## This is CS50

## 77\% of the people around you have no prior experience

One
17\%

Zero prior courses
77\%

## gender



## comfort



## 87

## size of CS50's staff


http://accidentalafterthought.wordpress.com/20 I I/02/03/the-phonebook-other-life-lessons/phonebook/

## an algorithm

I. stand up and think of the number I
2. pair off with someone standing, add your numbers together, and adopt the sum as your new number
3. one of you should sit down; the other should go back to step 3




http://www.free-extras.com/images/tennis_ball-IOI9.htm

## Omelette Recipe

I. Put egg in bowl.
2. ...


$$
\theta
$$





$$
\begin{gathered}
\text { OTTFF?SENT } \\
\text { P?MDAS } \\
\text { D?MFSLTD } \\
\text { ROYGB?V } \\
\text { MV?MJSUN } \\
\text { JFMAMJJA?OND }
\end{gathered}
$$

## CS50 Puzzle Day, by Facebook cs50.net/register

## Dinner with CS50 and Facebook cs50.net/rsvp

## courses.cs50.net



## 2,567

Facebook users

## 25,223

## courses on shopping lists

## 7

average number of courses on shopping lists

## 125

most courses on someone's shopping list

## 123

## runner-up

## 3pm - 7pm

most popular time to be busy

## 7am - 10am

 most popular time to be "busy"$\qquad$ | CS50.net | CS50.tv | djm '99

## Shuttleboy

## Popular Trips $\quad$ :

Card Mac SMS Voice
Shuttleboy has been updated for 2011 - 2012. Pre-order a new Shuttleboy Card.


| Origin | Destination |
| :--- | ---: |
| 114 Western Ave | 114 Western Ave |
| Boylston Gate | Boylston Gate |
| Harvard Square | Harvard Square |
| HBS Rotary | HBS Rotary |
| HKS | HKS |
| Lamont Library | Lamont Library |
| Mass Ave Garden St | Mass Ave Garden St |
| Mather House | Mather House |
| Memorial Hall | Peabody Terrace |
| Peabody Terrace | Pound Hall |
| Pound Hall | Quad |
| Quad | Soldiers Field Park |
| Soldiers Field Park | Stadium |
| Stadium | Winthrop House |
| Winthrop House |  |


|  | Departs | Arrives | Duration |  |
| ---: | ---: | ---: | ---: | :--- |
| 5 min from now: | $11: 50$ | $12: 00$ | 10 min | Quad Express |
| 15 min from now: | $12: 00$ | $12: 10$ | 10 min | Quad Express |
| 35 min from now: | $12: 20$ | $12: 30$ | 10 min | Quad Express |
| 45 min from now: | $12: 30$ | $12: 40$ | 10 min | Quad Stadium |
| 55 min from now: | $12: 40$ | $12: 50$ | 10 min | Quad Express |
| 1.1 hrs from now: | $12: 50$ | $13: 10$ | 20 min | Quad Sladium |
| 1.4 hrs from now: | $13: 10$ | $13: 20$ | 10 min | Quad Express |
| 1.6 hrs from now: | $13: 20$ | $13: 30$ | 10 min | Quad Stadium |
| 1.8 hrs from now: | $13: 30$ | $13: 40$ | 10 min | Quad Express |
| 2.1 hrs from now: | $13: 50$ | $14: 00$ | 10 min | Quad Express |
| 2.2 hrs from now: | $14: 00$ | $14: 10$ | 10 min | Quad Express |
| 2.4 hrs from now: | $14: 10$ | $14: 20$ | 10 min | Quad Express |
| 2.6 hrs from now: | $14: 20$ | $14: 30$ | 10 min | Quad Express |
| 2.8 hrs from now: | $14: 30$ | $14: 40$ | 10 min | Quad Express |
| 2.9 hrs from now: | $14: 40$ | $14: 50$ | 10 min | Quad Express |
| 3.1 hrs from now: | $14: 50$ | $15: 00$ | 10 min | Quad Express |
| 3.2 hrs from now: | $15: 00$ | $15: 10$ | 10 min | Quad Express |
| 3.4 hrs from now: | $15: 10$ | $15: 20$ | 10 min | Quad Express |
| 3.6 hrs from now: | $15: 20$ | $15: 30$ | 10 min | Quad Express |
| 3.8 hrs from now: | $15: 30$ | $15: 40$ | 10 min | Quad Express |
| 3.9 hrs from now: | $15: 40$ | $15: 50$ | 10 min | Quad Express |
| 4.2 hrs from now: | $16: 00$ | $16: 10$ | 10 min | Quad Express |
| 4.6 hrs from now: | $16: 20$ | $16: 30$ | 10 min | Quad Express |
| 6.4 hrs from now: | $18: 10$ | $18: 40$ | 30 min | River Houses A-B-C |
| 7.1 hrs from now: | $18: 50$ | $19: 20$ | 30 min | River Houses A-B-C |
| 7.8 hrs from now: | $19: 30$ | $20: 00$ | 30 min | River Houses A-B-C |
| 8.4 hrs from now: | $20: 10$ | $20: 35$ | 25 min | River Houses A-B-C |
| 10.4 hrs from now: | $22: 10$ | $22: 45$ | 35 min | River Houses A-B-C |

## APls



## hello, world

## expectations

attend all lectures and sections
submit nine problem sets
take two quizzes
submit a final project

## grades

## Pass/Fail or letter grade

PASS
PASS

## problem sets <br> editions, late days, lowest dropped



## CS50 Appliance




| (6) Run Program... |  |
| :---: | :---: |
| (4) CS50 Manual | > |
| (1) Share Screen |  |
| * Administration | > |
| Preferences | > |
| A8 Accessories | > |
| (86) Graphics | > |
| (3) Internet | > |
| $\checkmark$ Programming | > |
| 罭 Sound \& Video | > |
| * System | > |
| (6) Log Out |  |





## office hours



## MTWTh

9pm - 12am



| What's your question about? |  |  |  | $\checkmark$ |
| :---: | :---: | :---: | :---: | :---: |
| So that we can send you to the right person, what's your question in a short sentence? |  |  |  |  |
| Raise your hand |  |  | $\square$ Make me invisible to classmates |  |
| Queue |  |  |  |  |
| Position | Name | Question |  |  |
| 1 | Harry Potter | Dark Arts I cannot seem to get my Patronus to work... |  |  |
| 2 | Ron Weasley | Other How do you get to the Chamber of Secrets? |  |  |
| 3 | Hermione Granger | History of Magic I found several mistakes in our textbook and would like to discuss them. |  |  |
| 4 | Gilderoy Lockhart | Charms How do you cast spells? |  |  |
| 5 | Sirius Black | The Order How can I escape Azkaban? |  |  |
| 6 | Albus Dumbledore | Dark Arts Why are you not enrolled in CS50? |  |  |

Search

## Dark Arts Harry Potter

cannot seem to get my Patronus to work.

2 Other Ron Weasley
How do you get to the Chamber of Secrets?

3
History of Magic Hermione Granger
I found several mistakes in our textbook and would like to discuss them.
(4) Charms

Gilderoy Lockhart
How do you cast spells?

5 The Order Sirius Black
How can I escape Azkaban?

6 Dark Arts Albus Dumbledore
Why are you not enrolled in CS50?

Minerva McGonagall
Pomona Sprout
Filius Flitwick

Severus Snape

## lectures

## Welcome

HES, HBS, Belmont High,Watertown High, OCW

## week 0

Introduction. Bits. Binary. ASCII. Programming. Algorithms. Scratch. Statements. Boolean expressions.

## week I

C. Source code. Compilers. Object code. SSH. SFTP. GCC. Functions. Comments. Standard output.
Arithmetic operators. Precedence. Associativity. Local variables. Types. Casting. Standard input. Libraries. Boolean expressions, continued. Conditions, continued. Loops, continued.

## week 2

Functions, continued. Global variables. Parameters. Return values. Stack. Frames. Scope. Arrays. Strings. Command-line arguments. Cryptography.

## week 3

Linear search. Binary search. Asymptotic notation. Recursion. Pseudorandomness. Bubble sort. Selection sort. Insertion sort. Merge sort. Debugging.

## week 4

Structures. Dynamic memory allocation. Stack and heap. Pointers. Debugging, continued.

## week 5

File I/O. Forensics. Linked lists. Stacks. Queues.

## week 7

Valgrind. Bitwise operators. Hash tables. Trees. Binary search trees. Tries. Huffman coding.

## week 8

HTTP. HTML. PHP. SQL.

## week 9

CSS. Inheritance. JavaScript. Events, continued. Ajax.

## week 10

JavaScript, Continued.

## sections

## psets






数独

| 8 |  | 4 | 6 |  | 7 |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | 1 |  |  | 4 | 7 |
| 5 |  |  | 6 | 6 |  |
| 5 | 9 | 3 |  | 7 | 8 |
|  | 1 | 8 | 7 |  |  |
| 4 | 8 | 2 | 1 | 3 |  |
| 5 | 2 |  |  |  | 3 |
|  | 1 |  |  |  |  |
| 3 |  | 9 | 2 |  |  |



Teh Computer Science 50 learnz you about intertubes in teh cloudz. David J. Malan will pwn u ftw so watch out.



## walkthroughs

## CS50 Lounge

lounge.cs50.net







## cs50.net

## cs50.tv



》 David: Welcome, my name is David Malan and this is CS50. And, this is not your typical high school computer science course. This course is a little something special. And it's not because I'm teaching it. It's because this is one of, we like to think, those rare courses that actually squeezes your brain so much and your schedule so much that by semester's end you genuinely feel smarter. So, that was the way I felt when I myself took this course back in 1996. I was a government major at the time here living in Mather House. And, I.

## Cheering

As are the other, the five others there. So, I was a government major at the time. And I was a government major because I'd always liked history. I liked constitutional law in high school. And so, I set off on this path freshmen year doing what I do best, doing what I knew I liked. And I'd always been a bit of a geek, I'd always babbled with computers. But, I myself, perhaps ironically in retrospect, I'd always viewed the guys who were taking computer science in my high school, my friends as the real geeks. And yet, finally did, sophomore year I take this little yet, finally did, sophomore year I take this inte course called CS50 which actually had scared me away my own freshman year. And I was a user assistant at the time. So, I was certainly already qualified, at least, to be among those,

CS50 Fair



# CS50 Hackathon <br> 8:00pm - 7:00am 






## 77\% of the people around you have no prior experience

One
17\%

Zero prior courses
77\%



to be continued...

