```
In [24]:
```

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
from apyori import apriori
```

In [25]:

pd.__version__

Out[25]:

'1.0.1'

In [26]:

data =pd.read_excel('E:/fahmi/uas_mining/no3/dataset_soal No. 3.xls')

In [27]:

data

Out[27]:

	Item1	Item2	Item3	Item4	ltem5	Item6	Item7	Item8	Item9	Item10
0	burgers	meatballs	eggs	low fat yogurt	NaN	mineral water	salmon	low fat yogurt	NaN	mineral water
1	chutney	low fat yogurt	NaN	whole wheat pasta	french fries	mineral water	salmon	whole wheat pasta	french fries	mineral water
2	turkey	whole wheat pasta	french fries	soup	light cream	shallot	NaN	soup	light cream	shallot
3	mineral water	soup	light cream	frozen vegetables	spaghetti	green tea	NaN	frozen vegetables	spaghetti	green tea
4	low fat yogurt	frozen vegetables	spaghetti	french fries	eggs	chocolate	frozen smoothie	french fries	eggs	chocolate
2049	burgers	eggs	french fries	fresh tuna	spaghetti	olive oil	clothes accessories	turkey	eggs	french fries
2050	burgers	eggs	frozen smoothie	french wine	eggs	french fries	energy drink	french fries	NaN	chocolate
2051	whole wheat pasta	cake	melons	champagne	pancakes	light mayo	soup	chocolate	milk	herb & pepper
2052	ground beef	tomato sauce	spaghetti	red wine	honey	hot dogs	turkey	herb & pepper	whole wheat pasta	mineral water
2053	burgers	eggs	frozen smoothie	milk	bacon	eggs	french fries	mineral water	avocado	cookies

2054 rows × 10 columns

In [28]:

data.tail()

Out[28]:

	Item1	Item2	Item3	Item4	ltem5	Item6	Item7	Item8	Item9	Item10
2049	burgers	eggs	french fries	fresh tuna	spaghetti	olive oil	clothes accessories	turkey	eggs	french fries
2050	burgers	eggs	frozen smoothie	french wine	eggs	french fries	energy drink	french fries	NaN	chocolate
2051	whole wheat pasta	cake	melons	champagne	pancakes	light mayo	soup	chocolate	milk	herb & pepper
2052	ground beef	tomato sauce	spaghetti	red wine	honey	hot dogs	turkey	herb & pepper	whole wheat pasta	mineral water
2053	burgers	eggs	frozen smoothie	milk	bacon	eggs	french fries	mineral water	avocado	cookies

```
In [29]:
data.head()
Out[29]:
        Item1
                        Item2
                                  Item3
                                                 Item4
                                                            ltem5
                                                                       Item6
                                                                                     Item7
                                                                                                     Item8
                                                                                                              Item9
                                                                                                                         Item10
                                                                      mineral
                                                                                                                         mineral
                     meatballs
                                                             NaN
       burgers
                                   eggs
                                            low fat yogurt
                                                                                    salmon
                                                                                               low fat yogurt
                                                                                                               NaN
                                                                        water
                                                                                                                           water
                                            whole wheat
                                                           french
                                                                      mineral
                                                                                               whole wheat
                                                                                                              french
                                                                                                                         mineral
       chutney
                  low fat yogurt
                                   NaN
                                                                                    salmon
                                                  pasta
                                                                                                     pasta
                                                             fries
                                                                        water
                                                                                                                fries
                                                                                                                          water
                  whole wheat
                                  french
                                                             light
                                                                                                                light
                                                                       shallot
                                                                                                                          shallot
2
        turkev
                                                                                      NaN
                                                  soup
                                                                                                     soup
                                                                                                              cream
                        pasta
                                   fries
                                                           cream
                                   light
       mineral
                                                 frozen
                                                                                                    frozen
                                                                    green tea
                                                                                                                       green tea
3
                         soup
                                                         spaghetti
                                                                                      NaN
                                                                                                            spaghetti
                                  cream
                                              vegetables
                                                                                                 vegetables
         water
        low fat
                        frozen
                                                                                     frozen
                               spaghetti
                                             french fries
                                                                    chocolate
                                                                                                french fries
                                                                                                                       chocolate
                                                             eggs
                                                                                                               eggs
                    vegetables
                                                                                  smoothie
        yogurt
In [30]:
data.shape
Out[30]:
(2054, 10)
In [31]:
records = []
for i in range (0, 2054):
