

Hello, Turing

Today's topic:

**Data structures, Algorithms &
Why you should leetcode?**

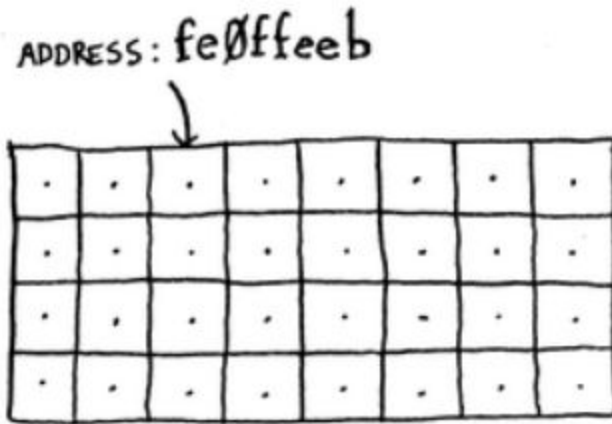
Why?

github.com/elaine-zheng/summer2020internships



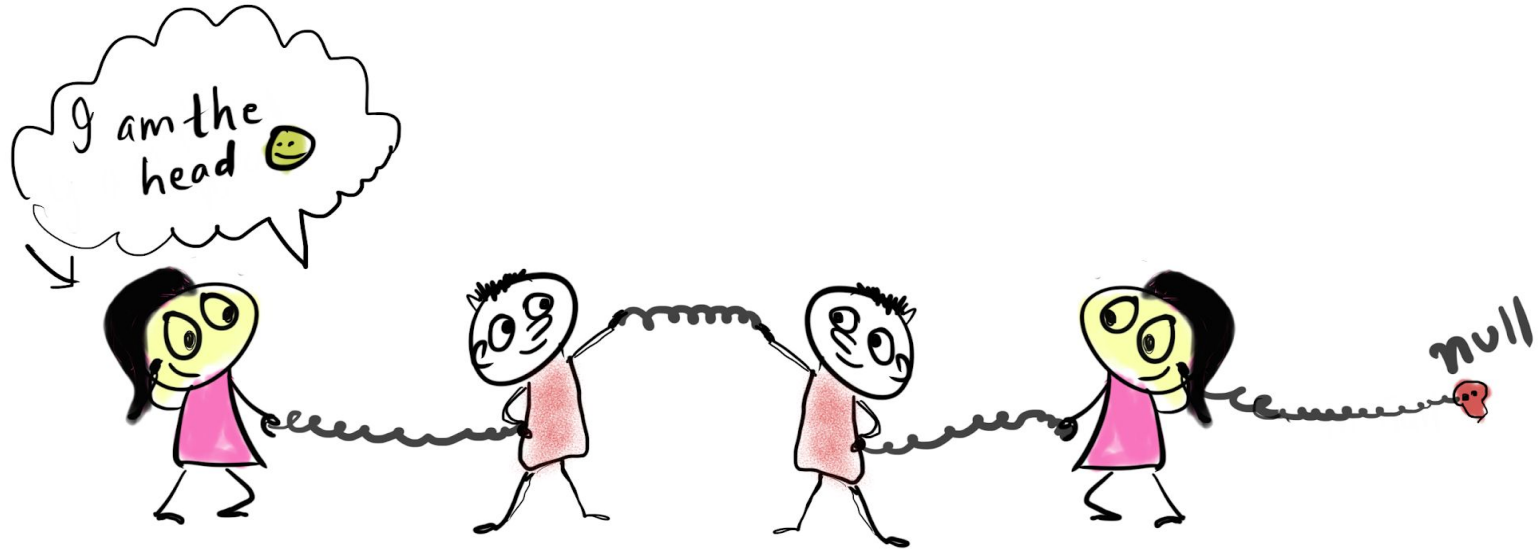
Linked Lists, Arrays, Trees, Hash Tables, etc ...

How memory works?



fe0ffeeb is the address of a slot in memory.

