

Measuring Search Relevance: Discover the Metrics that Matter



Key search Relevance Metrics

1 Discounted Cumulative Gain

It assigns higher scores to the most relevant results at the top of the search results page. The higher the score, the higher the relevancy.



$$DCG_P = \sum_{i=1}^p \frac{2^{rel_i} - 1}{\log_2(i+1)}$$

rel_i = Graded relevance of the document in the ranked list at position i.
P = Number of results considered for evaluation

2 F1 Score

It merges two crucial metrics, precision (accuracy of results) and recall (whether all relevant results are included), into a single score.



$$F1 = 2 \times \frac{(\text{Precision} \times \text{Recall})}{(\text{Precision} + \text{Recall})}$$

F1 score = 1 (Maximum), F2 Score = 0 (Minimum)

3 Expected Reciprocal Rank

This metric evaluates the quality of the top-ranking search results on the search results page.

It also assesses the probability of a user checking the documents ranked at various positions on the search results page.



4 Average Click Rank

It calculates the average position of the clicked results on the search results page. The lower the click ranks, the higher the relevancy.



$$\text{Average Click Rank} = \frac{\text{Sum of the ranks of clicked results}}{\text{Total number of clicks}}$$

In case of a higher average click rank, the user has to go down the search results page to find the relevant information.

5 Click Event Count

It provides a view of user engagement with search results. The more clicks a search result gets, the more likely it is to be relevant to a broad range of users.

