

# Evaluation of Web Search Engines: A Comparative Study

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## Abstract

*Three Web search engines, namely, Alta Vista, Excite, and Lycos, were compared and evaluated in terms of their search capabilities (e.g., Boolean logic, truncation, field search, word and phrase search) and retrieval performances (i.e., precision and response time) using sample queries drawn from themes of the conference: Re-Building the Libraries. Recall, the other evaluation criterion of information retrieval, is deliberately omitted from this study because it is impossible to assume how many relevant items there are for a particular query in the huge and ever-changing Web system. We found that Alta Vista outperformed Excite and Lycos in both search facilities and retrieval performance although Lycos had the largest coverage of Web resources among the three Web search engines examined.*

**Keywords:** Search Engines, Information Retrievals, and Precision.

## Introduction

World Wide Web (WWW or the Web) has rapidly gained popularity and become most widely used application of the Internet. The publicity WWW has gained is so great that many people naively equate WWW with the Internet. The friendly user interface and the hypermedia features of WWW have been attracting a significant number of users as well as information providers. As a result, the web has become a sea of all kinds of data, making any query into the huge information reservoir extremely difficult.

In order to overcome this difficulty in retrieving information from WWW, varieties of companies and institutions quickly developed various search aids such as famous Google, Yahoo, MSN, Ask and AltaVista, Lycos & Excite etc.. For instance, what features do various Web search engines offer? How do they differ from one another in performance? Is there a single Web search engine that out-performs all others in information retrieval? The current study attempts to seek answers to those questions.

## Purpose of this Study

As indicated previously, Web search aids are variously referred to as catalogs, directories, indexes, search engines, or Web databases (Courtois, Baer, & Stark, 1995). Since the current study focuses on the search capability and performance of Web search aids, we decide to use the phrase "search engine" as the formal expression. On the other hand, according to our understanding, a search engine should at least allow users to compose their own search queries rather than simply follow pre-specified search paths or hierarchy as in the case of certain catalogs. Thus, due to its origin and its browsing component, Google, MSN, Ask and Yahoo are not included in our study despite the fact that it is one of the most widely used search aids for Web resources.

We applied the same criterion in choosing sample queries for our performance evaluation. Sample search queries were drawn from themes of conference: **Re-Building the Libraries**.

With selected search engines, we compared their search capabilities such as Boolean logic, truncation, field searching, and word/phrase searching. Furthermore, we also evaluated the performance of the selected search engines with respect to precision and response time. Recall, the other commonly used evaluation criterion for information retrieval performance, was deliberately omitted from this study because it is impossible to determine how many relevant items there are for a particular query in the huge and ever-changing Web system.