4.2.5.4   Apriori - Q2

Q (1) FP   min sup = 2

(2) Apriori

TID	Items
1	{A,B}
2	{B,C,D}
3	{A,C,D,E}
4	{A,D,E}
5	{A,B,C}
6	{A,B,C,D}
7	{A}
8	{A,B,C}
9	{A,B,D}
10	{B,C,E}

Solution
① Table

min sup = 2

1-itemset	σ
A	8
B	7
C	6
D	5
E	4

TID	Items
1	{A,B}
2	{B,C,D}
3	{A,C,D,E}
4	{A,D,E}
5	{A,B,C}
6	{A,B,C,D}
7	{A}
8	{A,B,C}
9	{A,B,D}
10	{B,C,E}

generate, prune, count, eliminate.

C_1 = 1-itemset : {A, B, C, D, E}

L_1 = {A:8, B:7, C:6, D:5, E:4}

C_2' = {AB, AC, AD, AE, BC, BD, BE, CD, CE, DE}

C_2 = {AB:5, AC:4, AD:4, AE:2, BC:5, BD:3, ~~BE:1~~
  CD:3, CE:2, DE:2}

L_2 = {AB:5, AC:4, AD:4, AE:2, BC:5, BD:3
  CD:3, CE:2, DE:2}

C_3' = {ABC, ABD, ~~ABE~~, ACD, ACE, ADE, BCD, ~~BCE~~, CDE}

C_3 = {ABC:3, ABD:2, ACD:2, ~~ACE:1~~, ADE:2, BCD:2, ~~CDE:1~~}

L_3 = {ABC:3, ABD:2, ACD:2, ADE:2, BCD:2}

C_4' = {ABCD, ~~ABDE~~, ~~ACDE~~}

C_4 = {~~ABCD:1~~}

L_4 = {}

② FP

$L1 = \{A:8, B:7, C:6, D:5, E:4\}$

$L2 = \{AB:5, AC:4, AD:4, AE:2, BC:5, BD:3$
$CD:3, CE:2, DE:2\}$

$L3 = \{ABC:3, ABD:2, ACD:2, ADE:2, BCD:2\}$

$5 + 9 + 5 = 19.$