CODE

```python
# Install mlxtend library if not already installed

# pip install mlxtend

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, 2, 3, 3, 4, 4, 4],

        'Item': ['Milk', 'Bread', 'Milk', 'Diapers', 'Beer',

                 'Bread', 'Diapers', 'Milk', 'Bread', 'Diapers']}

df = pd.DataFrame(data)

# Convert transaction data to one-hot encoded format

basket = (df

          .groupby(['TransactionID', 'Item'])['Item']

          .count().unstack().reset_index().fillna(0)

          .set_index('TransactionID'))

# Convert item counts to binary values

basket_encoded = basket.applymap(lambda x: 1 if x > 0 else 0)

# Generate frequent itemsets using Apriori algorithm

frequent_itemsets = apriori(basket_encoded, min_support=0.5, use_colnames=True)

# Generate association rules

rules = association_rules(frequent_itemsets, metric="lift", min_threshold=1)


print("Frequent Itemsets:")

print(frequent_itemsets)

print("\nAssociation Rules:")

print(rules)
```

OUT PUT

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Frequent Itemsets:
    support              itemsets
0    0.75                (Bread)
1    0.75               (Diapers)
2    0.75                 (Milk)
3    0.50      (Diapers, Bread)
4    0.50          (Bread, Milk)
5    0.50       (Diapers, Milk)
```