Feedback — Week 1 Quiz

Help Center

Thank you. Your submission for this quiz was received.

You submitted this quiz on **Wed 11 Feb 2015 2:36 AM PST**. You got a score of **9.10** out of **10.00**.

Question 1

Which of the following tasks does not fall under the scope of data mining? Select all that apply.

Your Answer		Score	Explanation
☐ Clustering	✔	0.20	
☑ Data entry	✔	0.20	
☐ Classification	✔	0.20	
☑ Data cleaning	✔	0.20	
☐ Pattern discovery	✔	0.20	
Total		1.00 / 1.00	

Question Explanation

The correct answers are: "Data entry" and "Data cleaning".

"Data entry" and "Data cleaning" do not involve data analysis.

Question 2

Tid	Items bought
10	Beer, Nuts, Diaper
20	Beer, Coffee, Diaper, Nuts
30	Beer, Diaper, Eggs

40	Beer, Nuts, Eggs, Milk
50	Nuts, Coffee, Diaper, Eggs, Milk

Table 1: Transactions from a database.

Given the transactions in Table 1, *minsup s* = 50%, and *minconf c* = 50%, which of the following is an association rule? Select all that apply.

Your Answer		Score	Explanation
☑ Nuts ⇒ Diaper	✔	0.20	
☐ Nuts ⇒ Eggs	✔	0.20	
☐ Diaper ⇒ Eggs	✔	0.20	
☑ Beer ⇒ Nuts	✔	0.20	
☐ Coffee ⇒ Milk	✔	0.20	
Total		1.00 / 1.00	

Question Explanation

The correct answers are: "Beer ⇒ Nuts" and "Nuts ⇒ Diaper"

Beer ⇒ *Nuts* has support = 3/5 and confidence 3/4
Nuts ⇒ *Diaper* has support = 3/5 and confidence 3/4
Coffee ⇒ *Milk* has support = 1/5 and confidence 1/2
Nuts ⇒ *Eggs* has support = 2/5 and confidence 1/2
Diaper ⇒ *Eggs* has support = 2/5 and confidence 1/2

Question 3

Tid	Items bought
10	Beer, Nuts, Diaper
20	Beer, Coffee, Diaper, Nuts
30	Beer, Diaper, Eggs
40	Beer, Nuts, Eggs, Milk
50	Nuts, Coffee, Diaper, Eggs, Milk

Table 1: Transactions from a database.

A *strong* association rule satisfies both the *minsup* and *minconf* thresholds. Given the transactions in Table 1, *minsup s* = 50%, and *minconf c* = 50%, how many *strong* association rules are there? Note that the association rule $A \Rightarrow B$ and $B \Rightarrow A$ are distinct.

Your Answer		Score	Explanation
◉ 6	✔	1.00	
○ 4			
○ 5			
○ 2			
○ 0			
Total		1.00 / 1.00	

Question Explanation

The correct answer is: "6".

The rules are:
Beer ⇒ Diaper
Diaper ⇒ Beer
Nuts ⇒ Diaper
Diaper ⇒ Nuts
Beer ⇒ Nuts
Nuts ⇒ Beer

Question 4

Consider the database containing the transaction $T_1 : \{a_1, ..., a_5\}$, $T_2 : \{a_2, ..., a_6\}$, $T_3 : \{a_3, ..., a_7\}$, $T_4 : \{a_4, ..., a_8\}$. For what value of *minsup* do we have the most number of closed frequent patterns?

Your Answer	Score	Explanation
○ *minsup* = 4		
○ *minsup* = 2		
○ *minsup* = 3		

◉ *minsup* = 1	✔	1.00
○ There are no closed frequent patterns for the given database.		
Total		1.00 / 1.00

Question Explanation

The correct answer is: "*minsup* = 1".

minsup = 1 gives the most frequent patterns, which in turn produces the most closed frequent patterns.

Question 5

Consider the database containing the transactions T_1 : {a_1, a_2, a_3, a_4, a_5}, T_2 : {a_2, a_3, a_4, a_5, a_6}.

Let *minsup* = 1. Which of the following is both a max frequent and a closed frequent pattern?

Select all that apply.

Your Answer		Score	Explanation
☐ {a_1, a_2, a_3, a_4, a_5}	✖	0.00	
☐ {a_2, a_3, a_4, a_5, a_6}	✖	0.00	
☐ {a_1, a_2, a_3, a_4, a_5, a_6}	✔	0.20	
☐ {a_2, a_3, a_4, a_5}	✔	0.20	
☐ {a_2, a_5}	✔	0.20	
Total		0.60 / 1.00	

Question Explanation

The correct answers are: "{a_1, a_2, a_3, a_4, a_5}" and "{a_2, a_3, a_4, a_5, a_6}".

Since "{a_2, a_3, a_4, a_5, a_6}" and "{a_2, a_3, a_4, a_5, a_6}" are frequent super patterns of "{a_2, a_5}" and "{a_2, a_3, a_4, a_5}", and "{a_2, a_5}" and "{a_2, a_3, a_4, a_5}" cannot be max frequent patterns. "{a_1, a_2, a_3, a_4, a_5, a_6}" has support 0, hence it is not a frequent pattern.

Question 6

Which of the following statements is true?

Your Answer		Score	Explanation
○ Since both closed and max frequent patterns are a subset of all frequent patterns, we cannot recover all frequent patterns and their supports given just the closed and max frequent patterns.			
◉ We can recover all frequent patterns and their supports from the set of closed frequent patterns.	✔	1.00	
○ We can recover all frequent patterns and their supports from the set of max frequent patterns.			
○ Closed frequent patterns can always be determined from the set of max frequent patterns.			
○ The set of closed frequent patterns is always the same as the set of max frequent patterns.			
Total		1.00 / 1.00	

Question Explanation

The correct answer is "We can recover all frequent patterns and their supports from the set of closed frequent patterns."

Closed frequent patterns are a lossless compression of all frequent patterns, while max frequent patterns are a lossy compression. This means that max frequent patterns are a subset of closed frequent patterns, and we can only recover the complete set of frequent patterns and their supports from the set of closed frequent patterns.

Question 7

If we know the support of itemset {*a*, *b*, *c*} is 10, which of the following numbers are the possible supports of the itemset {*a*, *b*}?

Your Answer		Score	Explanation
☑ 10	✔	0.33	
☑ 11	✔	0.33	
☐ 9	✔	0.33	
Total		1.00 / 1.00	

Question Explanation

The correct answers are: "10" and "11".

The support of {*a*, *b*} should be no less than 10, which is the support of {*a*, *b*, *c*}.

Question 8

If we know the support of itemset {*a*} is 50, and the support of itemset {*a*, *b*, *c*} is 30, which of the following numbers are the possible supports of itemset {*a*, *b*}?

Your Answer		Score	Explanation
☐ 100	✔	0.20	
☐ 10	✔	0.20	
☐ 5	✔	0.20	
☑ 30	✔	0.20	
☑ 50	✔	0.20	
Total		1.00 / 1.00	

Question Explanation

The correct answers are: "50" and "30".

The support of {*a*, *b*} should be between the supports of {*a*} and {*a*, *b*, *c*}, i.e. $\in$ [30, 50].

Question 9

Considering Apriori Algorithm, assume we have obtained **all** size-2 (i.e. containing 2 items, e.g. {*A*, *B*}) frequent itemsets. They are {*A*, *B*}, {*A*, *C*}, {*A*, *D*}, {*B*, *C*}, {*B*, *E*}, {*C*, *E*}. In the following size-3 itemsets, which of them should be considered, i.e. are potential to be size-3 frequent itemsets?

Your Answer		Score	Explanation
☑ {*B*, *C*, *E*}	✔	0.25	
☑ {*A*, *B*, *D*}	✖	0.00	
☑ {*A*, *C*, *D*}	✖	0.00	
☑ {*A*, *B*, *C*}	✔	0.25	

Total	0.50 / 1.00

Question Explanation

The correct answers are: "{*A*, *B*, *C*}" and "{*A*, *B*, *C*}".

{*A*, *C*, *D*} is impossible because {*C*, *D*} is infrequent. {*A*, *B*, *D*} is impossible because {*B*, *D*} is infrequent.

Question 10

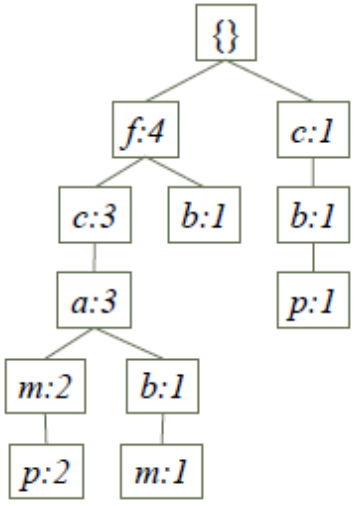

Figure 1: FP Tree

Given the FP-tree as shown in Figure 1, what is the support of {*c*, *p*}?

Your Answer		Score	Explanation
4			
5			
3	✔	1.00	
1			
2			
Total		1.00 / 1.00	

Question Explanation

The correct answer is: "3".

1 is in {*c*, *p*, *m*} and 2 are in {*f*, *c*, *a*, *m*, *p*}. Therefore, 3 in total.