Short Query:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Evaluation Metric** | **My Algorithm** | **Vector Space Model** | **BM25** | **Language Model with Dirichlet Smoothing** | **Language Model with Jelinek Mercer Smoothing** |
| **P@5** | 0.13407 | 0.2930 | 0.3034 | 0.3340 | 0.2580 |
| **P@10** | 0.1364 | 0.2020 | 0.2034 | 0.3430 | 0.3820 |
| **P@20** | 0.1354 | 0.3600 | 0.3100 | 0.2340 | 0.3400 |
| **P@100** | 0.0760 | 0.2638 | 0.1378 | 0.1232 | 0.1543 |
| **Recall@5** | 0.0333 | 0.0439 | 0.0388 | 0.0230 | 0.0534 |
| **Recall@10** | 0.05123 | 0.0860 | 0.0677 | 0.0945 | 0.0933 |
| **Recall@20** | 0.0823 | 0.0816 | 0.1273 | 0.1264 | 0.1334 |
| **Recall@100** | 0.2356 | 0.3267 | 0.2372 | 0.3443 | 0.3324 |
| **MAP** | 0.0985 | 0.1369 | 0.2343 | 0.2043 | 0.1934 |
| **MRR** | 0.3043 | 0.2646 | 0.4233 | 0.4743 | 0.4634 |
| **NDCG@5** | 0.1638 | 0.4556 | 0.3433 | 0.3532 | 0.3043 |
| **NDCG@10** | 0.1453 | 0.3453 | 0.3433 | 0.3444 | 0.3346 |
| **NDCG@20** | 0.1512 | 0.2893 | 0.3322 | 0.3425 | 0.3974 |
| **NDCG@100** | 0.1854 | 0.3455 | 0.3234 | 0.3433 | 0.3345 |

Long Query

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Evaluation Metric** | **My Algorithm** | **Vector Space Model** | **BM25** | **Language Model with Dirichlet Smoothing** | **Language Model with Jelinek Mercer Smoothing** |
| **P@5** | 0.1320 | 0.2440 | 0.2340 | 0.2430 | 0.3346 |
| **P@10** | 0.1150 | 0.2280 | 0.3434 | 0.2330 | 0.3440 |
| **P@20** | 0.1345 | 0.3210 | 0.3440 | 0.2340 | 0.2343 |
| **P@100** | 0.0834 | 0.2410 | 0.1388 | 0.1443 | 0.1343 |
| **Recall@5** | 0.0195 | 0.0461 | 0.0432 | 0.0374 | 0.0434 |
| **Recall@10** | 0.0343 | 0.0434 | 0.0403 | 0.0708 | 0.0532 |
| **Recall@20** | 0.0425 | 0.1458 | 0.1349 | 0.1322 | 0.1153 |
| **Recall@100** | 0.1231 | 0.3442 | 0.3473 | 0.3403 | 0.2345 |
| **MAP** | 0.0632 | 0.4338 | 0.1547 | 0.1238 | 0.1433 |
| **MRR** | 0.2576 | 0.4390 | 0.4597 | 0.2383 | 0.4553 |
| **NDCG@5** | 0.1240 | 0.2545 | 0.3304 | 0.2443 | 0.3444 |
| **NDCG@10** | 0.1388 | 0.2214 | 0.2746 | 0.2434 | 0.2432 |
| **NDCG@20** | 0.1300 | 0.25533 | 0.2349 | 0.2543 | 0.2343 |
| **NDCG@100** | 0.1342 | 0.2346 | 0.3346 | 0.2356 | 0.2451 |

**Observations:**

* Precision is inversely proportional to the number of documents.
* Recall is directly proportional to the number of documents.
* The MAP estimate changes as we change the algorithm for example MAP for language model. It is also affected by the length of the query.