

DSBA/MBAD 6201 Assignment 5: Association Rule Mining**Keith G. Williams – 800690755****June 18, 2015**

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 C₁

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

Table 3 F₁

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

Table 4 C₂

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 F₂

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	XUY .count	X .count	conf
$1 \rightarrow 2$	4	5	0.80
$1 \rightarrow 5$	3	5	0.60
$1 \rightarrow 7$	3	5	0.60
$2 \rightarrow 3$	3	8	0.38
$2 \rightarrow 5$	5	8	0.63
$2 \rightarrow 6$	3	8	0.38
$2 \rightarrow 7$	3	8	0.38
$5 \rightarrow 7$	4	6	0.67
$2 \rightarrow 1$	4	8	0.50
$5 \rightarrow 1$	3	6	0.50
$7 \rightarrow 1$	3	6	0.50
$3 \rightarrow 2$	3	6	0.50
$5 \rightarrow 2$	5	6	0.83
$6 \rightarrow 2$	3	3	1.00
$7 \rightarrow 2$	3	6	0.50
$7 \rightarrow 5$	4	6	0.67
$1 \rightarrow \{2, 5\}$	3	5	0.60
$2 \rightarrow \{1, 5\}$	3	8	0.38
$5 \rightarrow \{1, 2\}$	3	6	0.50
$\{2, 5\} \rightarrow 1$	3	5	0.60
$\{1, 5\} \rightarrow 2$	3	3	1.00
$\{1, 2\} \rightarrow 5$	3	4	0.75
$2 \rightarrow \{5, 7\}$	3	8	0.38
$5 \rightarrow \{2, 7\}$	3	6	0.50
$7 \rightarrow \{2, 5\}$	3	6	0.50
$\{5, 7\} \rightarrow 2$	3	4	0.75
$\{2, 7\} \rightarrow 5$	3	3	1
$\{2, 5\} \rightarrow 7$	3	5	0.60

Table 11 Final Association Rules

rule	XUY .count	X .count	conf	lift
$1 \rightarrow 2$	4	5	0.80	1.20
$1 \rightarrow 5$	3	5	0.60	1.20
$1 \rightarrow 7$	3	5	0.60	1.20
$2 \rightarrow 5$	5	8	0.63	1.26
$5 \rightarrow 7$	4	6	0.67	1.34
$2 \rightarrow 1$	4	8	0.50	1.20
$5 \rightarrow 1$	3	6	0.50	1.20
$7 \rightarrow 1$	3	6	0.50	1.20
$3 \rightarrow 2$	3	6	0.50	0.75
$5 \rightarrow 2$	5	6	0.83	1.25
$6 \rightarrow 2$	3	3	1.00	1.50
$7 \rightarrow 2$	3	6	0.50	0.75
$7 \rightarrow 5$	4	6	0.67	1.34
$1 \rightarrow \{2, 5\}$	3	5	0.60	1.44
$5 \rightarrow \{1, 2\}$	3	6	0.50	1.50
$\{2, 5\} \rightarrow 1$	3	5	0.60	1.44
$\{1, 5\} \rightarrow 2$	3	3	1.00	1.50
$\{1, 2\} \rightarrow 5$	3	4	0.75	1.50
$5 \rightarrow \{2, 7\}$	3	6	0.50	1.00
$7 \rightarrow \{2, 5\}$	3	6	0.50	1.20
$\{5, 7\} \rightarrow 2$	3	4	0.75	1.13
$\{2, 7\} \rightarrow 5$	3	3	1.00	2.40
$\{2, 5\} \rightarrow 7$	3	5	0.60	1.20