

Your Name:

Your Andrew ID:

Homework 4

0 Introduction

0.1 Collaboration and Originality

1. Did you receive help of any kind from anyone (other than the instructor or TAs) in developing your software for this assignment (Yes or No)? If you answered Yes, provide the name(s) of anyone who provided help, and describe the type of help that you received.
2. Did you give help of any kind to anyone in developing their software for this assignment (Yes or No)? If you answered Yes, provide the name(s) of anyone that you helped, and describe the type of help that you provided.
3. Did you examine anyone else's software for this assignment (Yes or No)? Do not describe software provided by the instructor.
4. Are you (or the course instructor) the author of every line of source code submitted for this assignment (Yes or No)? If you answered No:
 - a. identify the software that you did not write,
 - b. explain where it came from, and
 - c. explain why you used it.
5. Are you the author of every word of your report (Yes or No)? If you answered No:
 - a. identify the text that you did not write,
 - b. explain where it came from, and
 - c. explain why you used it.

0.2 Instructions

Some experiments require you to set parameters or weights. You must explain why you chose particular values, and how your choices relate to how the technique works. We look for good experimental design – parameters that explore interesting issues or hypotheses (even if the hypothesis turns out to be wrong).

You must analyze the experimental results. Don't just summarize the numbers contained in the table – we can read the table ourselves. Instead, explain what conclusions you can reach based on the experiment. We are primarily interested in your observations about general trends, not quirky queries. Usually a good analysis addresses several issues. Show that you understand what the results mean, based upon what we have discussed in class.

Leave the page breaks between sections, as shown in this file. This is will reduce the number of duplicate pages in your graded report.

Instructions are shown in a red italic bold font. Do not include instructions in your report. For example, delete this page. There is a 2 point deduction for leaving instructions in your report (because it creates extra work for the TAs).

1 Experiment: Effect of Reranking Depth

1.1 Parameters for Reranking Depth Experiment

Briefly describe the parameter settings that were used in the reranking depth experiment.

1.2 Experimental Results for Reranking Depth

Your .zip / .tgz file must include files named HW4-Exp-1.1a.qry, HW4-Exp-1.1a.param, etc., in the QryEval directory. The experimental results shown above must be reproducible by these files and the parameter values shown in the table.

	BM25 (Exp-1.1a)	Coordinate Ascent Reranking Depth		
		100 (Exp-1.1b)	250 (Exp-1.1c)	500 (Exp-1.1d)
MRR@k	0.0000	0.0000	0.0000	0.0000
P@10	0.0000	0.0000	0.0000	0.0000
P@20	0.0000	0.0000	0.0000	0.0000
P@30	0.0000	0.0000	0.0000	0.0000
NDCG@10	0.0000	0.0000	0.0000	0.0000
NDCG@20	0.0000	0.0000	0.0000	0.0000
NDCG@30	0.0000	0.0000	0.0000	0.0000
R@100	0.0000	0.0000	0.0000	0.0000
R@500	0.0000	0.0000	0.0000	0.0000
R@1000	0.0000	0.0000	0.0000	0.0000
MAP	0.0000	0.0000	0.0000	0.0000
mm:ss	00:00	00:00	00:00	00:00

	BM25 (n/a)	ListNet Reranking Depth		
		100 (Exp-1.2b)	250 (Exp-1.2c)	500 (Exp-1.2d)
MRR@k	0.0000	0.0000	0.0000	0.0000
P@10	0.0000	0.0000	0.0000	0.0000
P@20	0.0000	0.0000	0.0000	0.0000
P@30	0.0000	0.0000	0.0000	0.0000
NDCG@10	0.0000	0.0000	0.0000	0.0000
NDCG@20	0.0000	0.0000	0.0000	0.0000
NDCG@30	0.0000	0.0000	0.0000	0.0000
R@100	0.0000	0.0000	0.0000	0.0000
R@500	0.0000	0.0000	0.0000	0.0000
R@1000	0.0000	0.0000	0.0000	0.0000
MAP	0.0000	0.0000	0.0000	0.0000
mm:ss	00:00	00:00	00:00	00:00

	BM25 (n/a)	Coordinate Ascent Reranking Depth	BERT, 6 layers Reranking Depth		
		500 (n/a)	100 (Exp-1.3b)	250 (Exp-1.3c)	500 (Exp-1.3d)
MRR@k	0.0000	0.0000	0.0000	0.0000	0.0000
P@10	0.0000	0.0000	0.0000	0.0000	0.0000
P@20	0.0000	0.0000	0.0000	0.0000	0.0000
P@30	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@10	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@20	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@30	0.0000	0.0000	0.0000	0.0000	0.0000
R@100	0.0000	0.0000	0.0000	0.0000	0.0000
R@500	0.0000	0.0000	0.0000	0.0000	0.0000
R@1000	0.0000	0.0000	0.0000	0.0000	0.0000
MAP	0.0000	0.0000	0.0000	0.0000	0.0000
mm:ss	00:00	00:00	00:00	00:00	00:00

	BM25 (n/a)	Coordinate Ascent Reranking Depth	BERT, 12 layers Reranking Depth		
		500 (n/a)	100 (Exp-1.4b)	250 (Exp-1.4c)	500 (Exp-1.4d)
MRR@k	0.0000	0.0000	0.0000	0.0000	0.0000
P@10	0.0000	0.0000	0.0000	0.0000	0.0000
P@20	0.0000	0.0000	0.0000	0.0000	0.0000
P@30	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@10	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@20	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@30	0.0000	0.0000	0.0000	0.0000	0.0000
R@100	0.0000	0.0000	0.0000	0.0000	0.0000
R@500	0.0000	0.0000	0.0000	0.0000	0.0000
R@1000	0.0000	0.0000	0.0000	0.0000	0.0000
MAP	0.0000	0.0000	0.0000	0.0000	0.0000
mm:ss	00:00	00:00	00:00	00:00	00:00

1.3 Discussion of Reranking Depth Experimental Results

Discuss the trends that you observe; whether the learned retrieval models behaved as you expected; how the learned retrieval models compare to the baseline methods; and any other observations that you may have.

Remember that this assignment is about BERT, not the LTR methods. The LTR methods are baselines for comparison. They should not be the primary focus of your discussion.

2 Experiment: Passages and Aggregation Methods

2.1 Parameters for Passages and Aggregation Methods

Briefly describe the parameter settings that were used to obtain results in the passage and aggregation methods experiment.

2.3 Discussion for Passages and Aggregation Methods

Discuss the effects of different methods of forming passages and different aggregation methods.

3 Experiment: Reranking Configurations

3.1 Descriptions of Reranking Configurations

Describe the reranking configurations that were used to obtain these results, and why you selected these configurations. Be clear about any intuitions or hypotheses that you wanted to explore.

3.2 Experimental Results for Reranking Configurations

Your .zip / .tgz file must include files named HW4-Exp-3.1a.qry, HW4-Exp-3.1a.param, etc., in the QryEval directory. The experimental results shown above must be reproducible by these files and the parameter values shown in the table.

	Config₁ (Exp-3.1a)	Config₂ (Exp-3.1b)	Config₃ (Exp-3.1c)	Config₄ (Exp-3.1d)	Config₅ (Exp-3.1e)	Config₆ (Exp-3.1f)
MRR@k	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
P@10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
P@20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
P@30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NDCG@30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R@100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R@500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R@1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MAP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
mm:ss	00:00	00:00	00:00	00:00	00:00	00:00

3.3 Discussion for Reranking Configurations

Discuss the effects of the different reranking configurations.