

TO GENERATE A FREQUENCY ITEM GIVEN min_support=40%

step1: To calculate the mean support count

given; total number of transactions, $n=7$

min_support= 40% Or 0.4

then,

min_support_count= $n \times \text{min_support_thredhold}$

$= 7 \times 0.4$

$= 2.8$

Mean support count is approximated to 3.

step2:To generate frequent 1-item sets, L1

-Counting the occurances of each single item in the transactions

item	count
Beer	4
Bread	6
Milk	5
Chips	2
Mustard	2
Diaper	5
Eggs	1
coke	3

- In frequent 1-item sets, count less than 3 are discarded

L1= {{Bread},{Milk},{Beer},{Diaper},{Coke}}.

step3: To generate frequent 2-items sets, L2

- Will be generated from the L1 and their support counts are calculated
- The sets with less than 3 counts will be discarded

item	count
{Bread,Milk}	5
{Bread, Beer}	3
{Bread, Diaper}	5
{Bread,Coke}	2
{Milk, Beer}	3
{Milk, Diaper}	5
{Milk, Coke}	2
{Beer, Diaper}	4
{Beer,Coke}	1
{Diaper,Coke}	2

Therefore;

L2= {{Bread,Milk}, {Bread, Beer}, {Bread, Diaper}, {Milk, Beer}, {Milk, Diaper}, {Beer, Diaper}}

step4: To generate the frequent 3-item sets, L3

- This will be generated from L2 where their support counts

item	count
{Beer, Diaper,Bread}	3
{Beer, Milk,Diaper}	3
{Beer, Bread,Milk}	3
{Bread,Milk,Diaper}	4

Therefore;

L3= {{Beer, Diaper,Bread}, {Beer, Milk,Diaper}, {Beer, Bread,Milk}, {Bread,Milk,Diaper}}.

Step5: To Count the occurances of frequent 4-item sets, L4

- This will be generated from L3 with their count

item	count
{Beer, Diaper,Bread,Milk}	3

Therefore;

L4= {Beer, Diaper,Bread,Milk}

- The process stops since no item sets 5 or more items that appear in atleast 3 transactions.

GENERALLY;

The frequent item sets with minimum support 40% are:

- 1-item sets: {{Bread},{Milk},{Beer},{Diaper},{Coke}}
- 2-item sets: {{Bread,Milk}, {Bread, Beer}, {Bread, Diaper}, {Milk, Beer}, {Milk, Diaper}, {Beer, Diaper}}
- 3-item sets: {{Beer, Diaper,Bread}, {Beer, Milk,Diaper}, {Beer, Bread,Milk}, {Bread,Milk,Diaper}}
- 4-item sets: {Beer, Diaper,Bread,Milk}