

IE 345 - K "Introduction to Deep Learning: Fundamentals Concepts"

Prof. YuZo

Clustering

Association Rule Learning

pg. 109 - 112

```
In [1]: import pandas as pd
dataset = pd.read_csv('C:/Users/pablo/Desktop/IE345_DeepLearning/DataAnalysisFromScratchwithPython_Peters Morgan/Datasets/Market_Basket_Optimisation.csv', header = None)
```

```
In [2]: 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
rules = apriori(transactions, min_support = 0.003, min_confidence = 0.2, min_lift = 3, min_length = 2)
results = list(rules)
results_list = []
for i in range(0, len(results)):
    results_list.append('RULE:\t' + str(results[i][0]) + '\nSUPPORT:\t' + str(results[i][1]))
print(results_list)
```

```
["RULE:\tfrozenset({'light cream', 'chicken'})\nSUPPORT:\t0.004532728969470737", "RULE:\tfrozenset({'escalope', 'mushroom cream sauce'})\nSUPPORT:\t0.005732568990801226", "RULE:\tfrozenset({'pasta', 'escalope'})\nSUPPORT:\t0.005865884548726837", "RULE:\tfrozenset({'fromage blanc', 'honey'})\nSUPPORT:\t0.003332888948140248", "RULE:\tfrozenset({'ground beef', 'herb & pepper'})\nSUPPORT:\t0.015997866951073192", "RULE:\tfrozenset({'ground beef', 'tomato sauce'})\nSUPPORT:\t0.005332622317024397", "RULE:\tfrozenset({'light cream', 'olive oil'})\nSUPPORT:\t0.003199573390214638", "RULE:\tfrozenset({'whole wheat pasta', 'olive oil'})\nSUPPORT:\t0.007998933475536596", "RULE:\tfrozenset({'shrimp', 'pasta'})\nSUPPORT:\t0.005065991201173177", "RULE:\tfrozenset({'avocado', 'spaghetti', 'milk'})\nSUPPORT:\t0.003332888948140248", "RULE:\tfrozenset({'milk', 'cake', 'burgers'})\nSUPPORT:\t0.0037328356219170776", "RULE:\tfrozenset({'turkey', 'chocolate', 'burgers'})\nSUPPORT:\t0.0030662578322890282", "RULE:\tfrozenset({'milk', 'turkey', 'burgers'})\nSUPPORT:\t0.003199573390214638", "RULE:\tfrozenset({'tomatoes', 'frozen vegetables', 'cake'})\nSUPPORT:\t0.0030662578322890282", "RULE:\tfrozenset({'ground beef', 'spaghetti', 'cereals'})\nSUPPORT:\t0.0030662578322890282", "RULE:\tfrozenset({'ground beef', 'milk', 'chicken'})\nSUPPORT:\t0.0038661511798426876", "RULE:\tfrozenset({'nan', 'light cream', 'chicken'})\nSUPPORT:\t0.004532728969470737", "RULE:\tfrozenset({'milk', 'olive oil', 'chicken'})\nSUPPORT:\t0.003599520639914677", "RULE:\tfrozenset({'spaghetti', 'olive oil', 'chicken'})\nSUPPORT:\t0.0034662045060658577", "RULE:\tfrozenset({'shrimp', 'frozen vegetables', 'chocolate'})\nSUPPORT:\t0.005332622317024397", "RULE:\tfrozenset({'ground beef', 'herb & pepper', 'chocolate'})\nSUPPORT:\t0.003999466737768298", "RULE:\tfrozenset({'soup', 'milk', 'chocolate'})\nSUPPORT:\t0.003999466737768298", "RULE:\tfrozenset({'ground beef', 'spaghetti', 'cooking oil'})\nSUPPORT:\t0.004799360085321957", "RULE:\tfrozenset({'ground beef', 'herb & pepper', 'eggs'})\nSUPPORT:\t0.0041327822956939075", "RULE:\tfrozenset({'red wine', 'spaghetti', 