

### **Chapter 1 Introduction:**

- 1) According to the book an algorithm is a recipe that specifies the exact sequence of steps required to solve a specific problem.
- 2) It is a similar definition to the one we discussed in class, but we dove more into the specifics in class. We said that an algorithm must be completed in a finite amount of time, and must be computable in order to return a result. I like our class definition more, it's less vague and lists all requirements of an algorithm.
- 3) A great algorithm is used everyday in computers around the world, it should address a real-world problem, and they must relate to the theory of computer science.

### **Select One Algorithm:**

- 1) Chapter 3: PageRank: The Technology That Launched Google
- 2) I chose this algorithm because (in my opinion) Google is the largest web browser / engine service out there today. This algorithm is essentially what built Google, it is very important.
- 3) The algorithm ranks pages by relevance when you search them on google, it solves the "search" problem. Like if you need to search for something specific on google it does exactly that and tries to find the best possible results for you.
- 4) It ranks pages based on the number of backlinks (a link from one page to another) pointing to them. It then assigns these pages a total "PageRank" which is based on the pageranks of these backlinks that point to the page. Each page is initialized with a value of 1, each link will change this value, if a page has a bunch of links pointing to it, then it has a larger rank value. The initial 1 will be split into different values that can be added to the rank of other pages either increasing or decreasing their rank. If a bunch of websites point to this page, then it will have a higher rank, and therefore this new higher rank value can be split into other values to change the rank of other pages. Higher valued ranks are deemed more important compared to lower valued pageranks which are seen as average or not as important. Higher valued pageranks will show up towards the top of your search results.
- 5) This algorithm did change the future because it is basically the basis for all modern search engines