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GitHub repository:- https://github.com/Team54ever/a3

Q1)

Results for lucene default ranking

```
nithins-mbp:trec_eval.9.0 Nithin$ ./trec_eval -m "set_P" -m "set_F" -m "P.2" -m
"Rprec" -m "map" -m "ndcg_cut.20" -c
/Users/Nithin/Desktop/test200/train.test200.cbor.article.qrels
/Users/Nithin/Desktop/outputfile
map                     all     0.5718
Rprec                   all     0.5755
P_2                     all     0.9217
ndcg_cut_20             all     0.7342
set_P                   all     0.4827
set_F                   all     0.4639
```

Results for variant 1 – lnc.ltn

```
nithins-mbp:trec_eval.9.0 Nithin$ ./trec_eval -m "set_P" -m "set_F" -m "P.2" -m
"Rprec" -m "map" -m "ndcg_cut.20" -c
/Users/Nithin/Desktop/test200/train.test200.cbor.article.qrels
/Users/Nithin/Desktop/Outputs/lnc_ltn
map                     all     0.5465
Rprec                   all     0.5470
P_2                     all     0.8965
ndcg_cut_20             all     0.7059
set_P                   all     0.4789
set_F                   all     0.4582
```

Results for variant 2 – bnn.bnn

```
nithins-mbp:trec_eval.9.0 Nithin$ ./trec_eval -m "set_P" -m "set_F" -m "P.2" -m
"Rprec" -m "map" -m "ndcg_cut.20" -c
/Users/Nithin/Desktop/test200/train.test200.cbor.article.qrels
/Users/Nithin/Desktop/Outputs/bnn_bnn
map                     all     0.5175
Rprec                   all     0.5176
P_2                     all     0.8889
ndcg_cut_20                     all     0.6827
set_P                   all     0.4757
set_F                   all     0.4537
```

Results for variant 3 – anc.apc

```
nithins-mbp:trec_eval.9.0 Nithin$ ./trec_eval -m "set_P" -m "set_F" -m "P.2" -m
"Rprec" -m "map" -m "ndcg_cut.10" -c
/Users/Nithin/Desktop/test200/train.test200.cbor.article.qrels
/Users/Nithin/Desktop/Outputs/anc_apc
map                     all     0.5070
Rprec                   all     0.5064
P_2                     all     0.8813
ndcg_cut_20                     all     0.6711
set_P                   all     0.4699
set_F                   all     0.4452
```

1.According to the scores, lnc.ltn is the best.

2.If we take a look for the scores, we can find lucene default ranking is the highest for each of those scores. So the variants perform worse than Lucene's default ranking model.

3.

Standard error(MAP) = 0.0293

Standard error(Rprec) = 0.03106

Standard error(ndcg_cut_20) = 0.02787

As we can see, the standard errors are so tiny. So the difference is not significant.

Q2)

SRCC(default, bnn.bnn) = 0.636

SRCC(default, lnc.ltn) = 0.687

SRCC(default, anc.apc) = 0.523

According to the results from SRCC, lnc.ltn is the closest to lucene's standard model.

Q3)Output files has been generated by tokenizing the keyword heading text. Check them here https://github.com/Team54ever/a3/tree/master/Outputs

Precision@R is 0.0720038374916