[5]:
```
import csv
from mlxtend.preprocessing import TransactionEncoder
from mlxtend.frequent_patterns import apriori, association_rules
```

[6]:
```
data = []
with open('Market_Basket_Optimisation.csv') as file:
    reader = csv.reader(file, delimiter=',')
    for row in reader:
        data +=[row]
```

[7]:
```
data[1:10] #list of list
```

[7]:
```
[['burgers', 'meatballs', 'eggs'],
 ['chutney'],
 ['turkey', 'avocado'],
 ['mineral water', 'milk', 'energy bar', 'whole wheat rice', 'green tea'],
 ['low fat yogurt'],
 ['whole wheat pasta', 'french fries'],
 ['soup', 'light cream', 'shallot'],
 ['frozen vegetables', 'spaghetti', 'green tea'],
 ['french fries']]
```

[8]:
```
len(data)
```

[8]:
```
7501
```

[9]:
```
te = TransactionEncoder()
x = te.fit_transform(data)
```

[10]:
```
x
```

[10]:
```
array([[False,  True,  True, ...,  True, False, False],
       [False, False, False, ..., False, False, False],
       [False, False, False, ..., False, False, False],
       ...,
       [False, False, False, ..., False, False, False],
       [False, False, False, ..., False, False, False],
       [False, False, False, ..., False,  True, False]])
```

[11]:
```
te.columns_
```

[11]:
```
[' asparagus',
 'almonds',
 'antioxydant juice',
 'asparagus',
 'avocado',
 'babies food',
 'bacon',
 'barbecue sauce',
 'black tea',
 'blueberries',
 'body spray',
```

[12]:
```
df = pd.DataFrame(x, columns=te.columns_)
df
```

[12]:

	asparagus	almonds	antioxydant juice	asparagus	avocado	babies food	bacon	barbecue sauce	black tea	blueberries	...	turkey	vegetables mix	water spray	white wine	whole weat flour	whole wheat pasta	whole wheat rice
0	False	True	True	False	True	False	False	False	False	False	...	False	True	False	False	True	False	False
1	False	False	False	False	False	False	False	False	False	False	...	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False	False	...	False	False	False	False	False	False	False
3	False	False	False	False	True	False	False	False	False	False	...	True	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False	...	False	False	False	False	False	False	True
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7496	False	False	False	False	False	False	False	False	False	False	...	False	False	False	False	False	False	False
7497	False	False	False	False	False	False	False	False	False	False	...	False	False	False	False	False	False	False
7498	False	False	False	False	False	False	False	False	False	False	...	False	False	False	False	False	False	False
7499	False	False	False	False	False	False	False	False	False	False	...	False	False	False	False	False	False	False
7500	False	False	False	False	False	False	False	False	False	False	...	False	False	False	False	False	False	False

[13]:
```
freq_itemset = apriori(df, min_support=0.01, use_colnames=True)
freq_itemset
```

[13]:

	support	itemsets
0	0.020397	(almonds)
1	0.033329	(avocado)
2	0.010799	(barbecue sauce)
3	0.014265	(black tea)
4	0.011465	(body spray)
...	...	...
252	0.011065	(milk, mineral water, ground beef)
253	0.017064	(ground beef, spaghetti, mineral water)
254	0.015731	(milk, spaghetti, mineral water)
255	0.010265	(spaghetti, mineral water, olive oil)
256	0.011465	(pancakes, spaghetti, mineral water)

257 rows × 2 columns

[16]:
```
rules[rules['antecedents'] == {'cake'}]['consequents']
```

[16]:
```
1              (burgers)
25           (chocolate)
26                (eggs)
28        (french fries)
30    (frozen vegetables)
32           (green tea)
34                (milk)
36       (mineral water)
38            (pancakes)
40           (spaghetti)
Name: consequents, dtype: object
```

[ ]: