**Write a program in python to generate association rule from the dataset provided by the user. Do use the mlxtend library.**

**Solution:**

###Generating Association Rules from Frequent Itemsets.

###The generate\_rules takes dataframes of frequent itemsets as produced by the ###apriori, fpgrowth, or fpmax functions in mlxtend.association. To demonstrate ###the usage of the generate\_rules method, we first create a pandas DataFrame of ###frequent itemsets as generated by the fpgrowth function:

#To install mlxtend, just execute:

python setup.py install

#

import pandas as pd

from mlxtend.preprocessing import TransactionEncoder

from mlxtend.frequent\_patterns import apriori, fpmax, fpgrowth

dataset = [['Milk', 'Onion', 'Nutmeg', 'Kidney Beans', 'Eggs', 'Yogurt'],

['Dill', 'Onion', 'Nutmeg', 'Kidney Beans', 'Eggs', 'Yogurt'],

['Milk', 'Apple', 'Kidney Beans', 'Eggs'],

['Milk', 'Unicorn', 'Corn', 'Kidney Beans', 'Yogurt'],

['Corn', 'Onion', 'Onion', 'Kidney Beans', 'Ice cream', 'Eggs']]

te = TransactionEncoder()

te\_ary = te.fit(dataset).transform(dataset)

df = pd.DataFrame(te\_ary, columns=te.columns\_)

frequent\_itemsets = fpgrowth(df, min\_support=0.6, use\_colnames=True)

### alternatively:

#frequent\_itemsets = apriori(df, min\_support=0.6, use\_colnames=True)

#frequent\_itemsets = fpmax(df, min\_support=0.6, use\_colnames=True)

frequent\_itemsets

'''The generate\_rules() function allows you to (1) specify your metric of interest and (2) the according threshold.

Currently implemented measures are confidence and lift.

Let's say you are interested in rules derived from the frequent itemsets only if the level of confidence

is above the 70 percent threshold (min\_threshold=0.7):'''

from mlxtend.frequent\_patterns import association\_rules

association\_rules(frequent\_itemsets, metric="confidence", min\_threshold=0.7)