4.2.6.2 Association rules generation – Example 2.

TID	Items Bought
1	N, E, W
2	N, O, W
3	W, E
4	O, N, E
5	O, W, N
6	O, O

Q(a) minisup 30%. Apriori

(b) two. minconf 60%.

Solution ① minsup = $6 \times 0.3 = 1.8 \approx 2$

TID	Items Bought
1	N, E, W
2	N, O, W
3	W, E
4	O, N, E
5	O, W, N
6	G, O

item	σ
N	4
E	3
W	4
O	4
G	1

$C_1' = \{N \quad E \quad W \quad O \quad G\}$

$C_1 = \{N:4, E:3, W:4, O:4, \cancel{G:1}\}$

$L_1 = \{N:4, E:3, W:4, O:4\}$

$C_2' = \{NE, NW, NO, EW, EO, WO\}$

$C_2 = \{NE:2, NW:3, NO:3, EW:2, \cancel{EO:1}, WO:2\}$

$L_2 = \{NE:2, NW:3, NO:3, EW:2, WO:2\}$

$C_3' = \{NEW, \cancel{NEO}, NWO, \cancel{EWO}\}$

$C_3' = \{\cancel{NEW:1}, NWO:2\}$

$L_3 = \{NWO:2\}$

Hence, the frequent itemsets are $4+5+1=10$

$L_1 = \{N:4, E:3, W:4, O:4\}$

$L_2 = \{NE:2, NW:3, NO:3, EW:2, WO:2\}$

$L_3 = \{NWO:2\}$

(b)

$$\text{confidence}(N \to E) = \frac{\sigma(NE)}{\sigma(N)} = \frac{2}{4} = 50\% < 60\% \quad X$$

$$\text{confidence}(NW \to O) = \frac{\sigma(NWO)}{\sigma(NW)} = \frac{2}{3} = 66.7\% > 60\%$$

$$\text{confidence}(NO \to W) = \frac{\sigma(NOW)}{\sigma(NO)} = \frac{2}{3} = 66.7\% > 60\%$$