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Lab 7

(1)

Transaction ID	Item Purchased
1	Cheese, Juice, Milk
2	Bread, Juice, Milk
3	Bread, Cheese, Egg, Juice
4	Bread, Milk, Yogurt
5	Bread, Cheese, Juice

Support = 50% = 0.5 * 5 = 2.5

C_1

Item	Frequency
{Cheese}	3
{Juice}	4
{Milk}	3
{Bread}	4
{Yogurt}	1
{Egg}	1

→

L_1

Item set	Frequency
{Cheese}	3
{Juice}	4
{Milk}	3
{Bread}	4

C_2

Item Set	Support Count
{Cheese, Juice}	3
{Cheese, Milk}	1
{Cheese, Bread}	2
{Juice, Milk}	2
{Juice, Bread}	3
{Mlk, Bread}	2

→

L_2

Item Set	Supp. Count
{Cheese, Juice}	3
{Juice, Bread}	3

C_3	Freq
{Cheese, Juice, Bread}	1

→ $C_3 \rightarrow \{\phi\}$

Soln: L_2 (2 item sets):

Item set	Supp. Count	Support:	Acc. to Python Module Support:
{Cheese, Juice}	3	3/5 = 0.6	0.6
{Juice, Bread}	3	3/5 = 0.6	0.6

Association Rules

Confidence = 0.6 * 5 = 3

Considering {Cheese, Juice} item set:

The subsets are:

s → (l-s)

{cheese} → {Juice} conf: $\frac{0.6}{0.6} = 1$

{Juice} → {Cheese} conf: $\frac{0.6}{0.8} = 0.75$

{cheese, Juice} → {ϕ}∝

{Juice} → {Bread}: conf: $\frac{0.6}{0.8} = 0.75$

{Bread} → {Juice}: conf: $\frac{0.6}{0.8} = 0.75$

Lift(A → B) = $\frac{\text{conf}(A \rightarrow B)}{\text{supp}(B)}$

① J → C = $\frac{0.75}{0.6} = 1.25$

② C → J = $\frac{1}{0.8} = 1.25$

③ J → B = $\frac{0.75}{0.8} = 0.9375$

④ B → J = $\frac{0.75}{0.8} = 0.9315$

Confidence:	Handwritten	Python Module
C → J	1	1
J → C	0.75	0.75
J → B	0.75	0.75
B → J	0.75	0.75

(2)

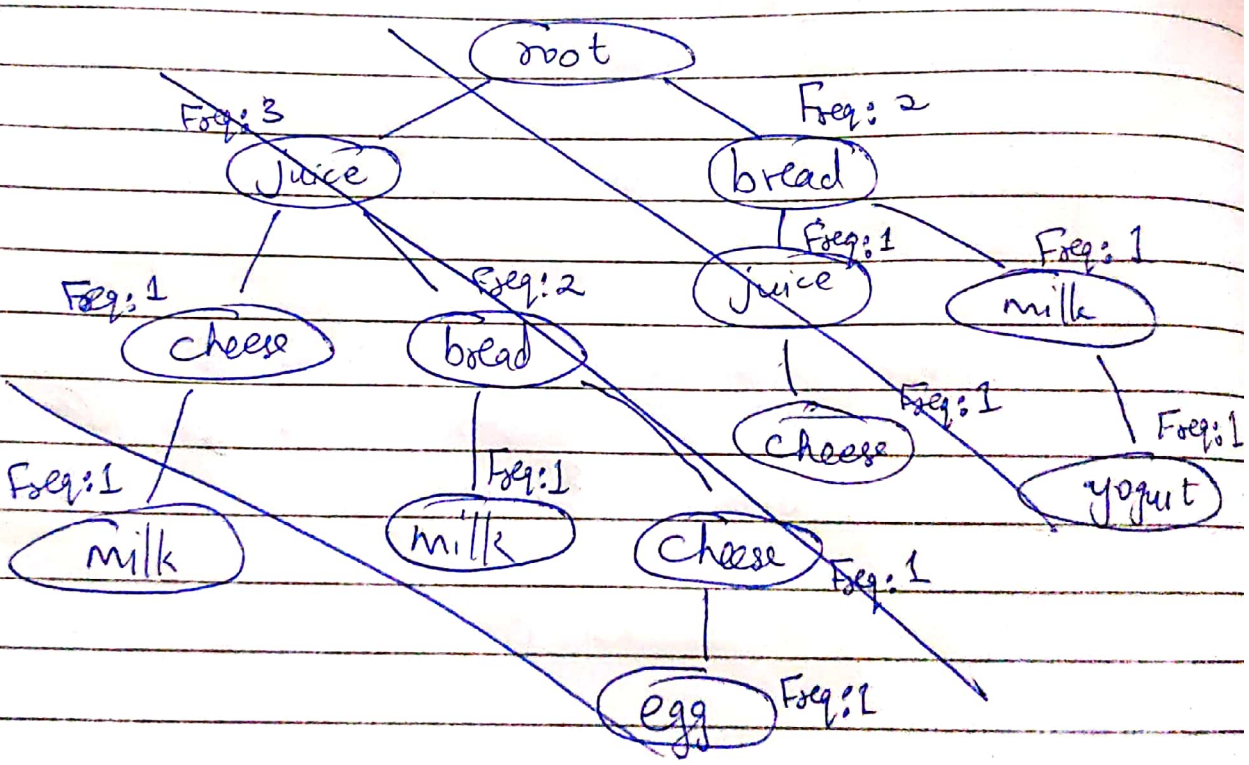
Descending Order of support Count:

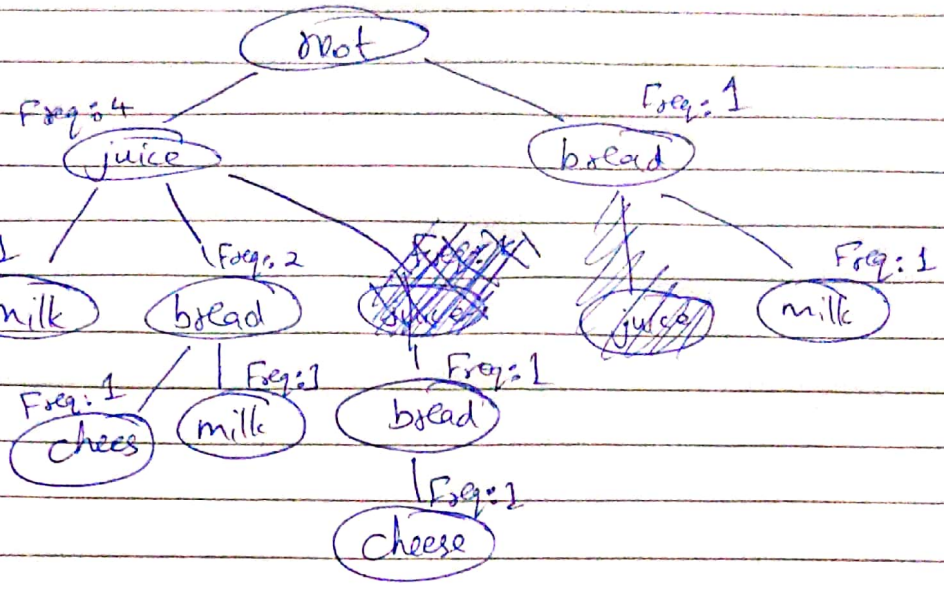
Item set	Frequency
{Juice}	4
{Bread}	4
{Cheese}	3
{Milk}	3
{Yogurt}	1
{Egg}	1

Item Set	Frequency
{Juice}	4
{Bread}	4
{Cheese}	3
{Milk}	3

} Below minimum support

root





I	Conditional Problem Base
Milk	{Cheese, Juice: 3} {Juice, Bread: 1}, {Bread: 1}
Juice	{Bread: 3}
Cheese	{Juice: 1} {Juice, Bread: 2}
Bread	ϕ

I	Condition FP Tree	Generated	Confidence:
Milk			
Juice	(Bread: 3) | Juice	(Bread, Juice)	$\frac{3}{5} = 0.6$
Bread			
Cheese	(Juice: 3) | Cheese	(Juice, Cheese)	$\frac{3}{5} = 0.6$

Comparing Python and Handwritten:-

Lift:	Handwritten	Python
J → C	1.25	1.25
C → J	1.25	1.25
J → B	0.9375	0.9375
B → J	0.9375	0.9375