

day 2

office hours

cs50.harvard.edu/mba/hours

*What time does the class end each day?
Normally classes in this time slot end at 2:35, but
there is some variation so it is not immediately
obvious from the syllabus. Thanks!*

This is a kind of silly question, but does the term "hashtagging" have anything to do with hashed data structures? That is, are they actually making it simpler for the computer to sort through identically "tagged" items by hashing them? Or is it just coincidence?

<http://www.cmu.edu/homepage/computing/2014/summer/originstory.shtml>



Chris Messina 🦴



@chrismessina

 Follow

how do you feel about using # (pound) for groups. As in
[#barcamp](#) [msg]?

3:25 PM - 23 Aug 2007

791 RETWEETS **1,305** FAVORITES



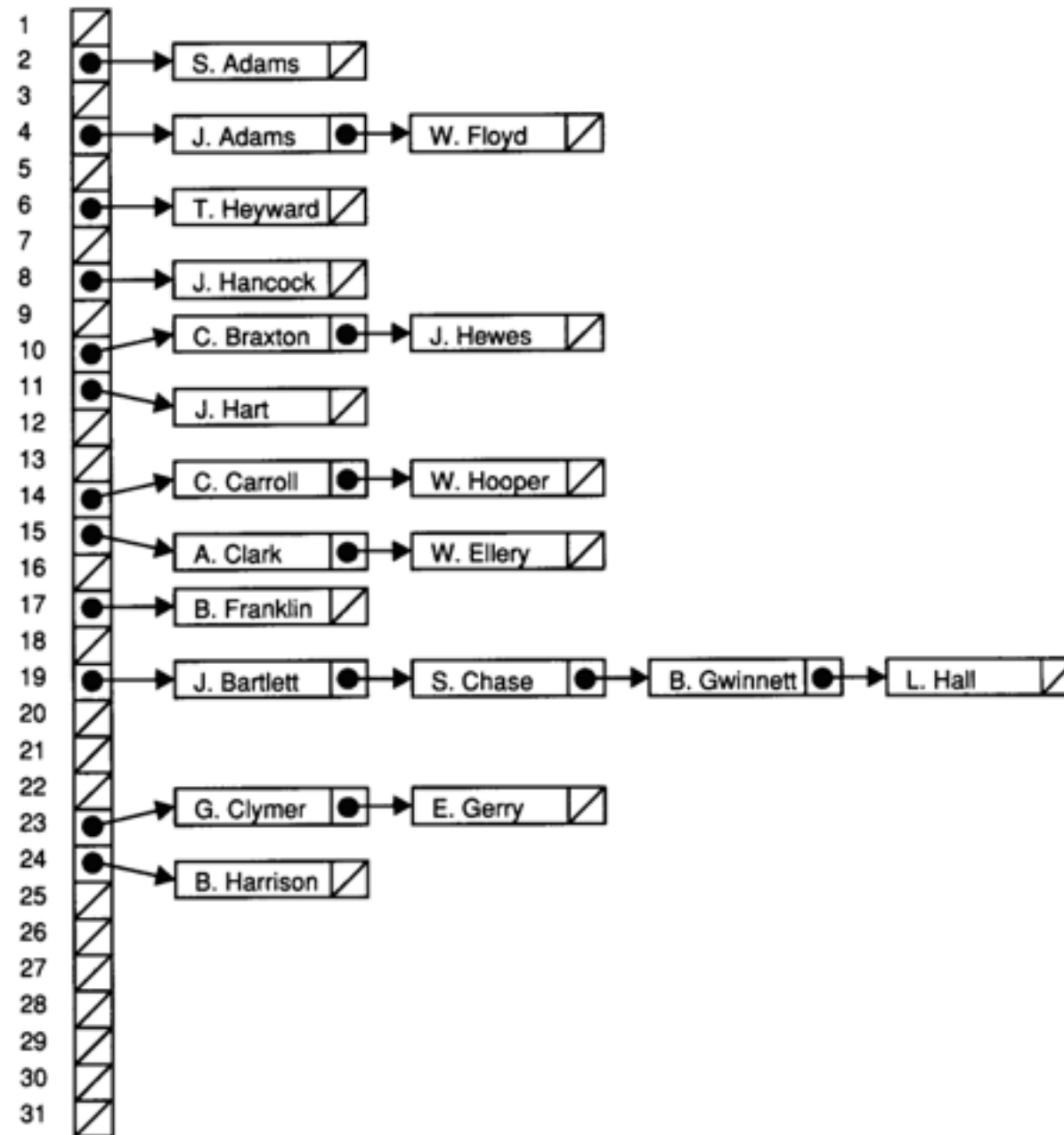
In the context of programming, what's an array?

Why does sorting n integers require, at least, $O(n)$ time?

http://en.wikipedia.org/wiki/Comparison_sort

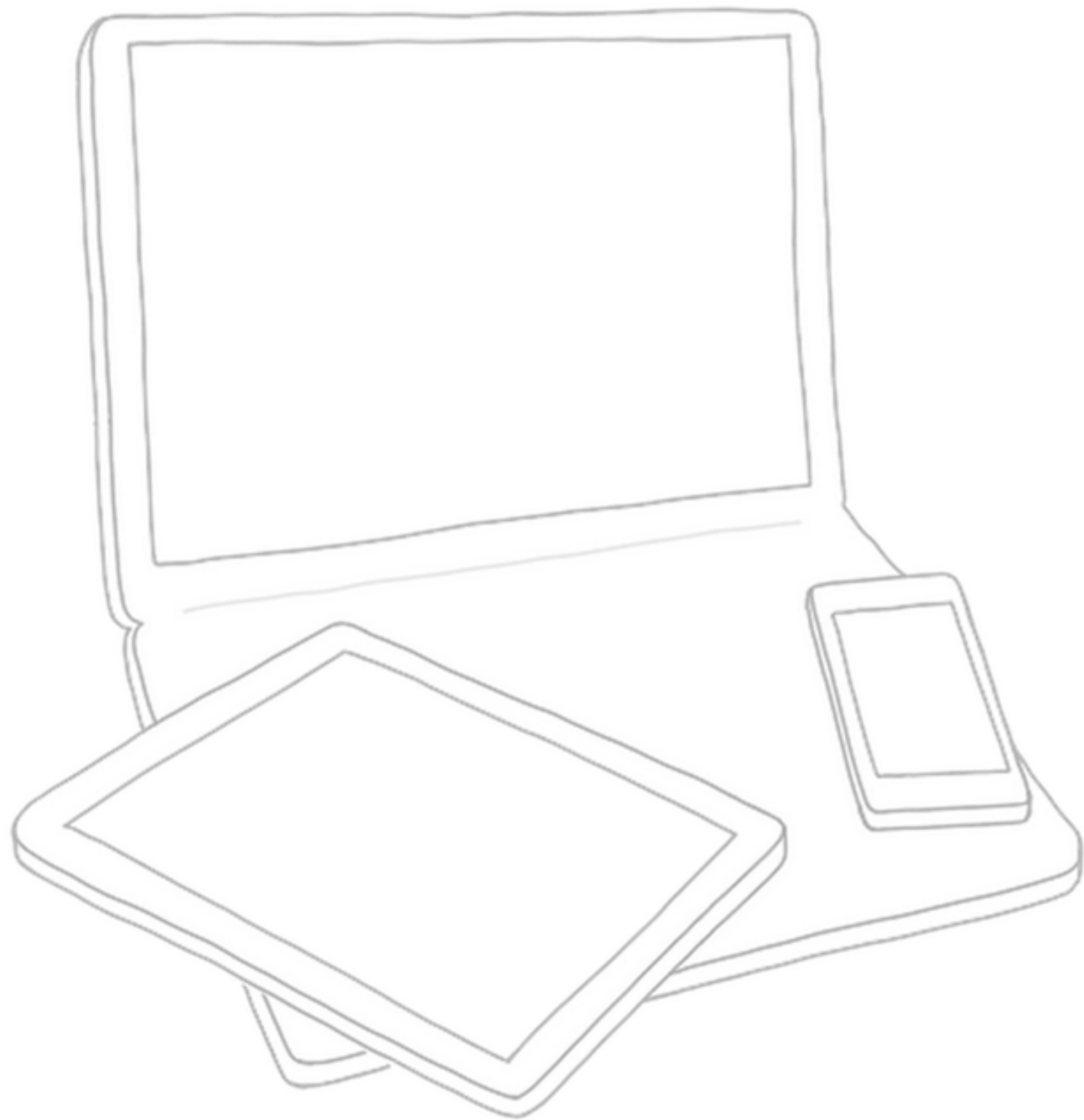
Recall that searching for a word in a linked list requires $O(n)$ time and that searching for a word in a hash table (with separate chaining) also requires $O(n)$ time. But why, in practice, does searching for a word in a hash table actually take less time?