'eggs'})\nSUPPORT:\t0.0037328356219170776", "RULE:\tfrozenset({'nan', 'escalope', 'mushroom cream sauce'})\nSUPPORT:\t0.005732568990801226", "RULE:\tfrozenset({'ground beef', 'nan', 'mineral water', 'eggs', 'chocolate'})\nSUPPORT:\t0.003999466737768298", "RULE:\tfrozenset({'ground beef', 'nan', 'mineral water', 'frozen vegetables', 'chocolate'})\nSUPPORT:\t0.003332888948140248", "RULE:\tfrozenset({'ground beef', 'nan', 'spaghetti', 'frozen vegetables', 'chocolate'})\nSUPPORT:\t0.0030662578322890282", "RULE:\tfrozenset({'nan', 'mineral water', 'milk', 'frozen vegetables', 'chocolate'})\nSUPPORT:\t0.003999466737768298", "RULE:\tfrozenset({'nan', 'milk', 'frozen vegetables', 'spaghetti', 'chocolate'})\nSUPPORT:\t0.0034662045060658577", "RULE:\tfrozenset({'shrimp', 'nan', 'mineral water', 'frozen vegetables', 'chocolate'})\nSUPPORT:\t0.003199573390214638", "RULE:\tfrozenset({'nan', 'mineral water', 'olive oil', 'spaghetti', 'chocolate'})\nSUPPORT:\t0.0038661511798426876", "RULE:\tfrozenset({'shrimp', 'nan', 'mineral water', 'spaghetti', 'chocolate'})\nSUPPORT:\t0.0034662045060658577", "RULE:\tfrozenset({'nan', 'mineral water', 'eggs', 'milk', 'frozen vegetables'})\nSUPPORT:\t0.0037328356219170776", "RULE:\tfrozenset({'nan', 'frozen smoothie', 'mineral water', 'milk', 'spaghetti'})\nSUPPORT:\t0.003199573390214638", "RULE:\tfrozenset({'ground beef', 'nan', 'mineral water', 'milk', 'frozen vegetables'})\nSUPPORT:\t0.0037328356219170776", "RULE:\tfrozenset({'ground beef', 'nan', 'milk', 'frozen vegetables', 'spaghetti'})\nSUPPORT:\t0.0030662578322890282", "RULE:\tfrozenset({'ground beef', 'nan', 'mineral water', 'spaghetti', 'frozen vegetables'})\nSUPPORT:\t0.004399413411545127", "RULE:\tfrozenset({'nan', 'mineral water', 'olive oil', 'milk', 'frozen vegetables'})\nSUPPORT:\t0.003332888948140248", "RULE:\tfrozenset({'soup', 'nan', 'mineral water', 'milk', 'frozen vegetables'})\nSUPPORT:\t0.0030662578322890282", "RULE:\tfrozenset({'nan', 'mineral water', 'milk', 'frozen vegetables', 'spaghetti'})\nSUPPORT:\t0.004532728969470737", "RULE:\tfrozenset({'shrimp', 'nan', 'mineral water', 'frozen vegetables', 'spaghetti'})\nSUPPORT:\t0.003332888948140248", "RULE:\tfrozenset({'nan', 'mineral water', 'tomatoes', 'spaghetti', 'frozen vegetables'})\nSUPPORT:\t0.0030662578322890282", "RULE:\tfrozenset({'ground beef', 'nan', 'mineral water', 'olive oil', 'spaghetti'})\nSUPPORT:\t0.0030662578322890282", "RULE:\tfrozenset({'ground beef', 'nan', 'mineral water', 'tomatoes', 'spaghetti'})\nSUPPORT:\t0.003332888948140248", "RULE:\tfrozenset({'nan', 'mineral water', 'olive oil', 'milk', 'spaghetti'})\nSUPPORT:\t0.003332888948140248", "RULE:\tfrozenset({'nan', 'mineral water', 'tomatoes', 'milk', 'spaghetti'})\nSUPPORT:\t0.003332888948140248"]
```

Pablo David Minango Negrete

pablodavid218@gmail.com

Lisber Arana Hinostroza

lisberarana@gmail.com