
Confidence: r
Lift: r
=====
Rule: ground beef -> tomato sauce
Support: tomato sauce
Confidence: m
Lift: m
=====
Rule: olive oil -> light cream
Support: light cream
Confidence: g
Lift: g
=====
Rule: whole wheat pasta -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: pasta -> shrimp
Support: shrimp
Confidence: r
Lift: r
=====
Rule: milk -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: burgers -> cake
Support: cake
Confidence: k
Lift: k
=====
Rule: burgers -> turkey
Support: turkey
Confidence: r
Lift: r
=====
Rule: burgers -> turkey
Support: turkey
Confidence: r
Lift: r
```

```
=====
Rule: cake -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: ground beef -> cereals
Support: cereals
Confidence: r
Lift: r
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: light cream -> chicken
Support: chicken
Confidence: i
Lift: i
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: olive oil -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: chocolate -> frozen vegetables
Support: frozen vegetables
Confidence: o
Lift: o
=====
Rule: ground beef -> chocolate
Support: chocolate
Confidence: o
Lift: o
=====
Rule: milk -> chocolate
Support: chocolate
Confidence: o
Lift: o
=====
Rule: ground beef -> cooking oil
Support: cooking oil
Confidence: o
Lift: o
=====
Rule: ground beef -> eggs
Support: eggs
Confidence: g
Lift: g
=====
Rule: spaghetti -> eggs
Support: eggs
Confidence: g
Lift: g
=====
Rule: escalope -> nan
Support: nan
Confidence: n
```

```
Lift: n
=====
Rule: escalope -> pasta
Support: pasta
Confidence: s
Lift: s
=====
Rule: ground beef -> french fries
Support: french fries
Confidence: e
Lift: e
=====
Rule: fromage blanc -> honey
Support: honey
Confidence: n
Lift: n
=====
Rule: green tea -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: ground beef -> frozen vegetables
Support: frozen vegetables
Confidence: o
Lift: o
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: milk -> soup
Support: soup
Confidence: u
Lift: u
=====
Rule: milk -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: mineral water -> frozen vegetables
Support: frozen vegetables
Confidence: o
Lift: o
=====
Rule: spaghetti -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: spaghetti -> frozen vegetables
Support: frozen vegetables
Confidence: o
Lift: o
=====
Rule: tomatoes -> frozen vegetables
Support: frozen vegetables
Confidence: o
Lift: o
=====
Rule: spaghetti -> tomatoes
Support: tomatoes
```

```
Confidence: m
Lift: m
=====
Rule: ground beef -> grated cheese
Support: grated cheese
Confidence: a
Lift: a
=====
Rule: ground beef -> green tea
Support: green tea
Confidence: e
Lift: e
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: ground beef -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: nan -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: ground beef -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: ground beef -> tomato sauce
Support: tomato sauce
Confidence: m
Lift: m
=====
Rule: ground beef -> pepper
Support: pepper
Confidence: p
Lift: p
=====
Rule: ground beef -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: ground beef -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: spaghetti -> mineral water
```

```
Support: mineral water
Confidence: n
Lift: n
=====
Rule: olive oil -> light cream
Support: light cream
Confidence: g
Lift: g
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: milk -> soup
Support: soup
Confidence: u
Lift: u
=====
Rule: milk -> whole wheat pasta
Support: whole wheat pasta
Confidence: o
Lift: o
=====
Rule: mineral water -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: mineral water -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: whole wheat pasta -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: shrimp -> pasta
Support: pasta
Confidence: s
Lift: s
=====
Rule: olive oil -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: olive oil -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
```

```
Rule: whole wheat rice -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: milk -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: burgers -> cake
Support: cake
Confidence: k
Lift: k
=====
Rule: burgers -> turkey
Support: turkey
Confidence: r
Lift: r
=====
Rule: burgers -> turkey
Support: turkey
Confidence: r
Lift: r
=====
Rule: cake -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: ground beef -> cereals
Support: cereals
Confidence: r
Lift: r
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: olive oil -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: ground beef -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: ground beef -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: ground beef -> chocolate
Support: chocolate
Confidence: o
Lift: o
```

```
=====
Rule: milk -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: milk -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: mineral water -> chocolate
Support: chocolate
Confidence: o
Lift: o
=====
Rule: shrimp -> chocolate
Support: chocolate
Confidence: o
Lift: o
=====
Rule: nan -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: milk -> chocolate
Support: chocolate
Confidence: o
Lift: o
=====
Rule: mineral water -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: mineral water -> chocolate
Support: chocolate
Confidence: o
Lift: o
=====
Rule: ground beef -> cooking oil
Support: cooking oil
Confidence: o
Lift: o
=====
Rule: milk -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: nan -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: spaghetti -> eggs
Support: eggs
Confidence: g
Lift: g
=====
Rule: nan -> ground beef
Support: ground beef
Confidence: o
```



```
Lift: o
=====
Rule: milk -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: green tea -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: ground beef -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: ground beef -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: milk -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: milk -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: milk -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: milk -> soup
Support: soup
Confidence: u
Lift: u
=====
Rule: milk -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: mineral water -> shrimp
Support: shrimp
```

```
Confidence: r
Lift: r
=====
Rule: spaghetti -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: spaghetti -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: spaghetti -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: spaghetti -> shrimp
Support: shrimp
Confidence: r
Lift: r
=====
Rule: shrimp -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: spaghetti -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: ground beef -> grated cheese
Support: grated cheese
Confidence: a
Lift: a
=====
Rule: ground beef -> green tea
Support: green tea
Confidence: e
Lift: e
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: nan -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: nan -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: milk -> ground beef
```

```
Support: ground beef
Confidence: o
Lift: o
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: ground beef -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: ground beef -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: ground beef -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: ground beef -> pepper
Support: pepper
Confidence: p
Lift: p
=====
Rule: ground beef -> shrimp
Support: shrimp
Confidence: r
Lift: r
=====
Rule: ground beef -> spaghetti
Support: spaghetti
Confidence: a
Lift: a
=====
Rule: spaghetti -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: milk -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: milk -> mineral water
Support: mineral water
Confidence: n
Lift: n
=====
Rule: milk -> shrimp
Support: shrimp
Confidence: r
Lift: r
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
```

```
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: milk -> soup
Support: soup
Confidence: u
Lift: u
=====
Rule: milk -> whole wheat pasta
Support: whole wheat pasta
Confidence: o
Lift: o
=====
Rule: mineral water -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: mineral water -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: spaghetti -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: olive oil -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: whole wheat rice -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: ground beef -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: ground beef -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: ground beef -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: milk -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: milk -> nan
Support: nan
Confidence: n
Lift: n
```

```
=====
Rule: shrimp -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: olive oil -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: shrimp -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: milk -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: milk -> frozen smoothie
Support: frozen smoothie
Confidence: o
Lift: o
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: ground beef -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: milk -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: milk -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: shrimp -> nan
Support: nan
Confidence: n
Lift: n
=====
Rule: tomatoes -> nan
Support: nan
Confidence: n
```

```
Lift: n
=====
Rule: milk -> ground beef
Support: ground beef
Confidence: o
Lift: o
=====
Rule: ground beef -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: ground beef -> pancakes
Support: pancakes
Confidence: n
Lift: n
=====
Rule: ground beef -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
Rule: milk -> olive oil
Support: olive oil
Confidence: i
Lift: i
=====
Rule: milk -> tomatoes
Support: tomatoes
Confidence: m
Lift: m
=====
```

In []: