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ALGORITHMS IN DAILY LIFE

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Анотація: *Пояснено приховані алгоритми повсякденного життя. Досліджено як алгоритми впливаю на те, як ми мислимо.*

Ключові слова: алгоритми, повсякденне життя, послідовності, мислення.

Abstract: *The hidden algorithms of everyday life are explained. It is researched how algorithms effect the way we think.*

Keywords: algorithms, daily life, sequences, thinking

Introduction

In our life we have a lot of moments where we do something automatically, without thinking and noticing it. Like breathing, opening a door, unlocking your smartphone extra. You always have the knowledge of what to do in our subconsciousness. The computers, with a little bit of coding can do the same thing, because they run on algorithms. Even the smallest human movements have an algorithm behind them.

The goal of this work is to find how algorithms are involved in our life and how algorithms surround us.

What is an algorithm?

An algorithm is a step by step method of solving a problem. Anytime you make a decision or a choice of any kind you are performing an algorithm. Our method of thinking is really a result of algorithms in a mental state it is analogous to what we use to obtain results in a computer. Their use as mental magic tools to get results when a decision is needed is an illusion.

How are they involved in our lives?

As was said earlier, algorithms are a way of thinking. Common-sensical math and physics is enough for most people to get around (like crossing the lawn takes shorter time than going around it etc). Algorithms do come in handy, for some tasks that some people might face daily.

Paperwork.

Filing paperwork every day? This is where algorithms would come in handy. Filing is a repetitive task where thinking algorithmically would help save time. Suppose you have to duplicate several folders of documents.
This involves taking out the papers to photocopy, punch holes and filing them into new files. Is it easier to

take all the papers out, then photocopy all together, or take each one separately and photocopy the documents one by one? Is it easier to punch the holes for all the papers first before filing them?
Algorithmic thinking would tell you that it is faster to take all the papers out, photocopy all at once by pressing that big button on the photocopy machine, and then punch all the holes at once before filing them. Of course, one then has to separate those documents again after punching holes. This helps in improving the efficiency of the method of filing.

Sorting

Having to sort through lots of documents/books each day (e.g. in libraries)? Most people don't realize, but we usually use a version of gapped insertion sort called the library sort [1]. Even though there are sorting methods with faster asymptotic time (like mergesort or quicksort), library sort is practically enough to get the job done.

Best/worst case scenario analysis

In making business decisions, one often needs to look at the whole situation and consider the scenarios that might turn out. Algorithmic training helps one practice the discipline of considering the best/worst case scenario analysis, taking into account all the possible edge cases.

Scheduling and prioritizing

Having lots of events to attend and not sure which one to cancel? If they were all equally (un)important, which is the way that one can attend most of them? This is the well-known event scheduling problem which can be solved by a greedy algorithm - at each time, choose the one which end the earliest, until all the time is filled up. Of course, this is unrealistic when one considers real life factors like the importance of the events and transportation time etc., but this gives one a quick solution which can be modified upon.[1]

How algorithms surround us?

Searching.

There are over a billion websites in the world, yet using search engines like Google and Bing gives us results in fractions of a second. This is only possible because of algorithms. They have transformed our lives by sorting through the vastness of the internet and giving us relevant, instantaneous results. PageRank is one such algorithm. It works by giving each webpage a value based on how many other websites link to it, and on how well ranked those other sites are themselves. Good algorithms are worth millions to tech companies – the PageRank algorithm was important to Google's success. And its algorithms that work out the 'you may also enjoy' suggestions on sites like Amazon, YouTube and Netflix. They are closely guarded secrets as they are the drivers of these websites' success and profitability.

Flying.

Operating a big airport is made more efficient using algorithms. Making sure hundreds of planes, and thousands of passengers are in the right place at the right time, not to mention flight staff, fuel, meals and luggage, has become too complex for humans. But computers can handle the job using algorithms. They are also helping out in airport security using algorithmic face detection.

Making money.

Talented mathematicians now work in the finance sector creating powerful algorithms. Traditionally, investment decisions were based on research and intuition, but now algorithms are driving them. In 'algorithmic trading', an algorithm is plugged directly into an electronic market and trading happens without any human intervention. In a changing and complex marketplace algorithm can predict where the most money can be made, faster and more accurately than any human being.[2]

Conclusion

In conclusion, knowledge of algorithms can be generally helpful for people to solve several types of real life problems, albeit with some approximations; sometimes as a quick solution which can be modified upon. Our life is full of algorithms. You may not even notice, but they are behind everything.

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