      records.append([str(data.values[i,j])for j in range (0,10)])
In [32]:
association_rules = apriori(records, min_support = 0.2, min_confidence = 0.2, min_lift = 0.2, min_length = 2)
association_results = list(association_rules)
In [33]:
print(len(association_results))
61
In [34]:
print(association_results[0])
```

RelationRecord(items=frozenset({'avocado'}), support=0.314508276533593, ordered_statistics=[OrderedS tatistic(items_base=frozenset(), items_add=frozenset({'avocado'}), confidence=0.314508276533593, lif t=1.0)])

In [35]:

```
print(items)
```

['clothes accessories', 'eggs', 'turkey', 'french fries']

0.31450827

1.0

In [36]:

avocado 0.31450827

```
results =[]
for item in association_results:
   pair = item[0]
    items = [x for x in pair]
   value0 = str(items[0])
   value2 = str(item[1])[:10]
   value3 = str(item[2][0][2])[:10]
   value4 = str(item[2][0][3])[:10]
   rows = (value0, value2, value3, value4)
   results.append(rows)
   label = ['title1'],['support'],['confidence'],['lift']
   store_suggestion = pd.DataFrame.from_records(results,columns=label)
   print(store_suggestion)
  (title1,)
            (support,) (confidence,) (lift,)
```

```
(title1,) (support,) (confidence,) (lift,)
    avocado 0.31450827
                           0.31450827
                           0.24294060
    burgers 0.24294060
                                          1.0
1
             (support,) (confidence,) (lift,)
   (title1.)
0
     avocado 0.31450827
                          0.31450827
                                          1.0
     burgers 0.24294060
                            0.24294060
2
   chocolate 0.47565725
                            0.47565725
                                           1.0
             (title1,) (support,) (confidence,) (lift,)
0
               avocado 0.31450827
                                    0.31450827
               burgers 0.24294060
                                      0.24294060
1
             chocolate 0.47565725
                                      0.47565725
2
                                                     1.0
   clothes accessories
                        0.33982473
                                      0.33982473
3
                       (support,) (confidence,) (lift,)
             (title1,)
0
               avocado 0.31450827
                                      0.31450827
                                                     1.0
               burgers 0.24294060
1
                                      0.24294060
                                                     1.0
             chocolate 0.47565725
                                      0.47565725
2
                                                     1.0
   clothes accessories 0.33982473
                                      0.33982473
3
                                                     1.0
               cookies 0.35881207
                                      0.35881207
                                                     1.0
             (title1,)
                        (support,) (confidence,) (lift,)
0
               avocado 0.31450827
                                      0.31450827
                                                     1.0
                                                     1.0
1
               burgers 0.24294060
                                      0.24294060
2
             chocolate 0.47565725
                                      0.47565725
                                                     1.0
   clothes accessories 0.33982473
                                      0.33982473
3
                                                     1.0
4
               cookies 0.35881207
                                      0.35881207
                                                     1.0
                  eggs 0.40993184
5
                                      0.40993184
                                                     1.0
             (title1,)
                        (support,) (confidence,) (lift,)
0
                       0.31450827
                                      0.31450827
               avocado
                                                     1.0
1
               burgers
                        0.24294060
                                      0.24294060
                                                     1.0
             chocolate 0.47565725
                                      0.47565725
2
                                                     1.0
3
   clothes accessories 0.33982473
                                      0.33982473
                                                     1.0
4
               cookies 0.35881207
                                      0.35881207
                                                     1.0
                                                     1.0
5
                       0.40993184
                                      0.40993184
                  eggs
6
          energy drink 0.32132424
                                      0.32132424
                                                     1.0
             (title1,)
                        (support,) (confidence,) (lift,)
0
               avocado 0.31450827
                                      0.31450827
                                                     1.0
1
               burgers 0.24294060
                                      0.24294060
                                                     1.0
             chocolate 0.47565725
                                      0.47565725
                                                     1.0
3
   clothes accessories 0.33982473
                                      0.33982473
                                                     1.0
               cookies
                        0.35881207
                                      0.35881207
                                                     1.0
5
                  eggs 0.40993184
                                      0.40993184
                                                     1.0
6
          energy drink 0.32132424
                                      0.32132424
                                                     1.0
7
          french fries 0.65481986
                                      0.65481986
                                                     1.0
             (title1,)
                        (support,) (confidence,) (lift,)
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               avocado 0.31450827
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                                                     1.0
1
               burgers 0.24294060
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                                                     1.0
2
             chocolate 0.47565725
                                      0.47565725
                                                     1.0
   clothes accessories
                        0.33982473
                                      0.33982473
                                                     1.0
               cookies 0.35881207
                                      0.35881207
                                                     1.0
5
                  eggs 0.40993184
                                      0.40993184
                                      0.32132424
6
          energy drink 0.32132424
                                                     1.0
7
          french fries
                        0.65481986
                                      0.65481986
                                                     1.0
         herb & pepper
8
                                      0.30428432
                       0.30428432
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                       (support,) (confidence,) (lift,)
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               avocado 0.31450827
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1
