

Lesson 1 Quiz

Passed

4/5 points earned (80%)

1 / 1 points

1. Table 1: Transactions from a database

T_id	Items bought
10	Beer, Nuts, Diapers
20	Beer, Coffee, Diapers, Nuts
30	Beer, Diapers, Eggs
40	Beer, Nuts, Eggs, Milk
50	Nuts, Coffee, Diapers, Eggs, Milk

Given the transactions in Table 1, *mini-support (minsup)* $s = 50\%$, which of the following is **not** a frequent itemset?

- A. {Beer, Diapers}
- B. {Coffee}
- C. {Beer}
- D. {Eggs}

1 / 1 points

2. Table 1: Transactions from a database

T_id	Items bought
10	Beer, Nuts, Diapers
20	Beer, Coffee, Diapers, Nuts
30	Beer, Diapers, Eggs
40	Beer, Nuts, Eggs, Milk
50	Nuts, Coffee, Diapers, Eggs, Milk

Given the transactions in Table 1, what is the confidence and relative support of the association rule $\{Diapers\} \Rightarrow \{Coffee, Nuts\}$?

- A. support $s = 0.4$, confidence $c = 0.5$
- B. support $s = 0.8$, confidence $c = 0.5$
- C. support $s = 0.4$, confidence $c = 1$
- D. support $s = 0.8$, confidence $c = 1$
- E. None of the above

1 / 1 points

3. Consider the database containing the transaction $T1 : \{a1, a2, a3\}$, $T2 : \{a2, a3, a4\}$, $T3 : \{a1, a3, a4\}$. Let *mini-support* (*minsup*) = 2. Which of the following frequent patterns is closed?

- A. $\{a2\}$
- B. $\{a1\}$
- C. $\{a1, a3\}$
- D. $\{a4\}$

1 / 1 points

4. Consider the database containing the transactions $T1 : \{a1, \dots, a3\}$, $T2 : \{a2, \dots, a4\}$. Let *minsup* = 1. What fraction of all frequent patterns is max frequent patterns?

- A. 1/11
- B. 2/11
- C. 1/3
- D. There are no max frequent patterns for the given *minsup*.
- E. 3/11

1
point

5. Rank the following sets by their cardinality for a given database: {all frequent patterns}, {closed frequent patterns}, and {max frequent patterns}.

- A. {all frequent patterns} \geq {closed frequent patterns} \geq {max frequent patterns}

- B. $\{\text{all frequent patterns}\} \geq \{\text{max frequent patterns}\} \geq \{\text{closed frequent patterns}\}$
- C. $\{\text{all frequent patterns}\} \geq \{\text{max frequent patterns}\} = \{\text{closed frequent patterns}\}$, i.e. the set of max frequent patterns and the set of closed frequent patterns are identical.
- D. $\{\text{all frequent patterns}\} \geq \{\text{max frequent patterns}\}$, $\{\text{all frequent patterns}\} \geq \{\text{closed frequent patterns}\}$, but the order of $\{\text{max frequent patterns}\}$ and $\{\text{closed frequent patterns}\}$ cannot be determined without further information.
- E. Ranking is impossible without further information.

1
point

6. Table 1: Transactions from a database

T_id	Items bought
10	Beer, Nuts, Diapers
20	Beer, Coffee, Diapers, Nuts
30	Beer, Diapers, Eggs
40	Beer, Nuts, Eggs, Milk
50	Nuts, Coffee, Diapers, Eggs, Milk

Given the transaction in Table 1 and *mini-support (minsup)* $s = 40\%$, which of the following is a length-3 frequent item set?

- A. Beer, Coffee, Milk
- B. Beer, Nuts, Eggs
- C. Coffee, Diapers, Eggs
- D. Beer, Nuts, Diapers

1 / 1 points

7. Table 1: Transactions from a database

T_id	Items bought
10	Beer, Nuts, Diapers
20	Beer, Coffee, Diapers, Nuts
30	Beer, Diapers, Eggs
40	Beer, Nuts, Eggs, Milk
50	Nuts, Coffee, Diapers, Eggs, Milk

A *strong* association rule satisfies both the *mini-support* (*minsup*) and *minconf* thresholds. Given the transactions in Table 1, *mini-support* (*minsup*) $s = 50\%$, and *minconf* $c = 50\%$, which of the following is **not** a strong association rule?

- A. $\{Beer\} \Rightarrow \{Diapers\}$
- B. $\{Beer, Nuts\} \Rightarrow \{Diapers\}$
- C. $\{Diapers\} \Rightarrow \{Nuts\}$
- D. $\{Nuts\} \Rightarrow \{Diapers\}$
- E. $\{Diapers\} \Rightarrow \{Beer\}$

1 / 1 points

8. Consider the database containing the transaction $T1 : \{a1, a2, a3\}$, $T2 : \{a2, a3, a4\}$, $T3 : \{a1, a3, a4\}$. Let *mini-support* (*minsup*) = 2. Which of the following frequent patterns is NOT closed?

- A. $\{a2\}$
- B. $\{a1, a3\}$
- C. $\{a3\}$
- D. $\{a3, a4\}$

1 / 1 points

9. Consider the database containing the transactions $T1 : \{a1, a2, a3, a4, a5\}$, $T2 : \{a2, a3, a4, a5, a6\}$. Let *minsup* = 1. Which of the following is both a max frequent and a closed frequent pattern? Select all that apply.

- $\{a2, a3, a4, a5\}$
- $\{a2, a5\}$
- $\{a1, a2, a3, a4, a5\}$
- $\{a2, a3, a4, a5, a6\}$
- $\{a1, a2, a3, a4, a5, a6\}$

1
point

10. Given the set of closed frequent patterns, we can _____. Select all that apply.

- Recover all transactions in the database
- Find the set of max frequent patterns
- Recover the set of all frequent patterns and their support in some situations but not all
- Always recover the set of all frequent patterns and their support

1
point

11. Table 1: Transactions from a database

T_id	Items bought
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20	Beer, Coffee, Diapers, Nuts
30	Beer, Diapers, Eggs
40	Beer, Nuts, Eggs, Milk
50	Nuts, Coffee, Diapers, Eggs, Milk

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

- Nuts \Rightarrow Eggs
- Coffee \Rightarrow Milk
- Diapers \Rightarrow Eggs
- Nuts \Rightarrow Diapers
- Beer \Rightarrow Nuts

1 / 1 points

12. Which of the following statements is true?

- A. The set of closed frequent patterns is always the same as the set of max frequent patterns.
- B. 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.
- C. Closed frequent patterns can always be determined from the set of max frequent patterns.
- D. We can recover all frequent patterns and their supports from the set of max frequent patterns.
- E. **We can recover all frequent patterns and their supports from the set of closed frequent patterns.**

13. Table 1: Transactions from a database

T_id	Items bought
10	Beer, Nuts, Diapers
20	Beer, Coffee, Diapers, Nuts
30	Beer, Diapers, Eggs
40	Beer, Nuts, Eggs, Milk
50	Nuts, Coffee, Diapers, Eggs, Milk

Given the transactions in Table 1, what is the confidence and relative support of the association rule $\{\text{Diapers}\} \Rightarrow \{\text{Coffee, Nuts}\}$?

- A. support $s = 0.4$, confidence $c = 0.5$
- B. support $s = 0.8$, confidence $c = 0.5$
- C. support $s = 0.4$, confidence $c = 1$
- D. support $s = 0.8$, confidence $c = 1$
- E. None of the above