# MARKET BASKET ANALYSIS

Market Basket Analysis (MBA) is a data mining technique that seeks to find relationships between items that are frequently purchased together. It can be used to understand customer behavior and to make recommendations for product placement and promotions.

To perform Market Basket Analysis in Python, you can use the Apriori algorithm. The Apriori algorithm is a greedy algorithm that finds all frequent itemsets in a dataset. A frequent itemset is a set of items that appear together in a transaction with a frequency greater than a specified threshold.
Here are the steps involved in performing Market Basket Analysis in

Python using the Apriori algorithm:

- Import the necessary libraries.
- Load the dataset.
- Clean the data.
- Find the frequent itemsets using the Apriori algorithm.
- Find the association rules.
- Analyze the association rules.

The following is an example of how to perform Market Basket Analysis in Python using the Apriori algorithm:

```
import pandas as pd
```

```
from mlxtend.frequent_patterns import
apriori

# Load the dataset.
df = pd.read_csv('transactions.csv')

# Clean the data.
df = df.dropna()

# Find the frequent itemsets using the
Apriori algorithm.
frequent_itemsets = apriori(df,
min_support=0.07)

# Find the association rules.
association_rules =
apriori.rules(frequent_itemsets,
metric="lift", min_threshold=1)

# Analyze the association rules.
```

```
print(association_rules)
```

The output of the above code is a table of association rules. Each association rule contains the following columns:

- antecedents:: The items that are frequently purchased together.
- consequents:: The items that are purchased together with the antecedents.
- support:: The frequency of the association rule.
- confidence:: The probability that the consequents are purchased when the antecedents are purchased.

- lift:: A measure of the strength of the association rule.