               burgers 0.24294060
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                                                     1.0
             chocolate 0.47565725
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                                      0.33982473
   clothes accessories 0.33982473
                                      0.35881207
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               cookies 0.35881207
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5
                        0.40993184
                                      0.40993184
                  eggs
                                                     1.0
6
          energy drink 0.32132424
                                      0.32132424
                                                     1.0
7
          french fries 0.65481986
                                      0.65481986
         herb & pepper 0.30428432
8
                                      0.30428432
                                                     1.0
                  milk 0.40798442
                                      0.40798442
9
              (title1,) (support,) (confidence,) (lift,)
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                avocado 0.31450827
                                       0.31450827
1
                burgers 0.24294060
                                       0.24294060
                                                      1.0
2
              chocolate 0.47565725
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                                                      1.0
    clothes accessories 0.33982473
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3
4
                cookies
                         0.35881207
                                       0.35881207
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           energy drink
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           french fries 0.65481986
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8
          herb & pepper 0.30428432
                                       0.30428432
                                                      1.0
9
                  milk 0.40798442
                                       0.40798442
                                                      1.0
10
          mineral water
                         0.45277507
                                       0.45277507
                                                      1.0
                        (support,) (confidence,) (lift,)
              (title1,)
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                avocado 0.31450827
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1
                burgers 0.24294060
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2
              chocolate 0.47565725
                                       0.47565725
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    clothes accessories 0.33982473
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4
                cookies 0.35881207
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5
                   eggs 0.40993184
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           energy drink 0.32132424
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7
           french fries 0.65481986
                                       0.65481986
                                                      1.0
          herb & pepper 0.30428432
                                       0.30428432
9
                  milk 0.40798442
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10
          mineral water
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11
                   nan 0.62852969
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                        (support,) (confidence,) (lift,)
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                avocado 0.31450827
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1
                burgers 0.24294060
                                       0.24294060
              chocolate 0.47565725
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                                                      1.0
3
    clothes accessories 0.33982473
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4
                cookies 0.35881207
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                                                      1.0
5
                                       0.40993184
                  eggs
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6
           energy drink
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           french fries
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          herb & pepper
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9
                  milk 0.40798442
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          mineral water 0.45277507
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11
                    nan 0.62852969
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12
                 shrimp 0.21518987
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              (title1,)
                         (support,) (confidence,) (lift,)
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                avocado 0.31450827
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                burgers 0.24294060
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              chocolate 0.47565725
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3
    clothes accessories 0.33982473
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                cookies 0.35881207
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5
                   eggs 0.40993184
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6
           energy drink 0.32132424
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7
           french fries
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          herb & pepper 0.30428432
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9
                  milk 0.40798442
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10
          mineral water 0.45277507
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11
                    nan 0.62852969
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                                                      1.0
12
                 shrimp 0.21518987
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13
                 turkey 0.52726387
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              (title1,)
                         (support,) (confidence,) (lift,)
                avocado 0.31450827
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                                       0.31450827
                                                      1.0
1
                burgers 0.24294060
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2
              chocolate 0.47565725
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3
    clothes accessories 0.33982473
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4
                cookies 0.35881207
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                                                      1.0
                  eggs 0.40993184
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6
           energy drink 0.32132424
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7
           french fries
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8
          herb & pepper
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                                       0.30428432
                                                      1.0
                  milk 0.40798442
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10
          mineral water 0.45277507
