Week 5 Quiz

10 试题

1 point

1。
Assume that documents are being classified into two categories, c1 and c2, such that a document can belong to more than one category. The table below shows the prediction of a classifier, denoted by “y” or “n", in addition to the true label (ground truth) represented by a “+” or “-”, where a correct prediction is either y (+) or n (-).

	c1	**c2**
D1	y(+)	y(+)
D2	n(-)	y(+)
D3	n(+)	n(-)
D4	y(-)	y(+)
D5	n(+)	n(-)

Let P(ci) and R(ci) denote the precision and recall associated with category ci, respectively. The precision and recall of c1 and c2 are:

- P(c1) = 1/3 R(c1) = 1/2 P(c2) = 1 R(c2) = 1
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- P(c1) = 1/2 R(c1) = 1/2 P(c2) = 1/2 R(c2) = 1/2

P(c1) = 1/2 R(c1) = 1/2 P(c2) = 1 R(c2) = 1

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1 point

2。
Given the same data as in Question 1, the classification accuracy of the classifier is:

- (●) 7/10
- ( ) 9/10
- ( ) 3/10
- ( ) 8/10

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1 point

3。
Given the same data as in Question 1, what is the recall of the classifier using **micro-averaging** (i.e., by pooling all decisions together)?

- ( ) 1
- ( ) 5/6
- ( ) 4/5
- (●) 2/3

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1 point

4。

Suppose we are performing document clustering on a collection of N documents using a mixture model as discussed in the lecture **Text Clustering: Generative Probabilistic Models (Part 3)**. Let the number of clusters be K and the vocabulary size be M. What is the number of parameters that the EM algorithm tries to estimate? Consider each $P(\theta i)$ or $P(w|\theta i)$ as a separate parameter.

- ○ MNK
- ● K+MK
- ○ KN+MK
- ○ MK

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1 point

5.
Which one of the following statements is **not** an opinion?

- ○ PLSA always performs similarly to LDA.
- ○ PLSA is the best method for a topic mining task.
- ● PLSA is a mixture model.

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1 point

6.
True or false? Word unigrams are the best performing features for sentiment classification.

- ● False
- ○ True

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1 point

7.
True or false? Suppose we are using logistic regression for binary classification (i.e., k=2) where the number of features is M. Then, the number of parameters to be estimated is M+1.

- ○ False
- ◉ True

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1 point

8.
True or false? Assume we are using word n-grams as features to perform sentiment classification. Then, higher values of n will usually be **less** prone to overfitting (i.e., for higher values of n, the difference between training and testing accuracies will be smaller).

- ○ True
- ◉ False

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1 point

9.
Why is accuracy sometimes not good for classification evaluation? Check all that apply.

- ☑ For imbalanced dataset, high accuracy does not imply good performance.
- ☐ Computation of accuracy is difficult.
- ☑ Some decisions are more serious than others.

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1 point

10。
If you want to put more emphasis on precision than recall, how should you adjust the value of β ?

- (●) Choose a low value of β
- ( ) Choose a high value of β

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