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**ROLL NO:24**

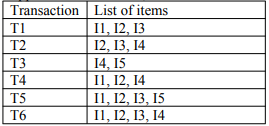
**BATCH : B2**

**COURSE: ML PRACTICAL**

**Assginment No. 10**

**Problem Statement :**

**Implement A-priori algorithm to find frequently occurring items from given data and generate strong association rules using support and confidence thresholds for the given dataset. Support threshold=50%, Confidence= 60%**



**Code :**

***import pandas as pd***

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

***# Sample dataset in the format of transactions***

***data = {'Transaction': ['T1','T2','T3','T4','T5','T6'],***

***'Items': [['I1', 'I2', 'I3'],***

***['I2', 'I3', 'I4'],***

***['I4','I5'],***

***['I1','I2','I4'],***

***['I1','I2','I3','I5'],***

***['I1','I2','I3','I4']]}***

***df = pd.DataFrame(data)***

***# One hot encoding (each item is represented as a binary value in the transaction)***

***encoded\_data = df['Items'].str.join('|').str.get\_dummies()***

***# Convert the one-hot encoded DataFrame to boolean type to avoid the warning***

***encoded\_data = encoded\_data.astype(bool)***

***# Apply Apriori algorithm with minimum support of 50%***

***frequent\_itemsets = apriori(encoded\_data, min\_support=0.5, use\_colnames=True)***

***# Display frequent itemsets***

***print("Frequent Itemsets:")***

***print(frequent\_itemsets)***

***# Generate association rules with minimum confidence of 70%***

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

***# Display the association rules***

***print("\nAssociation Rules:")***

***print(rules)***

**Output :**