Linked lists



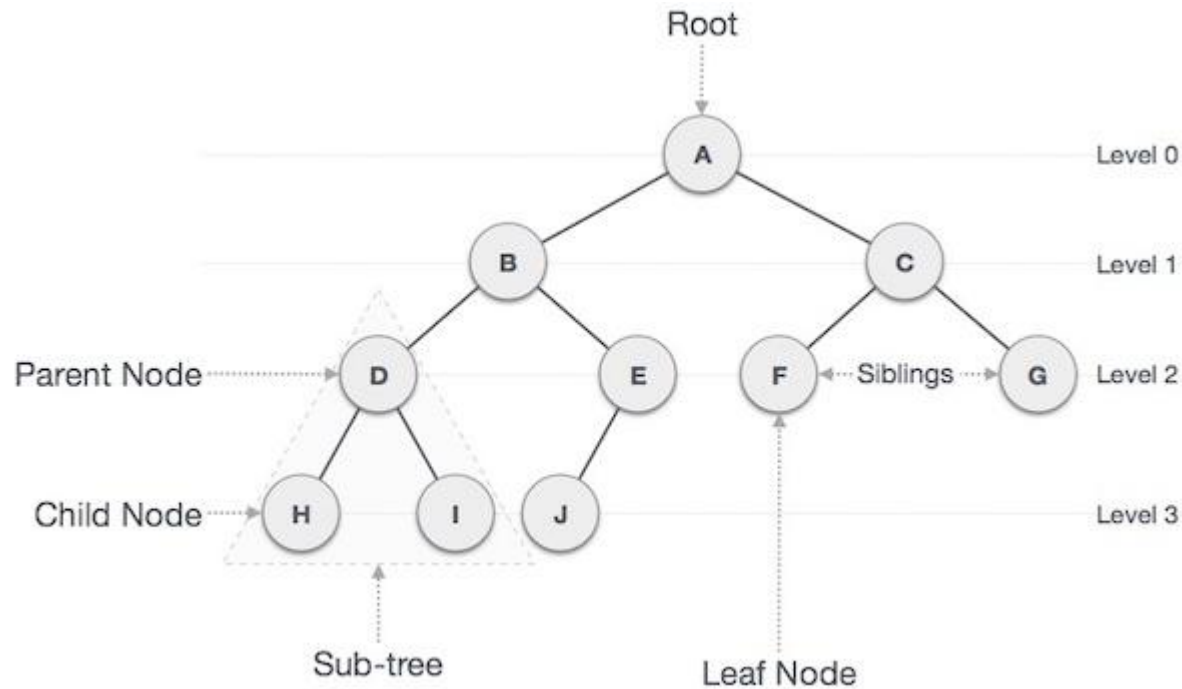
Linked Lists vs Arrays

	ARRAYS	LISTS
READING	$O(1)$	$O(n)$
INSERTION	$O(n)$	$O(1)$

$O(n)$ = LINEAR TIME

$O(1)$ = CONSTANT TIME

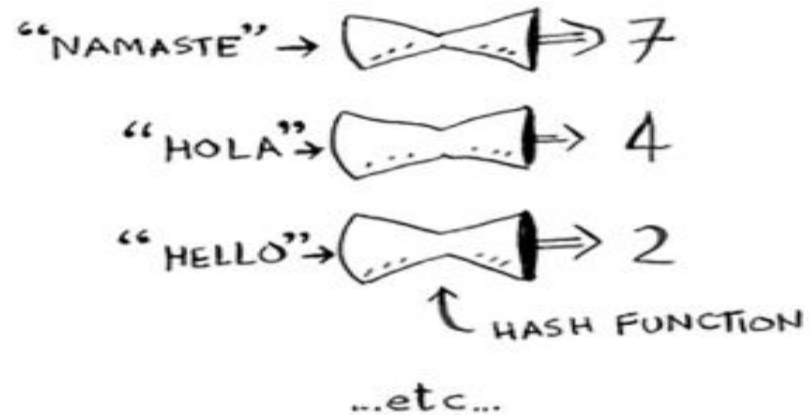
Trees



Hash table

# OF ITEMS IN THE BOOK	SIMPLE SEARCH	BINARY SEARCH	MAGGIE
	$O(n)$	$O(\log n)$	$O(1)$
100	10sec	1sec	INSTANT
1000	1.6 min	1sec	INSTANT
10000	16.6 min	2sec	INSTANT

Hash function



Popular algorithms

- DFS
- BFS
- Dijkstra
- etc...

Resources

Books

- Grokking algorithms
- Cracking the coding interview
- Bill Gates: -If you think you're a really good programmer... read The Art of Computer Programming(Donald Knuth)... You should definitely send me a résumé if you can read the whole thing

Platforms

- Leetcode.com
- Codeforces.com
- Codesignal.com
- Hackerrank.com

Thank you, Turing