

D. (set of transactions)

1	I1, I2, I5
2	I2, I4
3	I2, I3
4	I1, I2, I4
5	I1, I3
6	I2, I3
7	I1, I3
8	I1, I2, I3, I5
9	I1, I2, I3

MINIMUM support = 2

I. ① SCAN D FOR COUNT EACH CANDIDATE.

C1	Item set	Support count
	I1	6
	I2	7
	I3	6
	I4	2
	I5	2

② COMPARE CANDIDATE SUPPORT COUNT WITH MINIMUM support. count. \Rightarrow keep all. $\{I1, I2, I3, I4, I5\}$

L1

CANDIDATE IN C2.

③ Generate C2 candidates from L1 \rightarrow SCAN THE DATABASE FOR COUNT EACH

Item set	$\{I1, I2\}$	$\{I1, I3\}$	$\{I1, I4\}$	$\{I1, I5\}$	$\{I2, I3\}$	$\{I2, I4\}$	$\{I2, I5\}$
COUNT.	4	4	1	2	4	2	2
Itemset	$\{I3, I4\}$	$\{I3, I5\}$	$\{I4, I5\}$				
COUNT	0	1	0				

④ Compare candidate support count with min. sup. count. \rightarrow ~~return~~ \rightarrow return

\Rightarrow L2 $\{I1, I2, I3, I4, I5, I2, I3, I2, I4, I2, I5\}$

C3	L3	Item set
from L2		$\{I1, I2, I3\}$ $\{I1, I2, I5\}$
		COUNT. $\{2\}$ $\{2\}$

eliminate $\{I1, I2, I4\}$ $\{I1, I3, I5\}$ $\{I2, I3, I4\}$ $\{I2, I3, I5\}$ $\{I2, I4, I5\}$

① C4 from L3. $\{I1, I2, I3, I5\} \rightarrow$ ~~Suboptimal~~ \rightarrow Suboptimal

Therefore, use $\{I1, I2, I3\}$ $\{I1, I2, I5\}$ to generate rules.

④ $\{I1\} \rightarrow \{I2, I3\}$
 $\{I1, I2\} \rightarrow \{I3\}$
 \downarrow "Frequent Item set"

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Frequency Item Set

Rules	Confidence
$\{I_1, I_2\} \rightarrow \{I_5\}$	$C = 2/4 = 50\%$
$\{I_1, I_5\} \rightarrow \{I_2\}$	$C = 2/2 = 100\% \checkmark$
$\{I_2, I_5\} \rightarrow \{I_1\}$	$2/2 = 100\% \checkmark$
$\{I_1\} \rightarrow \{I_2, I_5\}$	$2/6 = 33.3\%$
$\{I_2\} \rightarrow \{I_1, I_5\}$	$2/7 = 29\%$
$\{I_5\} \rightarrow \{I_1, I_2\}$	$2/2 = 100\% \checkmark$

MIN. Confidence = 60% \Rightarrow \checkmark

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Hash tree

