DSBA/MBAD 6201 Assignment 5: Association Rule Mining

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Please use the Apriori Algorithm to find all frequent item sets and association rules with Minimum Support Count = 3 and Minimum Confidence 40%.

Table 1 T

TID	Item list	1	2	3	4	5	6	7
100	1 2 3	1	1	1	0	0	0	0
200	2 3 5	0	1	1	0	1	0	0
300	1 2 5 7	1	1	0	0	1	0	1
400	3 4 7	0	0	1	1	0	0	1
500	2 3 6	0	1	1	0	0	1	0
600	1 3 7	1	0	1	0	0	0	1
700	2 5 7	0	1	0	0	1	0	1
800	1 2 4 5 6	1	1	0	1	1	1	0
900	2 6	0	1	0	0	0	1	0
1000	1 2 5 7	1	1	0	0	1	0	1
1100	4 5 7	0	0	0	1	1	0	1
1200	3	0	0	1	0	0	0	0

Table 2 C_1

itemset	count
{1}	5
{2}	8
{3}	6
{4}	3
{5}	6
{6}	3
{7}	6

Table 3 F_1

itemset	count
{1}	5
{2}	8
{3}	6
{4}	3
{5}	6
{6}	3
{7}	6

Table 4 C_2

itemset	count
{1, 2}	4
{1, 3}	2
{1, 4}	1
{1, 5}	3
{1, 6}	1
{1, 7}	3
{2, 3}	3
{2, 4}	1
{2, 5}	5
{2, 6}	3
{2, 7}	3
{3, 4}	1
{3, 5}	1
{3, 6}	1
{3, 7}	2
{4, 5}	2
{4, 6}	1
{4, 7}	2
{5, 6}	1
{5, 7}	4
{6, 7}	0

Table 5 F_2

itemset	count
{1, 2}	4
{1, 5}	3
{1, 7}	3
{2, 3}	3
{2, 5}	5
{2, 6}	3
{2, 7}	3
{5, 7}	4

Table 6 C_3

itemset	count
{1, 2, 3}	1
{1, 2, 5}	3
{1, 2, 7}	2
{2, 5, 7}	3

Table 7 F_3

itemset	count
{1, 2, 5}	3
{2, 5, 7}	3

Table 8 C_4

itemset	count
{1, 2, 5, 7}	2

Table 9 F_4

itemset	count
none	

Table 10 Candidate Rules

rule	*X*∪*Y* .count	*X*.count	conf
1 → 2	4	5	0.80
1 → 5	3	5	0.60
1 → 7	3	5	0.60
2 → 3	3	8	0.38
2 → 5	5	8	0.63
2 → 6	3	8	0.38
2 → 7	3	8	0.38
5 →7	4	6	0.67
2 → 1	4	8	0.50
5 → 1	3	6	0.50
7 → 1	3	6	0.50
3 → 2	3	6	0.50
5 → 2	5	6	0.83
6 → 2	3	3	1.00
7 → 2	3	6	0.50
7 → 5	4	6	0.67
1 → {2, 5}	3	5	0.60
2 → {1, 5}	3	8	0.38
5 → {1, 2}	3	6	0.50
{2, 5} → 1	3	5	0.60
{1, 5} → 2	3	3	1.00
{1, 2} → 5	3	4	0.75
2 → {5, 7}	3	8	0.38
5 → {2, 7}	3	6	0.50
7 → {2, 5}	3	6	0.50
{5, 7} → 2	3	4	0.75
{2, 7} → 5	3	6	0.50
{2, 5} → 7	3	5	0.60

Table 11 Final Association Rules

rule	*X*∪*Y* .count	*X*.count	conf
1 → 2	4	5	0.80
1 → 5	3	5	0.60
1 → 7	3	5	0.60
2 → 5	5	8	0.63
5 →7	4	6	0.67
2 → 1	4	8	0.50
5 → 1	3	6	0.50
7 → 1	3	6	0.50
3 → 2	3	6	0.50
5 → 2	5	6	0.83
6 → 2	3	3	1.00
7 → 2	3	6	0.50
7 → 5	4	6	0.67
1 → {2, 5}	3	5	0.60
5 → {1, 2}	3	6	0.50
{2, 5} → 1	3	5	0.60
{1, 5} → 2	3	3	1.00
{1, 2} → 5	3	4	0.75
5 → {2, 7}	3	6	0.50
7 → {2, 5}	3	6	0.50
{5, 7} → 2	3	4	0.75
{2, 7} → 5	3	6	0.50
{2, 5} → 7	3	5	0.60