Assignments

Due to : 6th (Wed.) February, 2019

Use A4 sheets and drop your sheets into the "Report Box" in Building No.8

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1. Let the alphabet Σ = {a, b}. Give the characteristic set for the automaton illustrated in Figure 1.

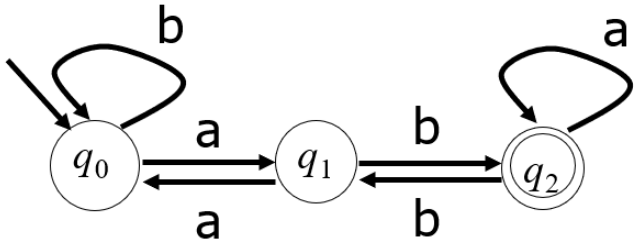

Figure 1.

2. Let the alphabet Σ = {a, b}.
Show that no finite state automaton which has at most two states can accept the following positive examples and reject the negative examples.
Positive examples: abb, abba, abbba, abbbb
Negative examples: aba, abbb

3. Let the set of all items be {a, b, c, d, e, f} and the minimum support σ=0.5. Give all <u>maximal</u> frequent patterns in the database illustrated as Table 1.

ID	Item Set
1	{a, e, f}
2	{b, d}
3	{b, c}
4	{a, b, d}
5	{a, c}
6	{a, b, c, e}
7	{a, b, c}
8	{d, e}

Table 1

Questions 4 and 5 are in the next page.

4. Enumerate all formal concepts in the context illustrated as Table 2. Also draw the Hasse diagram with all of the formal concepts that you enumerated.

	m_1	m_2	m_3	m_4	m_5	m_6	m_7	m_8	m_9
g_1	●	●					●		
g_2	●	●					●	●	
g_3	●	●	●				●	●	
g_4	●		●				●	●	●
g_5	●	●		●		●			
g_6	●	●	●	●		●			
g_7	●		●	●	●				
g_8	●		●	●		●			

Table 2

5. Choose one topic explained in this course and discuss its relationship to your own research subject.