hash table, with separate chaining



ALGORITHM

```
graph LR; A[A] --> L[L]; L --> G[G]; G --> O[O]; O --> R[R]; R --> I[I]; I --> T[T]; T --> H[H]; H --> M[M];
```



Your stuff, anywhere

[Sign up](#)

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ALGORITHM

```
graph LR; A --> L; L --> G; G --> O; O --> R; R --> I; I --> T; T --> H; H --> M;
```

Pseudocode



let **N** = 0



for each person in room



Set **N** = **N** + 1



let **N** = 0



for each person in room



Set **N** = **N** + 1



let **N** = 0



for each person in room



Set **N** = **N** + 1



let **N** = **0**



for each person in room



Set **N** = **N** + **1**

TEST COMPLETE



let $N = 0$



for each pair of people in room



Set $N = N + 2$



If 1 person remains then



Set $N = N + 1$

3



code

source code

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    printf("hello, world\n");
```

```
}
```

10000011	00000001	00010001	00000000	00111101	11111100	01110100	00111101
00000000	01000000	00000000	00000000	00000000	00000000	00000000	00000000
10010000	00000000	00000000	00000000	01010000	00000000	00000111	00110000
00001011	00000001	00001011	00000011	00001010	00000000	00000000	00000000
00000000	00100000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00100000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01110000	00010000	00000000	00100000	00000001	00000000	00000000	00000000
00000000	00000000	00000000	00100000	00000001	00000000	00000000	00000000
00000000	00000000	00000000	01000000	00000001	00000000	00000000	00000000
00000000	00100000	00000000	01000000	00000001	00000000	00000000	00000000
11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
10010000	10000000	00000000	01000000	00000001	00000000	00000000	00000000
00101110	01100100	01111001	01101110	01100001	01101101	01101001	01100011
10110000	00000100	00000000	00100000	00000001	00000000	00000000	00000000
10110000	00000100	00000000	00100000	00000001	00000000	00000000	00000000
10100000	00000001	00000000	00000000	00000000	00000000	00000000	00000000
10110000	00000100	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00100000	00000000	00000000

...

source code

source code



compiler

source code



compiler



object code

source code



compiler



object code



CPU

