

I1,I2,I5
I2,I4
I2,I3
I1,I2,I4
I1,I3
I2,I3
I1,I3
I1,I2,I3,I5
I1,I2,I3

Min_support =2 & Min_confidence=60%

Apriori Alogorithm:

C1:candidate 1-Itemset

I1-6
I2-7
I3-6
I4-2
I5-2

L1 Itemset: 1-Frequent itemset Rule \geq Min_support(2)

I1-6
I2-7
I3-6
I4-2
I5-2

C2-candidate 2-Itemset(Will be generated from L1)

{I1,I2}-4
{I1,I3}-4
{I1,I4}-1 x
{I1,I5}-2
{I2,I3}-4
{I2,I4}-2
{I2,I5}-2
{I3,I4}-0 x
{I3,I5}-1 x
{I4,I5}-0 x

L2 Itemset: 2-Frequent itemset Rule $C2 \geq$ Min_support(2)

{I1,I2}-4
{I1,I3}-4
{I1,I5}-2
{I2,I3}-4
{I2,I4}-2
{I2,I5}-2

Apriori Property:

{I1,I2,I3} - {(I1,I2),(I1,I3),(I2,I3),(I1),(I2),(I3)}
{I1,I2,I5} - {(I1,I2),(I1,I5),(I2,I5),(I1),(I2),(I5)}
{I1,I3,I5} - {(I1,I3),(I1,I5),(I3,I5),(I1),(I3),(I5)} X

$\{I2, I3, I4\} \rightarrow \{(I2, I3), (I2, I4), (I3, I4), (I2), (I3), (I4)\}$ X

$\{I2, I3, I5\} \rightarrow \{(I2, I3), (I2, I5), (I3, I5), (I2), (I3), (I5)\}$ X

$\{I2, I4, I5\} \rightarrow \{(I2, I4), (I2, I5), (I4, I5), (I2), (I4), (I5)\}$ X

C3-candidate 3-Itemset (Will be generated from L2)

$\{I1, I2, I3\}$ -2

$\{I1, I2, I5\}$ -2

L3 Itemset: 3-Frequent itemset Rule $C3 \geq \text{Min_support}(2)$

$\{I1, I2, I3\}$ -2

$\{I1, I2, I5\}$ -2

Apriori Property:

$\{I1, I2, I3, I5\} \rightarrow \{(I1, I2, I3), (I1, I3, I5), (I1, I2, I5), (I2, I3, I5), (I1, I2), (I1, I3), (I1, I5), (I2, I3), (I2, I5), (I3, I5), (I1), (I2), (I3), (I5)\}$
X

CANT GENERATE C4

Association Rule/Strong Rule

$\text{confidence} = \text{supp}(x \cup y) / \text{supp}(x)$

Rule1: $\{I1, I2, I3\}$

$\{I1, I2, I3\} \rightarrow (I1, I2), (I1, I3), (I2, I3), (I1), (I2), (I3)\}$

$(I1 \wedge I2) \Rightarrow I3 = 2/4 = 50\%$

$I1 \wedge I3 \Rightarrow I2 = 2/4 = 50\%$

$I2 \wedge I3 \Rightarrow I1 = 2/4 = 50\%$

$I3 \Rightarrow I1 \wedge I2 = 2/6 = 33\%$

$I2 \Rightarrow I1 \wedge I3 = 2/7 = 28\%$

$I1 \Rightarrow I2 \wedge I3 = 2/6 = 33\%$

Rule2: $\{I1, I2, I5\}$

$I1 \Rightarrow I2, I5 = 2/6 = 33\%$

$I1, I2 \Rightarrow I5 = 2/4 = 50\%$

$I2, I5 \Rightarrow I1 = 2/2 = 100\%$

FP-Tree Algorithm:

$I1, I2, I5$

$I2, I4$

$I2, I3$

$I1, I2, I4$

$I1, I3$

$I2, I3$

$I1, I3$

$I1, I2, I3, I5$

$I1, I2, I3$

Min_support =2 & Min_confidence=60%

L1:Frequent 1-Itemset

I1-6

I2-7

I3-6

I4-2

I5-2

L-order List:

I2-7

I1-6

I3-6

I4-2

I5-2

Rearrange the transaction based on L-order

I2,I1,I5

I2,I4

I2,I3

I2,I1,I4

I1,I3

I2,I3

I1,I3

I2,I1,I3,I5

I2,I1,I3