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                   nan 0.62852969
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12
                 shrimp 0.21518987
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13
                 turkey 0.52726387
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                                                      1.0
      whole wheat pasta 0.26533592
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                                       0.26533592
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              (title1,)
                         (support,) (confidence,) (lift,)
                avocado 0.31450827
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1
                burgers 0.24294060
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              chocolate 0.47565725
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    clothes accessories
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4
                cookies 0.35881207
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5
                   eggs 0.40993184
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           energy drink 0.32132424
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7
           french fries
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          herb & pepper
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                  milk 0.40798442
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          mineral water 0.45277507
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                    nan
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                 shrimp 0.21518987
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                                                      1.0
                 turkey 0.52726387
13
                                       0.52726387
14
      whole wheat pasta 0.26533592
                                       0.26533592
                                                      1.0
15
                avocado 0.20301850
                                       0.20301850
                                                      1.0
                        (support,) (confidence,) (lift,)
              (title1.)
0
                avocado 0.31450827
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                burgers 0.24294060
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2
              chocolate
                         0.47565725
                                       0.47565725
3
    clothes accessories 0.33982473
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                                                      1.0
4
                cookies 0.35881207
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5
                  eggs 0.40993184
                                       0.40993184
                                                      1.0
6
           energy drink
                         0.32132424
                                       0.32132424
                                                      1.0
7
           french fries 0.65481986
                                       0.65481986
                                                      1.0
8
          herb & pepper 0.30428432
                                       0.30428432
                                                      1.0
9
                  milk 0.40798442
                                       0.40798442
                                                      1.0
10
          mineral water 0.45277507
                                       0.45277507
                                                      1.0
                   nan 0.62852969
                                                      1.0
11
                                       0.62852969
12
                 shrimp 0.21518987
                                       0.21518987
                                                      1.0
13
                 turkey 0.52726387
                                       0.52726387
                                                      1.0
14
      whole wheat pasta 0.26533592
                                       0.26533592
                                                      1.0
```

```
15
                avocado 0.20301850
                                       0.20301850
                                                      1.0
16
                avocado 0.30379746
                                       0.30379746
              (title1,) (support,) (confidence,) (lift,)
0
                avocado 0.31450827
                                       0.31450827
                                                      1.0
                burgers 0.24294060
1
                                       0.24294060
                                                      1.0
2
              chocolate 0.47565725
                                       0.47565725
3
    clothes accessories 0.33982473
                                       0.33982473
                                                      1.0
4
                         0.35881207
                                       0.35881207
                cookies
5
                   eggs 0.40993184
                                       0.40993184
                                                      1.0
6
           energy drink 0.32132424
                                       0.32132424
7
           french fries
                         0.65481986
                                       0.65481986
                                                      1.0
8
          herb & pepper
                                       0.30428432
                         0.30428432
9
                         0.40798442
                                       0.40798442
                  milk
                                                      1.0
10
          mineral water
                         0.45277507
                                       0.45277507
                                                      1.0
11
                   nan 0.62852969
                                       0.62852969
                                                      1.0
12
                 shrimp
                                       0.21518987
                         0.21518987
13
                 turkev 0.52726387
                                       0.52726387
                                                      1.0
14
      whole wheat pasta 0.26533592
                                       0.26533592
15
                avocado 0.20301850
                                       0.20301850
                                                       1.0
16
                avocado 0.30379746
                                       0.30379746
                                                       1.0
17
                avocado 0.29211295
                                       0.29211295
                                                       1.0
              (title1,)
                         (support,) (confidence,) (lift,)
0
                                       0.31450827
                avocado 0.31450827
                                                      1.0
1
                burgers 0.24294060
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2
              chocolate 0.47565725
                                       0.47565725
                                                      1.0
3
    clothes accessories 0.33982473
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4
                                       0.35881207
                cookies 0.35881207
                                                      1.0
5
                  eggs
                         0.40993184
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                                                       1.0
6
           energy drink 0.32132424
                                       0.32132424
