

Customer Satisfaction using

Market Basket Analysis

ALGORITHM

1. Start
2. Read Transactional Data
3. Store unique items
4. Input minimum support and minimum confidence
5. Calculate support for itemsets
6. Remove itemsets whose support < minimum support
7. Calculate confidence of remaining itemsets.
8. Remove itemsets whose confidence < minimum confidence
9. Add remaining itemsets to association rule.
10. Make combination of itemsets.
11. Repeat from step 5 to step 11 until all possible combinations of items are formed.

Pseudo Code

INPUT: S , support where $S = \text{dataset}$, $\text{min_support} = \text{real}$

OUTPUT: Set of Frequent Itemsets

Require: $S \neq \emptyset$, $0 \leq \text{min_support} \leq 1$

```
1: procedure GETFREQUENTITEMSETS
2:   freqSets[ ]  $\leftarrow$  null
3:   for all Itemsets  $i$  in  $S$  do
4:     if support  $\geq$  min_support then
5:       freqSets[ ]  $\leftarrow i$ 
```

INPUT: S where $S = \text{dataset}$

OUTPUT: Set of Candidate Itemsets

Require: $S \neq \emptyset$

```
1: procedure GENERATECANDIDATES
2:    $i \leftarrow 2$ 
3:   num  $\leftarrow$  NumAttributes( $S$ )
4:   candidates[ ]  $\leftarrow$  null
5:   while  $i < \text{num}$  do
6:     candidates[ ]  $\leftarrow$  all sets of size  $i$ , support
7:      $i \leftarrow i + 1$ 
8:   end while
9: end procedure
```

Progress

[illegible]

Raw Data

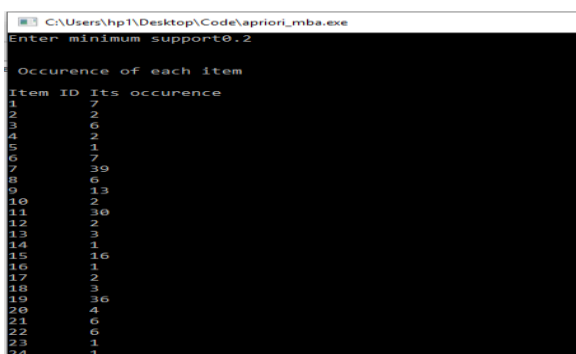
```
"fruit", "bread", "margarine", "soups",
"fruit", "yogurt", "coffee",
"milk",
"fruit", "yogurt", "cheese ", "meat",
"vegetables", "bread",
"milk", "butter", "yogurt", "rice", "cleaner"
"bread",
"vegetables", "milk", "bread", "beer"
"milk", "cereals",
"fruit", "vegetables", "bread", "water", "chocolate"
"vegetables", "milk", "butter", "curd", "water",
"water", "bread", "soda",
"chicken", "fruit",
"chocolate",
"vegetables",
"milk", "pastry",
"milk",
"fruit", "cheese", "bread", "detergent", "newspapers"
"fruit", "vegetables", "dessert", "bread", "flour",
"water", "beer",
"yogurt",
"soup", "bread", "soda", "chocolate",
"vegetables",
"bread", "soda", "fruit", "beer", "newspapers"
"yogurt", "beverages", "water", "soup",
"meat", "vegetables", "bread", "spices", "water",
"vegetables", "fruit", "milk", "beverages", "sugar",
"soda", "vegetables", "milk", "cream",
"pastry", "soda",
"vegetables", "soda", "milk", "dessert",
"milk", "newspapers",
"soup", "bread", "soda", "beer", "bags",
"fruit", "vegetables", "milk", "eggs", "bread",
"bread", "yogurt",
"milk", "yogurt", "cheese", "soda", "bread",
"pastry", "water",
```

Cleaned Data

28,19,27,45,
28,15,39,,
7
28,15,33,6,
11,19,,
7,15,16,1
19,,
11,,19,44
28,11,19,9,36
28,7,25,3,9
28,13,43,
17,28,,
36,,
13,,
7,38,,
28,33,19,35,20
28,11,8,19,12
9,44,,
15,
45,19,43,36,
19,43,28,44,20
15,4,9,45,
28,19,9,
11,28,7,4,41
32,43,11,7,22
28,19,43,36,
11,43,7,8,
28,7,26,,
28,19,44,10
28,11,7,37,19
19,15,,
7,
38,9,,43,19
38,9,...

Transformed Data

Code Screenshots



Support of each item		
Item	ID	Its support
1	0	0.0700
2	0	0.0200
3	0	0.0600
4	0	0.0200
5	0	0.0100
6	0	0.0700
7	0	0.3900
8	0	0.0500
9	0	0.1300
10	0	0.0200
11	0	0.3000
12	0	0.0200
13	0	0.0300
14	0	0.0100
15	0	0.1600
16	0	0.0100
17	0	0.0200
18	0	0.0300
19	0	0.3600
20	0	0.9400

```
Support of items having more than min_support
```

Item ID	Its support
7	0.3900
19	0.3600
28	0.3100
43	0.2000