Course Overview

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The world wide web (WWW) is often hailed as one of the most important inventions of the mankind in the past 30 years. Search engines, on the other hand, are an important reason why WWW has become so popular. After all, what use of a massive number of webpages can be, if one does not even know the URL of the right page?
A search engine serves as a purpose that can be stated as follows:

Given a **short** piece of description about a user’s information needs, a search engine should return a list of URLs to websites that are **highly relevant** to what the user is looking for.

It is often difficult (if not impossible) to judge which webpage *best* suits the user – in most cases, this is as subjective as debating which is the best movie in history. As a result, it seems unlikely that one can come up with a scientific definition of a “perfect” search engine. How to achieve the aforementioned purpose, in spite decades of research, is still an on-going research topic.
Nevertheless, the development of search engines (e.g., Baidu, Bing, Google, Naver, Yahoo, etc.) has left behind a trail of good ideas towards building a popular search engine. The success of these engines has essentially proved that those ideas work quite well in practice. In this course, we will take a good look at many of the ideas, and thereby, discuss the inner workings of a search engine.