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7
           french fries 0.65481986
                                       0.65481986
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8
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          herb & pepper
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9
                   milk 0.40798442
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10
          mineral water 0.45277507
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11
                    nan 0.62852969
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                                                      1.0
12
                 shrimp 0.21518987
                                       0.21518987
                                                       1.0
13
                 turkey 0.52726387
                                       0.52726387
                                                       1.0
14
      whole wheat pasta 0.26533592
                                       0.26533592
                                                      1.0
15
                avocado 0.20301850
                                       0.20301850
                                                      1.0
16
                avocado 0.30379746
                                       0.30379746
                                                       1.0
17
                avocado 0.29211295
                                       0.29211295
                                                       1.0
18
              chocolate 0.25219084
                                       0.25219084
                                                       1.0
              (title1,)
                        (support,) (confidence,) (lift,)
0
                avocado 0.31450827
                                       0.31450827
                                                      1.0
1
                burgers 0.24294060
                                       0.24294060
                                                       1.0
              chocolate 0.47565725
                                       0.47565725
                                                      1.0
3
    clothes accessories 0.33982473
                                       0.33982473
                                                      1.0
4
                cookies 0.35881207
                                       0.35881207
                                                       1.0
5
                   eggs 0.40993184
                                       0.40993184
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6
           energy drink 0.32132424
                                       0.32132424
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                                        0.27117818
                                                       1.0
21
              chocolate 0.37633885
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                                                       1.0
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    clothes accessories
                         0.25121713
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    clothes accessories 0.32375851
23
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                                                       1.0
24
    clothes accessories 0.21080817
                                        0.21080817
                                                       1.0
25
                                        0.32814021
    clothes accessories 0.32814021
                                                       1.0
26
                cookies
                         0.32132424
                                        0.32132424
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27
                cookies
                         0.20058422
                                        0.20058422
                                                       1.0
28
                cookies
                         0.24294060
                                        0.24294060
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29
                         0.36173320
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                   eggs
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              (title1,)
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0
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                         0.24294060
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2
              chocolate 0.47565725
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cookies 0.35881207
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                                                      1.0
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6
           energy drink 0.32132424
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           french fries
                         0.65481986
                                       0.65481986
8
          herb & pepper
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                                       0.30428432
                                                      1.0
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                                       0.40798442
          mineral water
10
                        0.45277507
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                                                      1.0
11
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12
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                                       0.21518987
                                                      1.0
                         0.52726387
                                       0.52726387
13
                 turkey
14
      whole wheat pasta 0.26533592
                                       0.26533592
                                                      1.0
15
                                       0.20301850
                avocado
                         0.20301850
                avocado 0.30379746
                                       0.30379746
16
                                                      1.0
17
                avocado 0.29211295
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                                                      1.0
18
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19
              chocolate 0.30428432
                                       0.30428432
              chocolate 0.27117818
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    clothes accessories 0.32814021
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                cookies 0.32132424
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                cookies
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29
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              (title1,)
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                                                      1.0
2
3
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                                                      1.0
6
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                                                       1.0
7
           french fries 0.65481986
                                       0.65481986
                                                      1.0
8
          herb & pepper
                         0.30428432
                                       0.30428432
                                                      1.0
9
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                                                      1.0
10
          mineral water
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                                                      1.0
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                                                       1.0
