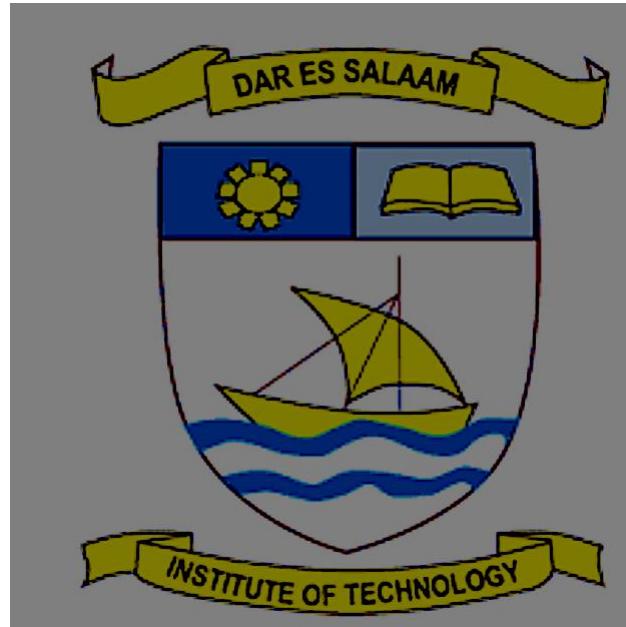


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CLASS: BENG 22-COE

DEPARTMENT: COMPUTER STUDIES

DATAMINING COU08104

CLASS QUIZ

Exercise

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

Generate frequent item sets given min_support=40%

SOLUTION

Generate frequent itemsets from the given transaction dataset using minimum support of 40%. Total number of transactions = 7. Therefore, minimum support count = $40\% \times 7 = 2.8 \approx 3$.

Step 1: Candidate 1-Itemsets and Support Count

- ⑩ Bread = 6
- ⑩ Milk = 6
- ⑩ Beer = 4
- ⑩ Diaper = 6
- ⑩ Coke = 3
- ⑩ Chips = 2 (Removed)
- ⑩ Mustard = 2 (Removed)
- ⑩ Eggs = 1 (Removed)

Frequent 1-itemsets (Support ≥ 3): {Bread}, {Milk}, {Beer}, {Diaper}, {Coke}.

Step 2: Candidate 2-Itemsets and Support Count

- ⑩ {Bread, Milk} = 5
- ⑩ {Bread, Beer} = 3
- ⑩ {Bread, Diaper} = 5
- ⑩ {Bread, Coke} = 2 (Removed)
- ⑩ {Milk, Beer} = 3
- ⑩ {Milk, Diaper} = 5
- ⑩ {Milk, Coke} = 3
- ⑩ {Beer, Diaper} = 4
- ⑩ {Diaper, Coke} = 3

Frequent 2-itemsets (Support ≥ 3): {Bread, Milk}, {Bread, Beer}, {Bread, Diaper}, {Milk, Beer}, {Milk, Diaper}, {Milk, Coke}, {Beer, Diaper}, {Diaper, Coke}.

Step 3: Candidate 3-Itemsets and Support Count

- {Bread, Milk, Diaper} = 4
- {Beer, Milk, Diaper} = 3
- {Bread, Beer, Diaper} = 3
- {Milk, Diaper, Coke} = 3

Frequent 3-itemsets (Support ≥ 3): {Bread, Milk, Diaper}, {Beer, Milk, Diaper}, {Bread, Beer, Diaper}, {Milk, Diaper, Coke}.

Step 4: Candidate 4-Itemsets

{Bread, Milk, Beer, Diaper} = 2 (Removed because support < 3).

No frequent 4-itemsets were generated.

Final Frequent Itemsets

Frequent 1-itemsets: {Bread}, {Milk}, {Beer}, {Diaper}, {Coke}.

Frequent 2-itemsets: {Bread, Milk}, {Bread, Beer}, {Bread, Diaper}, {Milk, Beer}, {Milk, Diaper}, {Milk, Coke}, {Beer, Diaper}, {Diaper, Coke}.

Frequent 3-itemsets: {Bread, Milk, Diaper}, {Beer, Milk, Diaper}, {Bread, Beer, Diaper}, {Milk, Diaper, Coke}.

Method Used

Apriori Method was applied by generating candidate itemsets level by level, counting support values, and pruning itemsets whose support is below the minimum threshold.