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# Week 3 Practice Quiz

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Correct

1 / 1 points

1.

Suppose a query has a total of 5 relevant documents in a collection of 100 documents. System A and System B have each retrieved 10 documents, and the relevance status of the ranked lists is shown below:

System A: [+ + - - - - - - - -]

System B: [- + - - + - - - - +]

where the leftmost entry corresponds to the highest ranked document, and the rightmost entry corresponds to the lowest ranked document. A “+” indicates a relevant document and a “-” corresponds to a non-relevant one. For example, the top ranked document retrieved by System A is relevant, whereas the top ranked document retrieved by B is non-relevant.

What is the **precision at 10 documents** of both systems?



P(A) = 2/10  P(B) = 3/10

**Correct Response**



P(A) = 2/100  P(B) = 3/100



P(A) = 2/5  P(B) = 3/5



P(A) = 8/100  P(B) = 7/100

Correct

1 / 1 points

2.

Assume the same scenario as in Question 1. What is the **recall** of both systems?



R(A) = 2/5  R(B) = 3/5

**Correct Response**



R(A) = 2/100  R(B) = 3/100



R(A) = 2/10  R(B) = 3/10



R(A) = 8/100  R(B) = 7/100

Correct

1 / 1 points

3.

Assume the same scenario as in Question 1. What is the **average precision** of both systems?



AP(A) = 2/5  AP(B) = 6/25

**Correct Response**

Explanation: The average precision is the sum of the precisions at each time a relevant document is retrieved, **divided by the total number of relevant documents**. AP(A) = (1/1 + 2/2)/5 = 2/5 and AP(B) = (1/2 + 2/5 + 3/10)/5 = 6/25



AP(A) = 2/10  AP(B) = 3/25



AP(A) = 2/100  AP(B) = 3/250



AP(A) = 3/10  AP(B) = 9/20

Correct

1 / 1 points

4.

Assume you have two retrieval systems X and Y. If X has a higher MAP (mean average precision), can Y have a higher gMAP (geometric mean average precision)?



Yes

**Correct Response**

Explanation: This is possible. For example, if both systems are being evaluated on two queries where the average precisions for system X are APx(Q1) = 0.9 and APX (Q2) = 0.01, and those for system Y are APY (Q1) = 0.2 and APY (Q2) = 0.2. Clearly, X has a higher MAP; MAPx = (0.9+0.01)/2 = 0.455 and MAPY = (0.2+0.2)/2 = 0.2.

Recall that the geometric mean of two values is the square root of their product. So gMAPx= sqrt(0.9\*0.01) = 0.094 and gMAPY = sqrt(0.2\*0.2) = 0.2. This illustrates an important property of gMAP: it is dominated by the low values of average precision, making it a good indicator of how the system performs in the presence of “hard” queries.



No

Correct

1 / 1 points

5.

If system A has higher precision at k document than system B for any number of k, does it mean A also has higher recall than B at any position?



Yes

**Correct Response**



No

Correct

1 / 1 points

6.

F-measure contains a parameter that weighs between precision and recall. For an automatic system that filters tweets in the search for possible communication between terrorists about attack plans on US soil, when evaluating the system's performance with F-measure, should we use a higher parameter or lower?



Lower

**Correct Response**

Since we would face perils if missing any useful tweets, it is advised to put the emphasis more on recall rather than precision (low precision is less harmful).



Higher

Correct

1 / 1 points

7.

What is nDCG capable of but not DCG?



Compare two systems performed on a set of queries

**Correct Response**



Compare two systems performed on one single query



Work with relevance judgement that is multi-level



Work with relevance judgement that is binary-level (relevant vs. not relevant)

Correct

1 / 1 points

8.

Why is pooling useful?



So that we don't need to judge every document

**Correct Response**



So that we don't need humans to do judgement



So that all documents can be judged efficiently

Correct

1 / 1 points

9.

Which of the following is not correct?



Precision@10docs is easy for users to interpret.



MAP and nDCG are good for comparing ranking algorithms.



DCG is better than nDCG as its value is within [0, 1].

**Correct Response**

Correct

1 / 1 points

10.

If in PR (precision, recall) curves, curve A is above B for all recall, what can you say?



A is better than B.

**Correct Response**



B is better than A.



There is no clear conclusion about A vs. B.



A is as good as B.