* **Association Rule Mining:-**

**Code:-**

# Install the mlxtend library

# You can install it using: pip install mlxtend

from mlxtend.preprocessing import TransactionEncoder

from mlxtend.frequent\_patterns import apriori, association\_rules

import pandas as pd

import matplotlib.pyplot as plt  # Import matplotlib for plotting

# Example dataset

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']]

# Convert the dataset to a transaction matrix

te = TransactionEncoder()

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

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

# Apply the Apriori algorithm to find frequent itemsets

frequent\_itemsets = apriori(df, min\_support=0.5, use\_colnames=True)

# Generate association rules

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

# Display the rules

print("Frequent Itemsets:")

print(frequent\_itemsets)

print("\nAssociation Rules:")

print(rules)

# Plotting the frequent itemsets

plt.barh(range(len(frequent\_itemsets)), frequent\_itemsets['support'], align='center')

plt.yticks(range(len(frequent\_itemsets)), frequent\_itemsets['itemsets'].apply(lambda x: ', '.join(x)))

plt.xlabel('Support')

plt.title('Frequent Itemsets')

plt.show()

**Output:-**







