
CISC320 Algorithms

ALGORITHM MISCONCEPTIONS

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True, False, or Meaningless?

"Linked Lists are always faster to traverse than Dynamic Arrays"



FALSE

Okay, so today, we're going to go over some Algorithm Misconceptions.
A lot of these are probably going to be very surprising.

Alright, let's start with a basic one.

"Linked Lists are faster to traverse than Dynamic Arrays"

ATB: Ah, yes, this is quite the easy one. It is true.

Bart: Yep, that's right, it's not – Wait, what? ATB, the answer is False!

ATB: What, are you sure?

Bart: Yes. If you have 15 elements in a List, and you want to access each one, it doesn't matter whether they are in a Linked List or a Dynamic Array, it's going to take you 15 steps either way.

ATB: I don't think that is correct. You see linked lists have connections between nodes, so you can get to the next element faster.

Bart: That doesn't change anything. Dynamic arrays let you access any element in a single step, so it's not any slower or faster. I mean, technically a computer's cache can make dynamic arrays faster in practice, but that doesn't have anything to do with the number of steps if everything is already in memory.

ATB: No, I am not thinking of whether things are on disk. My analysis, which is perfect, indicates that linked lists are faster to traverse than dynamic arrays.

Bart: Well, your analysis is wrong, ATB. I don't know what's going on here. Let's try a more basic question.

True, False, or Meaningless?

"1+2 is the sum of Apple"



Meaningless

Bart: Okay, this one should be a little easier for you. Is this true, false, or meaningless?

ATB: Yes, I agree, this one is quite easier. The answer is True.

Bart: [Awkward silence] ATB, it's asking if 1+2 is the sum of Apple.

ATB: Ah, yes, I meant to answer False.

Bart: No, ATB, it's not false! How can the expression be the sum of a word? It doesn't make anything sense!

ATB: Oh. Is the answer 3?

Bart: No, no, we're not trying to calculate 1+2. We're trying to decide if the statement makes sense.

ATB: Oh. [Awkward silence] Then is the answer 4?

Bart: ATB, I'm really worried about you. I think we're going to have end this lecture video early so I can run some diagnostics. Hey, sorry to put this all on you, but could you answer the rest of the questions yourself? Feel free to work together and to ask me for help, but I gotta take a closer look at this guy and see what's up.

ATB: The answer really is True, though, isn't it?

Bart: It's quiet time, ATB.