There are many different components to a search engine:

**Crawler:**

* What it does:
  + Traverses through the entire web and stores information about each webpage
* What the language needs:
  + A high performance because the web is not small.
  + Support for distributed programming because you need many, many machines working concurrently.
  + Robust libraries for the Web
* Common choices
  + Java, C++

**Indexer**

* What it does:
  + Stores huge indexes of certain data pairings.  For example, you may want to map all words to the URL of the webpage they were found in (aka inverted index).  You may also want to make an index of webpages to their "PageRank" or forms of popularity and reputability scores.
* What the language needs:
  + A fast language good for data processing.  This is a classic application of "big data"
  + Support for distributed programming because you need many, many machines working concurrently
* Common choices
  + Any language supported by MapReduce/Spark (Java, Python, Scala, C++)

**Server**

* What it does:
  + This is the actual *search engine,* as it takes the data that you previously collected in your crawls and indexes, and puts it together into a web service that can answer queries.
* What the language needs:
  + Robust support for server-side programming
  + Ability to scale to more and more traffic (Google handles about 4 billion search queries a day!!!)
* Common choices
  + Most languages nowadays have frameworks and libraries that give it support for server-side programming.  Java/C++ would still be the best choice based on their performance, but Node.js is an increasingly popular option because of its asynchronous, event-driven capabilities.

**UI**

* What it does:
  + What people see on their browsers.
  + Must let users enter queries, query the search engine, and put the results on the page
* What the language needs:
  + The ability to fire request and accept responses
  + The ability to interact with your browser
* Common choices
  + HTML + CSS + JavaScript