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Week 7 Quiz

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Q1

10.0/10.0 points (graded)

In association rules, if an itemset is frequent, then all its supersets are frequent.

☐ True

☒ False ✓

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You have used 1 of 1 attempt

Q2

10.0/10.0 points (graded)

Check all that apply.

☒ The bottleneck in finding strong association rules is in finding frequent itemsets.

☒ Deriving association rules from frequent itemsets does not require scanning the dataset.

☐ The search space of frequent itemsets is a lattice of size $2^{\text{(number of transactions)}}$.

☒ The search space of frequent itemsets is a lattice of size $2^{\text{(number of items)}}$.



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Q3

10.0/10.0 points (graded)

Because it is not possible to do a systematic search of association rules involving numerical variables, the problem of mining quantitative association rules can be regarded as an optimization problem.

☒ True ✓

☐ False

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Q4

10.0/10.0 points (graded)

	2%<u>milk</u>	<u>2%<u>milk</u></u>	\sum lines
whole milk	400	200	600
<u>whole milk</u>	350	50	400
\sum columns	750	250	1000

Consider the table above summarizing a larger transaction dataset with only two items. Let **2%milk** refer to the transactions containing 2% milk, and let **2%milk** refer to the transactions without 2% milk. Similarly, **whole milk** refers to the transactions containing whole milk, while **whole milk** refers to the transactions without whole milk. Suppose we are interested in the rule **whole milk** \rightarrow **2%milk**. Is this rule strong? Assume a MinSup=30% and a MinConf=60%.

☒ True ✓

☐ False

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Q5

10.0/10.0 points (graded)

Consider the same table above. What kind of relationship exists between the items whole milk and 2% milk?

(Hint: Use the interest measure)

☐ Independent

☒ Negatively correlated

☐ Positively correlated



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Q6

10.0/10.0 points (graded)

Check all that apply.

☒ "Training" a given neural network means learning the weights in the network.

☐ "Backpropagation" means propagating the errors forward.



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Q7

10.0/10.0 points (graded)

Neural networks can solve both linear and non-linear classification problems.

☒ True ✓

☐ False

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Q8

10.0/10.0 points (graded)

Check all that apply.

☐ A neural network can overfit the training data if the network is too simple; that is, if it has a very small number of units.

☒ A neural network can overfit the training data if the network is too complex; that is, if it has a very large number of units.

☒ Overfitting in neural networks can be reduced by using cross-validation to choose the number of neurons.



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Q9

10.0/10.0 points (graded)

Under the assumption that the data is generated from one or several normal distributions, check all that apply.

- ☒ The basic K-means algorithm requires setting up the parameter K (number of clusters) apriori.
- ☒ We can set K to optimally cluster the data by starting with a small number of clusters, and then iteratively splitting them until all clusters fit normal distributions.



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Q10

10.0/10.0 points (graded)

Check all that apply.

- ☒ A clustering is good if it has a high intra-cluster similarity and a low inter-cluster similarity.
- ☐ A clustering is good if it has a low intra-cluster similarity and a high inter-cluster similarity.




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 English ▾

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