

GCSE Bitesize Computer Science

Google's Diana Gorea on algorithms

My name is Diana Gorea - I'm a software engineer at Google. In a software engineering job, you need to make use of existing algorithms or create new ones all the time. Let's take an example. Let's say you have a page open in your browser and then you press 'control F', or 'command F' if you're on a Mac. Then you can search for a specific phrase in the page you are visiting. This search is essentially a string search algorithm. Another example is, let's say, YouTube, the list of recommended videos are produced as a result of running a program that is based on a recommendation algorithm. If the videos are sorted on relevance or popularity, then a sorting algorithm is applied.

It is important that an algorithm that solves a problem is efficient, which means it is fast and it uses as little memory or other resources as possible. Another important property is scalability. Often any algorithm is efficient for a small input set. But what happens when the input set is large? Bad algorithms will take forever to complete or will use a huge amount of memory, which will slow down other programs running on the computer.