

## SOLUTION

### GIVEN

From the given item set below

TID	Items
1	Bread, Milk, Chips, Mustard
2	Beer, Diaper, Bread, Eggs
3	Beer, Coke, Diaper, Milk
4	Beer, Bread, Diaper, Milk, Chips
5	Coke, Bread, Diaper, Milk
6	Beer, Bread, Diaper, Milk, Mustard
7	Coke, Bread, Diaper, Milk

Total transactions = 7

Minimum support = 40% = 0.4

Min support count =  $0.4 \times 7 = 2.8 \approx 3$

Therefore the item set must appear in atleast 3 transactions to be frequent

1. Frequent item sets 1(L1) are as follows:-

Item	Support count
Bread	6
Milk	6
Diaper	6
Beer	4
Coke	3
Chips	2
Mustard	2
Eggs	1

Frequent item sets 1(L1)  $\geq 3$

Therefore the Frequent item set 1(L1) are {Bread}, {Milk}, {Diaper}, {Beer}, {Coke}

2. Frequent Item set 2(L2) are as follows:-

Item set	Support count
Bread, Milk	5
Bread, Diaper	5
Milk, Diaper	5
Beer, Diaper	4
Beer, Bread	3
Beer, Milk	3
Coke, Milk	3
Coke, Bread	3
Coke, Diaper	3

Frequent Item sett 2( $L_2$ )  $\geq 3$

Therefore the Frequent Item sett 2 ( $L_2$ ) is all of the above which are {Bread, Milk}, {Bread, Diaper}, {Milk, Diaper}, {Beer, Diaper}, {Beer, Bread}, {Beer, Milk}, {Coke, Milk}, {Coke, Bread}, {Coke, Diaper}

3. Frequent item sets 3( $L_3$ ) are as follows:-

Item set	Support count
Bread, Milk, Diaper	5
Beer, Bread, Diaper	3
Beer, Milk, Diaper	3
Coke, Bread, Milk	3
Coke, Bread, Diaper	3
Coke, Milk, Diaper	3

Frequent Item sett 3( $L_3$ )  $\geq 3$

Therefore the Frequent Item sett 3 ( $L_3$ ) is all of the above which are {Bread, Milk, Diaper}, {Beer, Bread, Diaper}, {Beer, Milk, Diaper}, {Coke, Bread, Milk}, {Coke, Bread, Diaper}, {Coke, Milk, Diaper}

4. Frequent item set 4( $L_4$ ) are as follows:-

Item set	Support count
Bread, Milk, Diaper, Beer	3
Bread, Milk, Diaper, Coke	3

Frequent Item set  $4(L_4) \geq 3$

Therefore the Frequent Item set 4 ( $L_4$ ) is all of the above which are { Bread, Milk, Diaper, Beer }, { Bread, Milk, Diaper, Coke }