ACM ICPC & OTHER HINTS TIPS TRICKS

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AGENDA

- QUICK RECAP
- ACQUIRE THE TASTE
- ACTUAL ADVICE
- SAMPLE ROUND

COMPETITIONS

- PROBLEM SOLVING
- NO SOFTWARE ENGINEERING
- TEAM WORK (USUALLY)

ACM ICPC

- ANNUAL, STAGED
  - STUDENTS, AGE CAP
- 5H, 1C, 3P, ~12T
- AT MOST 5X OR 2 FINALS

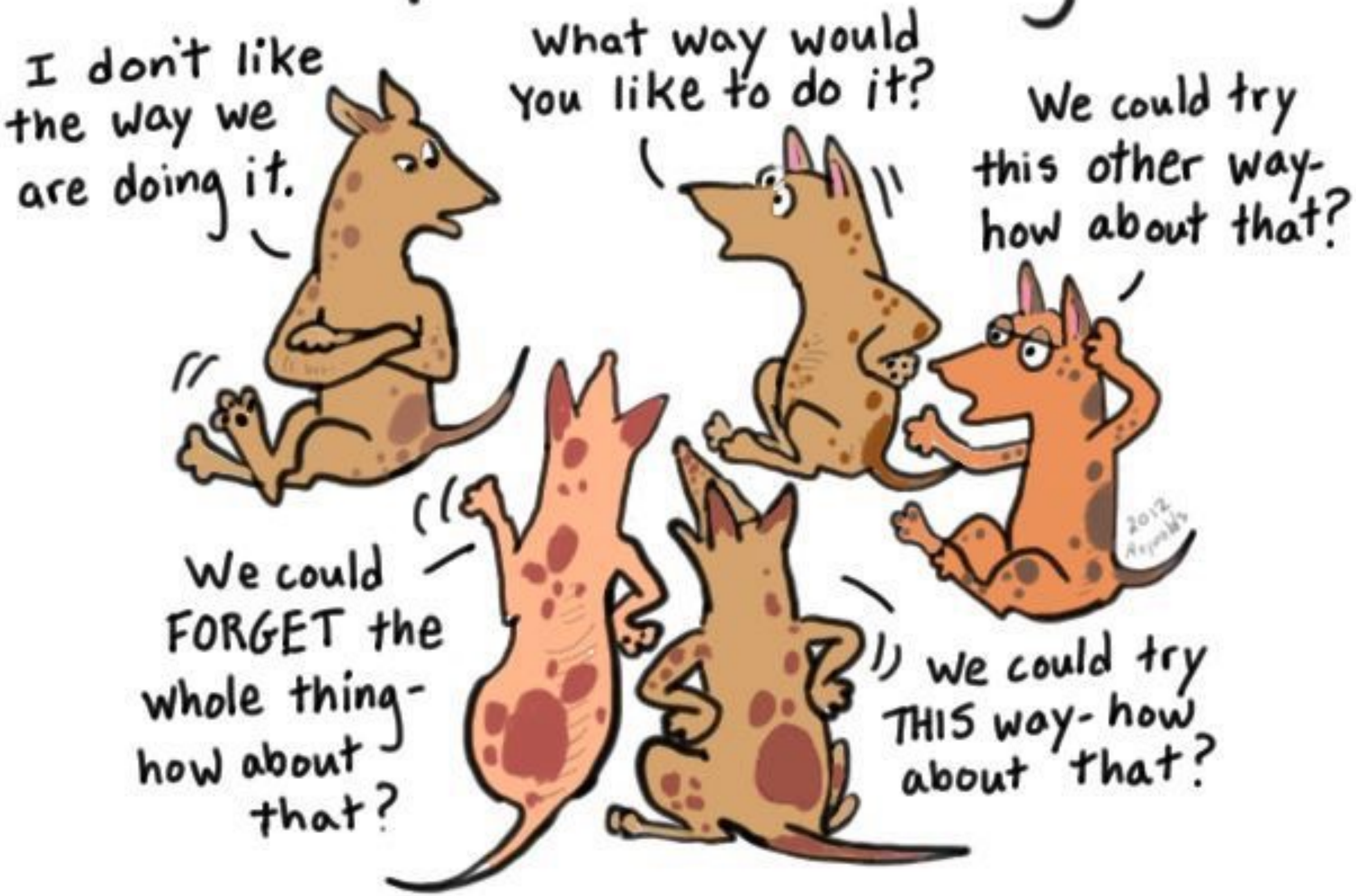
IEEEXTREME

- ANNUAL
  - IEEE MEMBERS? :)
- 24H, 3C, 3P, ~24T

TOPCODER

- ALL THE TIME
  - RATING SYSTEM
- 1.5H, 1C, 1P, 3T
- CHALLENGE PHASE

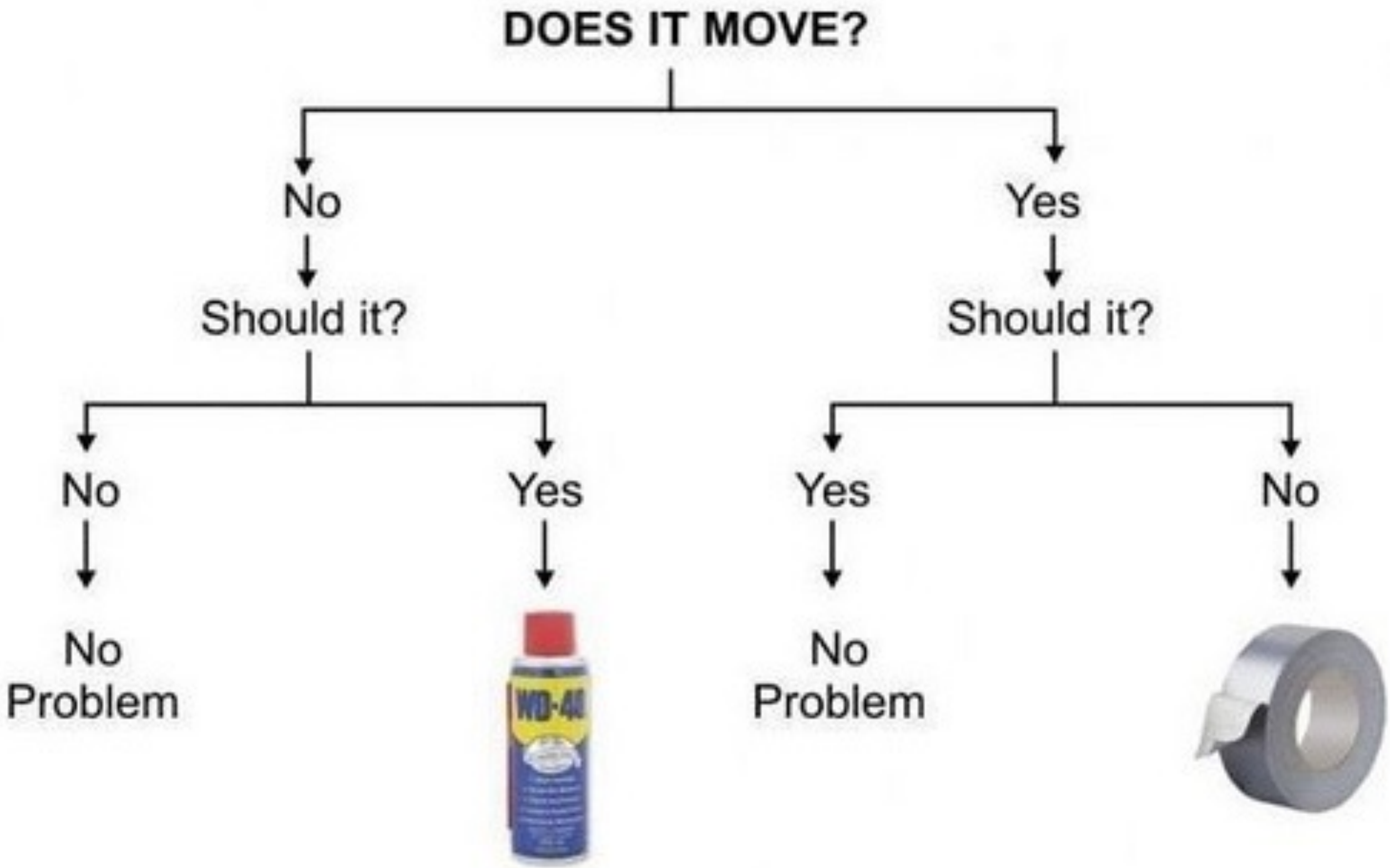
This is problem solving:



TASTE THE BLOOD

- http://goo.gl/qjzJUE
- let’s form teams!
- 15 minutes

Engineering Flowchart



PREPARATION ROUND

- CAN YOU ADD NUMBERS?
- CAN YOU ADD MORE NUMBERS?

PREPARATION ROUND

- TIME LIMITS
- API SUBTLETIES
- MEMORY LIMITS
- EXCEPTION REPORTING

A	B	C	D	E	F	G	H	I	J	K
+ 00:21		+ 01:33	+ 00:38		+ 01:47	+ 00:11	+ 00:14		+ 01:21	+ 00:32
+ 00:16		-1	+ 00:58		+ 01:36	+ 00:07	+ 00:22		+ 00:45	+ 01:20
+ 00:19		+1 01:31	+2 01:14		+1 01:36	+ 00:23	+1 00:32		-1	+ 00:48
+ 00:27			+3 01:45		+ 00:54	+ 00:13	+ 00:09			+ 01:10
+ 00:11			+4 01:10		+1 01:25	+ 00:16	+ 00:23			+ 01:39
+1 00:59		+1 01:14	-2		+ 01:36	+1 00:23	+ 00:40			+2 01:43
+ 00:48			-2	+1 00:19		+ 00:25	+ 00:30			+ 01:11
+ 00:36					+ 01:03	+ 00:17	+1 00:25			+ 01:15
+ 01:04			+1 01:46			+ 00:14	+ 00:07			+ 00:58
+1 00:25				+ 00:59		+1 00:37	+ 00:29			+ 01:32
+ 00:15			+ 01:43	+ 01:16		+ 00:22	+1 00:49			

RESPONSIBILITIES

- SOLVING ON PAPER
- PAIR PROGRAMMING
- MAKING COFFEE
- ASKING DUMB QUESTIONS
- PREPARING TEST CASES

Compilation error

localhost:9000

Compilation error

Parse error. Internet Explorer has a non-standard intepretation of trailing commas. Arrays will have the wrong length and objects will not parse at all.

In /Users/erwan/Devel/Play20/samples/jscompilation/app/assets/javascripts/test.js at line 9.

```
5  function tata(toto, second) {
6      alert(sum(first, second));
7  }
8
9  tata([2,3,], 4);
```

HTTP://BIGOCHEATSHEET.COM/

Searching

Algorithm	Data Structure	Time Complexity		Space Complexity
		Average	Worst	Worst
Depth First Search (DFS)	Graph of |V| vertices and |E| edges	-	O(|E| + |V|)	O(|V|)
Breadth First Search (BFS)	Graph of |V| vertices and |E| edges	-	O(|E| + |V|)	O(|V|)
Binary search	Sorted array of n elements	O(log(n))	O(log(n))	O(1)
Linear (Brute Force)	Array	O(n)	O(n)	O(1)
Shortest path by Dijkstra, using a Min-heap as priority queue	Graph with |V| vertices and |E| edges	O((|V| + |E|) log |V|)	O((|V| + |E|) log |V|)	O(|V|)
Shortest path by Dijkstra, using an unsorted array as priority queue	Graph with |V| vertices and |E| edges	O(|V|^2)	O(|V|^2)	O(|V|)
Shortest path by Bellman-Ford	Graph with |V| vertices and |E| edges	O(|V||E|)	O(|V||E|)	O(|V|)

TRAINING

- TRAINING IS HARD
- TRAINING IS TIME CONSUMING
- PEOPLE ARE LAZY
- DON’T BE LAZY!
- PROFIT!

VS

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- http://codeforces.com/gym/100503
  - REGISTER
  - **LOGIN**
  - **SOLVE**

DON'T WORRY SIR.
I'M FROM THE INTERNET.