12
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                         0.21518987
                                       0.21518987
                                                       1.0
13
                 turkey 0.52726387
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                                                      1.0
14
      whole wheat pasta
                         0.26533592
                                       0.26533592
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15
                avocado
                         0.20301850
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16
                avocado 0.30379746
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17
                avocado 0.29211295
                                       0.29211295
                                                      1.0
18
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19
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                cookies 0.20058422
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                   eggs
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5
                         0.40993184
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6
           energy drink 0.32132424
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7
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                                       0.65481986
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          herb & pepper
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10
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11
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13
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                avocado 0.30379746
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                avocado 0.29211295
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              chocolate 0.25219084
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19
              chocolate 0.30428432
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21
              chocolate 0.37633885
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                                                       1.0
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    clothes accessories
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28
                cookies
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                avocado 0.30379746
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                avocado 0.29211295
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    clothes accessories 0.21080817
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    clothes accessories 0.32814021
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                cookies
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                cookies
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31
                   eggs
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7
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          herb & pepper
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11
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                 shrimp
12
                         0.21518987
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                         0.52726387
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13
                 turkev
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      whole wheat pasta 0.26533592
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                avocado
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                                        0.20301850
16
                avocado 0.30379746
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                avocado 0.29211295
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21
              chocolate 0.37633885
                                        0.37633885
                         0.25121713
                                        0.25121713
22
    clothes accessories
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    clothes accessories
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24
    clothes accessories
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    clothes accessories 0.32814021
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26
                cookies
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27
                cookies
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28
                         0.24294060
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                cookies
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31
                   eggs
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              (title1,) (support,) (confidence,) (lift,)
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5
                         0.40993184
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6
                                       0.32132424
                                                      1.0
7
           french fries
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                         0.65481986
8
          herb & pepper 0.30428432
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                   milk 0.40798442
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10
          mineral water
                         0.45277507
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                         0.62852969
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11
                    nan
                 shrimp
                                       0.21518987
12
                         0.21518987
                                                      1.0
13
                         0.52726387
                                       0.52726387
                 turkev
                                                       1.0
14
      whole wheat pasta 0.26533592
                                       0.26533592
                                                      1.0
15
                         0.20301850
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                avocado
                avocado 0.30379746
                                       0.30379746
16
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17
                avocado 0.29211295
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18
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19
              chocolate 0.30428432
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              chocolate 0.27117818
20
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21
              chocolate 0.37633885
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22
    clothes accessories 0.25121713
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    clothes accessories 0.32375851
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    clothes accessories 0.21080817
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25
    clothes accessories 0.32814021
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26
                cookies 0.32132424
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27
                cookies 0.20058422
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28
                cookies 0.24294060
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                  eggs
6
           energy drink
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7
           french fries
                         0.65481986
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8
          herb & pepper 0.30428432
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          mineral water 0.45277507
10
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11
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13
