CS458 - Homework 4
Due: Friday Oct. 26, by 6pm

Submission: E-mail or slide under door

1. (3 points) 8.2

2. (20 points) Evaluation

The list of Rs and Ns below represent relevant (R) and nonrelevant (N) documents in a ranked list of 20 documents retrieved using the same query from two different systems from a collection of 10,000 documents. The top of the ranked list is the leftmost element in the list (I’ve included whitespace to make counting easier). Assume that there are eight relevant documents in the corpus.

System 1: R R N N N N N N R N R N N N R N N N N R
System 2: R R N R N N R N N N N N N N R N N N R N

(a) (2 points) What are the precisions of the systems on the top 20?
(b) (2 points) What are the precisions of the systems on the top 10?
(c) (4 points) What are the $F_1$s of the systems on the top 10?
(d) (6 points) Assuming the 20 results are the complete set returned by the systems, what are the MAP scores for the query? (make sure to show your work for partial credit)
(e) (3 points) Which system does better based on the metrics? Do you agree (why)?
(f) (3 points) Assume that System 1 now returns all 10,000 documents. What is the largest MAP score System 1 could have?

3. (3 points) Find a mispelled query where two search engines return different spelling correction (e.g. “Showing results for” from Google
or "We have included" from Yahoo!). Which system did a better job at correcting the spelling?