```
print "hello, world"
```

source code

source code



interpreter

source code



interpreter



CPU

when  clicked

say hello, world!

say hello, world!

scratch.mit.edu

statements

A Scratch 'say' block, which is a purple block with a notch on the left side. It contains the text 'say' in a smaller font and 'hello, world!' in a larger font, both in white. The block has a slight shadow underneath it.

say hello, world!

statements

wait 1 secs

statements



Boolean expressions



mouse down?

Boolean expressions



Boolean expressions

`touching` `mouse-pointer` `?`

Boolean expressions



conditions



conditions



conditions



loops



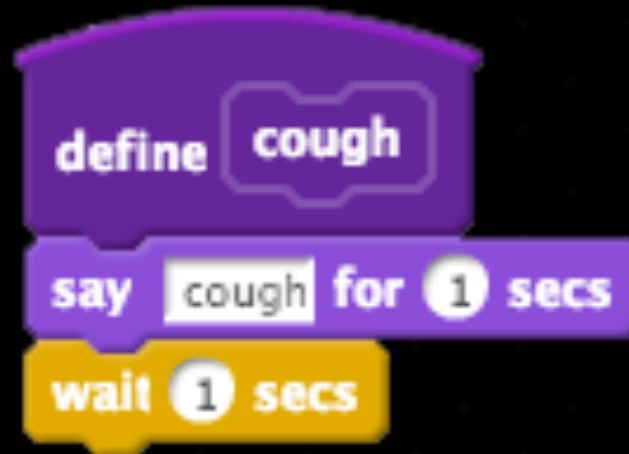
loops



variables



functions



wait 2 secs

arrays

add thing to inventory ▼



threads



events

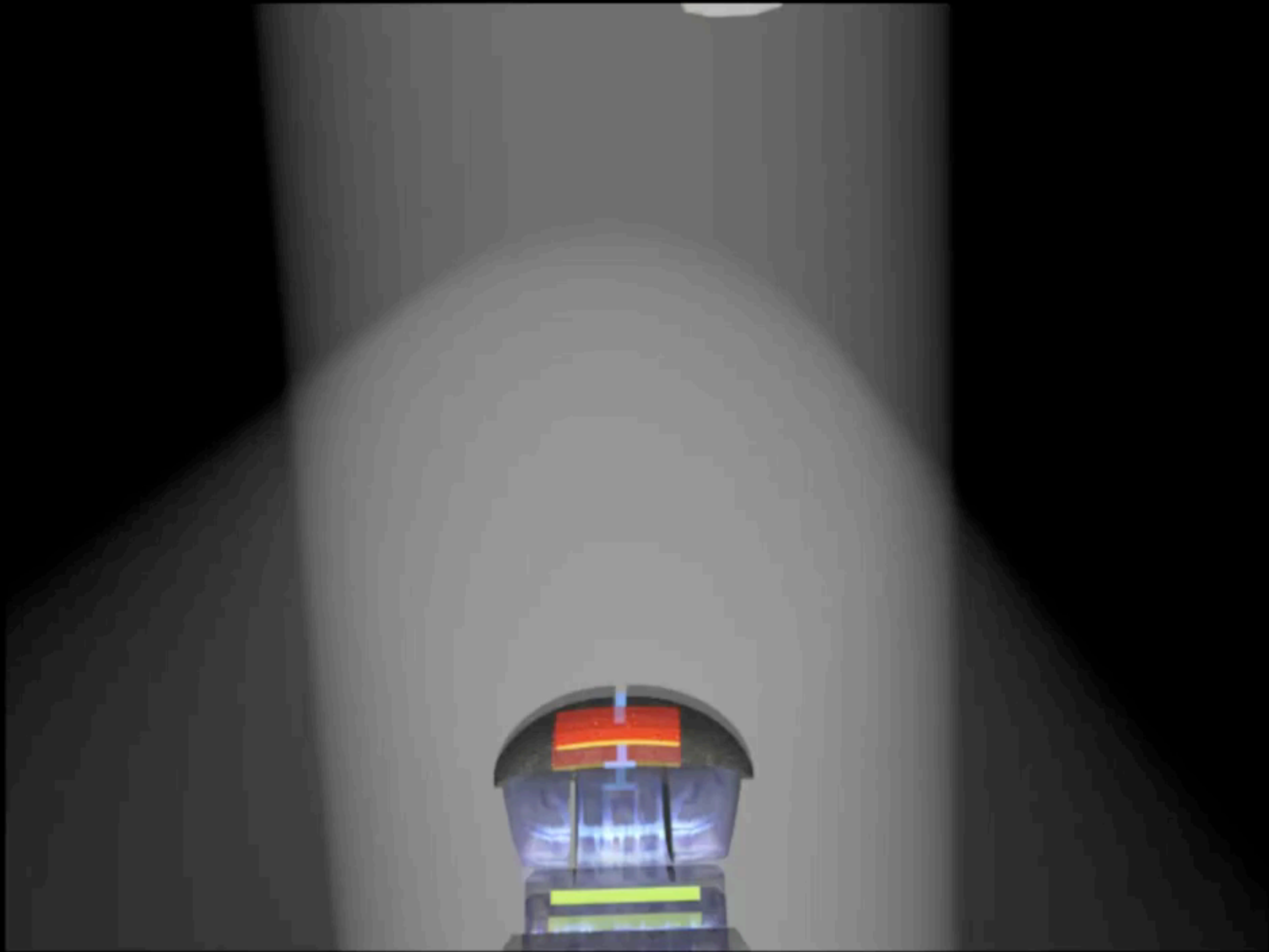


assignment 2

due by 7:00am on Thu 3/26

project 0

due by 7:00am on Mon 3/30



cs50.net/mba/space

to be continued