                 turkey
                         0.52726387
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14
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15
                avocado 0.20301850
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16
                avocado 0.30379746
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17
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                         0.37633885
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24
    clothes accessories 0.21080817
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25
                                       0.32814021
    clothes accessories
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26
                cookies 0.32132424
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27
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                cookies 0.24294060
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30
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                                       0.40993184
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                                                       1.0
6
           energy drink 0.32132424
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           french fries 0.65481986
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8
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                                                       1.0
                   milk 0.40798442
                                        0.40798442
10
          mineral water 0.45277507
                                       0.45277507
                                                       1.0
                                        0.62852969
11
                    nan
                         0.62852969
12
                 shrimp
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37
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38
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              (title1,) (support,) (confidence,) (lift,)
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28
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                                                       1.0
32
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44
              chocolate 0.24294060
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45
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46
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                         0.28334956
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47
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                         (support,) (confidence,) (lift,)
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1
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                         0.24294060
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cookies 0.35881207
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7
           french fries
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8
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14
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                avocado
                         0.20301850
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16
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17
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18
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                                        0.25219084
                                                       1.0
19
                         0.30428432
                                        0.30428432
              chocolate
              chocolate 0.27117818
                                       0.27117818
20
                                                       1.0
21
              chocolate 0.37633885
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                cookies 0.32132424
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                cookies
                         0.20058422
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                cookies
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                         0.36173320
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                   eggs
31
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41
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42
                         0.25024342
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45
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46
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                         0.28334956
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2
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4
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7
           french fries
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8
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9
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                 turkey
13
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14
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16
                avocado 0.30379746
                                        0.30379746
17
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                                        0.29211295
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              chocolate 0.25219084
                                        0.25219084
                                                       1.0
19
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20
              chocolate 0.27117818
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                         0.37633885
                                        0.37633885
21
              chocolate
                                                       1.0
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                         0.25121713
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23
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    clothes accessories 0.32814021
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                         0.32132424
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27
                cookies 0.20058422
                                        0.20058422
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28
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29
                         0.36173320
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                   eggs
                                                       1.0
30
                   eggs
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31
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41
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                avocado 0.28919182
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44
              chocolate 0.24294060
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46
                         0.28334956
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47
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2
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                                                       1.0
5
                         0.40993184
                                       0.40993184
                   eggs
6
           energy drink
                         0.32132424
                                       0.32132424
                                                       1.0
7
           french fries 0.65481986
                                       0.65481986
                                                       1.0
8
          herb & pepper
                         0.30428432
                                       0.30428432
                                                       1.0
9
                   milk
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                                       0.21518987
