

Market basket insights

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Market basket analysis is a [data mining](#) technique used by retailers to increase sales by better understanding customer purchasing patterns. It involves analyzing large data sets, such as purchase history, to reveal product groupings, as well as products that are likely to be purchased together

Examples of market basket insights

- Amazon's website uses a well-known example of market basket analysis. On a product page, Amazon presents users with related products, under the headings of "Frequently bought together" and "Customers who bought this item also bought."
- Market basket analysis also applies to bricks-and-mortar stores. If analysis showed that magazine purchases often include the purchase of a bookmark, which could be considered an unexpected combination as the consumer did not purchase a book, then the bookstore might place a selection of bookmarks near the magazine rack.

Source code

Input

```
from mlxtend.frequent_patterns
import apriori
from mlxtend.frequent_patterns import association_rules
import pandas as pd

# Sample transaction data
data = {'TransactionID': [1, 1, 2, 2, 3, 4, 5],
        'Item': ['A', 'B', 'A', 'C', 'B', 'D', 'A']}
df = pd.DataFrame(data)

# Convert data to one-hot encoded format
one_hot = pd.get_dummies(df['Item'])

# Create a dataframe with one-hot encoded items
Df = df.drop('Item', axis=1)
Df = pd.concat([df, one_hot], axis=1)

# Perform Apriori algorithm to find frequent item sets
Frequent_itemsets = apriori(Df, min_support=0.5, use_colnames=True)

# Generate association rules
rules = association_rules(Frequent_itemsets, metric="lift",
min_threshold=1.0)

Print("Frequent Itemsets:")
Print(frequent_itemsets)
Print("\nAssociation Rules:")
print(rules)
```

Output

Traceback (most recent call last):

file "script.py", line 18, in <module>

```
frequent_itemsets = apriori(df, min_support=0.5,  
use_colnames=True)
```

File "/usr/local/lib/python3.7/dist-packages/mlxtend/frequent_patterns/apriori.py", line 238, in apriori
fpc.valid_input_check(df) File "/usr/local/lib/python3.7/dist-packages/mlxtend/frequent_patterns/fpcommon.py", line 116, in valid_input_check

```
raise ValueError(s)ValueError: The allowed values for a DataFrame are  
True, False, 0, 1. Found value 2
```

Thank you