

4.2.48 Apriori Example 3

Q: TID Items Bought

1	NEW
2	NOW
3	WE
4	ONE
5	OWN
6	GO

(a) min sup 30%
Apriori

(b) 2 association
rules have 60%
min confidence

Solution(a)

① minimum support count = $6 \times 0.3 = 1.8 \approx 2$

②

ITEMSET	count
N	4
E	3
W	4
O	4
G	1

$C_1 \rightarrow L_1$

③ 2-ITEMSET count

NE	2
NW	3
NO	3
EW	2
EO	1
WO	2

$C_2 \rightarrow L_2$

④ 3-ITEMSET count $C_3 \rightarrow L_3$

NEW	1	count < 2
NEO	1	prune due to EO
NWO	2	
EW O	1	prune due to EO

⑤ Hence the frequent itemset are
 N, E, W, D, NE, NW, NO, EW, WO, NWD

(b) A number of association rules have a min 66%

$$NW \rightarrow O \quad \text{conf} = \frac{\sigma(NWO)}{\sigma(NW)} = \frac{2}{3} = 66.7\% > 60\%$$

$$NO \rightarrow W \quad \text{conf} = \frac{\sigma(NWO)}{\sigma(NO)} = \frac{2}{3} = 66.7\% > 60\%$$

$$N \rightarrow W$$

$$N \rightarrow O$$

$$E \rightarrow N$$

$$E \rightarrow W$$

$$W \rightarrow N$$

$$O \rightarrow N$$