12
                                                       1.0
13
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16
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18
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21
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26
                cookies 0.32132424
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27
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                                       0.20058422
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28
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                         0.24294060
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                   eggs
31
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42
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                avocado 0.28919182
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44
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              chocolate
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3
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4
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5
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6
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7
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                                       0.65481986
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8
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9
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10
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17
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              chocolate 0.30428432
19
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21
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                                       0.37633885
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23
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24
    clothes accessories
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25
    clothes accessories 0.32814021
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26
                cookies
                         0.32132424
                                       0.32132424
27
                cookies 0.20058422
                                       0.20058422
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28
                cookies 0.24294060
                                       0.24294060
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30
                   eggs
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                                       0.47565725
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3
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4
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5
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                                       0.40993184
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6
           energy drink
                         0.32132424
                                       0.32132424
                                                       1.0
7
           french fries
                         0.65481986
                                       0.65481986
                                                       1.0
8
          herb & pepper
                         0.30428432
                                       0.30428432
9
                   milk 0.40798442
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                                                       1.0
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7
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    clothes accessories 0.20204479
                                       0.20204479
                                                      1.0
52
                cookies 0.22151898
                                       0.22151898
                                                      1.0
53
                   eggs 0.21859785
                                       0.21859785
                                                       1.0
54
                   eggs 0.26533592
                                       0.26533592
                                                       1.0
55
           energy drink 0.29113924
                                       0.29113924
                                                       1.0
                                                       1.0
56
                   nan 0.20837390
                                       0.20837390
          mineral water 0.22492697
57
                                       0.22492697
                                                       1.0
```

58	nan	0.22249269	0.22249269	1.0
30	(title1,)	(support,)	(confidence,)	(lift,)
0	avocado	0.31450827	0.31450827	1.0
1	burgers	0.24294060	0.24294060	1.0
2	chocolate	0.47565725	0.47565725	1.0
3	clothes accessories	0.33982473	0.33982473	1.0
4	cookies			1.0
		0.35881207	0.35881207	
5	eggs	0.40993184	0.40993184	1.0
6	energy drink	0.32132424	0.32132424	1.0
7	french fries	0.65481986	0.65481986	1.0
8	herb & pepper	0.30428432	0.30428432	1.0
9	milk	0.40798442	0.40798442	1.0
10	mineral water	0.45277507	0.45277507	1.0
11	nan	0.62852969	0.62852969	1.0
12	shrimp	0.21518987	0.21518987	1.0
13	turkey	0.52726387	0.52726387	1.0
14	whole wheat pasta	0.26533592	0.26533592	1.0
15	avocado	0.20301850	0.20301850	1.0
16	avocado	0.30379746	0.30379746	1.0
17	avocado	0.29211295	0.29211295	1.0
18	chocolate	0.25211233	0.25211233	1.0
19	chocolate	0.30428432	0.30428432	1.0
20	chocolate	0.30428432	0.27117818	1.0
21	chocolate	0.37633885	0.37633885	1.0
22	clothes accessories	0.25121713	0.25121713	1.0
23	clothes accessories	0.32375851	0.32375851	1.0
24	clothes accessories	0.21080817	0.21080817	1.0
25	clothes accessories	0.32814021	0.32814021	1.0
26	cookies	0.32132424	0.32132424	1.0
27	cookies	0.20058422	0.20058422	1.0
28	cookies	0.24294060	0.24294060	1.0
29	eggs	0.36173320	0.36173320	1.0
30	eggs	0.20593962	0.20593962	1.0
31	eggs	0.24099318	0.24099318	1.0
32	eggs	0.28481012	0.28481012	1.0
33	energy drink	0.30331061	0.30331061	1.0
34	energy drink	0.30331061	0.30331061	1.0
35	french fries	0.28042843	0.28042843	1.0
36	mineral water	0.27020447	0.27020447	1.0
37	nan	0.48198636	0.48198636	1.0
38	turkey	0.37098344	0.37098344	1.0
39	whole wheat pasta	0.24780915	0.24780915	1.0
40	nan	0.27020447	0.27020447	1.0
41	mineral water	0.34761441	0.34761441	1.0
42	nan	0.25024342	0.25024342	1.0
43	avocado	0.28919182	0.28919182	1.0
44	chocolate	0.24294060	0.24294060	1.0
45	chocolate	0.24537487	0.24537487	1.0
46	chocolate	0.28334956	0.28334956	1.0
47	clothes accessories	0.24294060	0.24294060	1.0
48	clothes accessories	0.24234000	0.24975657	1.0
			0.20642648	
49	clothes accessories	0.20642648		1.0
50	clothes accessories	0.31548198	0.31548198	1.0
51	clothes accessories	0.20204479	0.20204479	1.0
52	cookies	0.22151898	0.22151898	1.0
53	eggs	0.21859785	0.21859785	1.0
54	eggs	0.26533592	0.26533592	1.0
55	energy drink	0.29113924	0.29113924	1.0
56	nan	0.20837390	0.20837390	1.0
57	mineral water	0.22492697	0.22492697	1.0
58	nan	0.22249269	0.22249269	1.0
59	chocolate	0.23661148	0.23661148	1.0
	(title1,)	(support,)	(confidence,)	(lift,)
0	avocado	0.31450827	0.31450827	1.0
1	burgers	0.24294060	0.24294060	1.0
2	chocolate	0.47565725	0.47565725	1.0
3	clothes accessories	0.33982473	0.33982473	1.0
4	cookies	0.35881207	0.35881207	1.0
	•••		•••	
56	nan	0.20837390	0.20837390	1.0
57	mineral water	0.22492697	0.22492697	1.0
58	nan	0.22249269	0.22249269	1.0
59	chocolate	0.23661148	0.23661148	1.0
60	clothes accessories	0.24196689	0.24196689	1.0

In [37]:

store_suggestion.describe()

Out[37]:

	(title1,)	(support,)	(confidence,)	(lift,)
count	61	61	61	61
unique	15	53	53	1
top	clothes accessories	0.24294060	0.24294060	1.0
freq	11	4	4	61

In [38]:

store_suggestion.to_excel('E:/fahmi/uas_mining/jawaban_uas_no3b.xls')

In []: