CS61A Lecture 1

Introduction and Basics

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UC Berkeley EECS

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What is Computer Science?

"Computer science deals with the theoretical foundations of information and computation, together with practical techniques for the implementation and application of these foundations"

– Wikipedia

A computer scientist is a *problem solver*.

Computer Science is Everywhere!

- Internet
- Politics
- Vehicles
- Genetics

and more!

What is CS61A?

An introduction to the computer scientist's *utility belt*

Abstraction
Indirection
Recursion
Control Flow
Parallelism
State
Teamwork

Image: http://thehouseofel.blogspot.com/2007/08/coolest-belt-ever-made.html

Course Roadmap

Alternative to CS61A

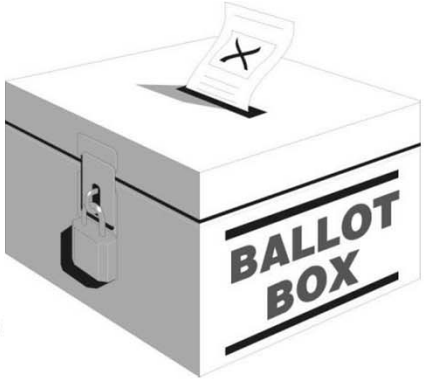
CS10: *The Beauty and Joy of Computing*

http://inst.eecs.berkeley.edu/~cs10/su12/

- More gradual introduction to CS for non-majors.
- Learn to program in BYOB ("Bring Your Own Blocks"), a graphical language and our variant of MIT's Scratch.
- Learn some of the "big ideas" of computing.
- Learn more about history, applications, and future.

Who is CS61A?


POLICE PUBLIC BOX
POLICE PUBLIC BOX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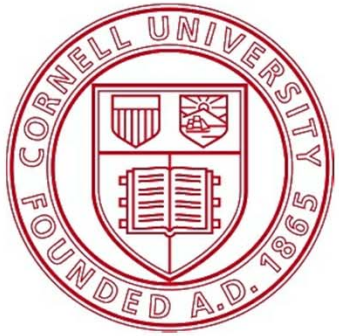
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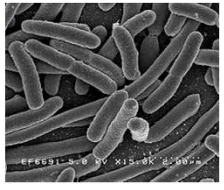


Who is CS61A?

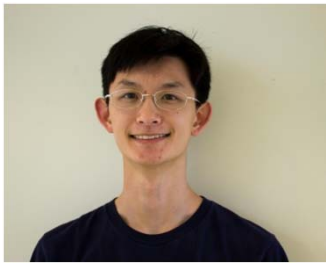
Teaching Assistants

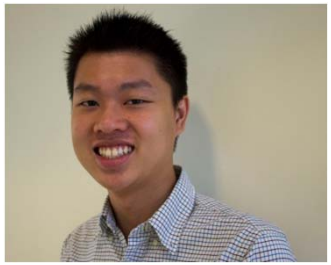

Eric Kim


Steven Tang


Joy Jeng


Stephen Martinis


Albert Wu


Allen Nguyen

Readers


Sagar Karandikar


Jack Long


Mark Miyashita


Michael Ball

Robert Huang


Keegan Mann

Lab Assistants

Meet Python

```
>>> 3
3
>>> 2 + 3
5
>>> (5 * 8) + 2
42
>>> 40 / 5
8.0
```

Meet Python

```
>>> 4 > 3
True
>>> 6 <= 5
False
>>> 6 == (3 + 3)
True
>>> 6 != 5
True
>>> (4 > 3) and (4 < 5)
True
>>> True and False
False
>>> True and True
True
```

```
>>> (4 > 3) or (4 > 5)
True
>>> True or False
True
>>> False or False
False
>>> not True
False
```

Meet Python

```
>>> ‘Hello, World!’
‘Hello, World!’
>>> ‘Greetings ’ + ‘Human’
‘Greetings Human’
```

Meet Python

```
>>> x = 3
>>> x + 5
8
>>> x * 5
15
>>> x = 4
>>> x
4
>>> x = x + 1
>>> x
5
```

Meet Python

```
>>> max(5, 6)
6
>>> max(5, min(36, 57))
36
>>> pow(2, 3)
8
```

Meet Python

```
>>> from math import pi, sqrt
>>> pi
3.141592653589793
>>> sqrt(4)
2.0
>>> sqrt(pi)
1.7724538509055159
```

Meet Python

```
>>> def square(x):
...     return x * x
...
>>> square(2)
4
>>> square(2) + square(3)
13
>>> square(square(2))
16
```

Meet Python

```
>>> def abs_val(x):
...     if x > 0:
...         return x
...     else:
...         return -x
...
>>> abs_val(-3)
3
>>> abs_val(-1) + abs_val(1)
2
```

Meet Python

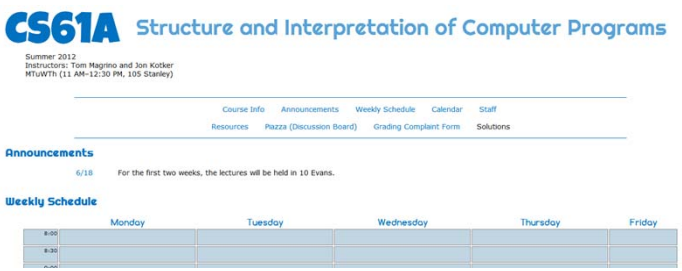
```
>>> def countdown(n):
...     while n > 0:
...         print(n)
...         n = n - 1
...     print(“Blastoff!”)
...
>>> countdown(3)
3
2
1
Blastoff!
```

Course Policies

The purpose of this course is to *help you learn*

The staff is here to *help you succeed*

Course Policies – Resources

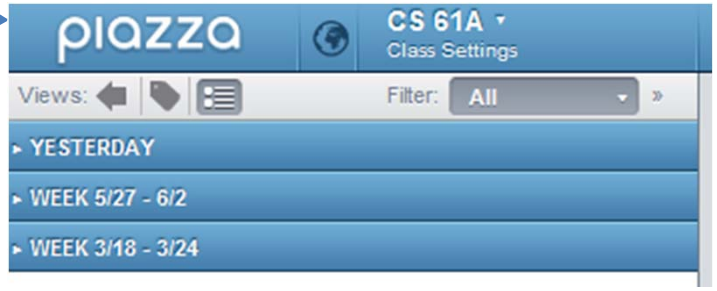


Course Website:

http://inst.eecs.berkeley.edu/~cs61a/su12

Piazza:

http://www.piazza.com/class#summer2012/cs61a



Course Policies – Grades

- This course is NOT curved!
- 300 points total:
  - 2 pts for each homework (14).
  - 2 pts for participation.
  - 90 pts for 4 projects.
  - 50 pts for each midterm (2).
  - 80 pts for the final exam.
- Grading scale on the website.

Course Policies – Homework

- Due Tuesday and Friday at 11:59:59 PM (the end of the day)
- The first homework (hw1) is already on the course webpage, due Friday (6/22).
- Each worth 2 points.
- Graded on effort!

Course Policies – Projects

- 4 projects due at 11:59:59 PM
  1. Pig – 6/29
  2. Trends – 7/6
  3. Ants vs. SomeBees – 7/24
  4. Scheme Interpreter – 8/7
- Projects 1 and 2 are individual.
- Projects 3 and 4 are partnered.
- Graded on correctness!

Course Policies – Lab and Discussion

- Conducted Monday through Thursday.
- Exercises to help you practice the course material.
- Please try to attend the section you are enrolled in each day.

Course Policies – Exams

- 2 Midterms (50 pts each):
  - 7/9 from 7:00 to 9:00 PM at 2050 VLSB
  - 7/25 from 7:00 to 9:00 PM at 2050 VLSB
- 1 Final (80 pts):
  - 8/9 from 6:00 to 9:00 PM at 1 Pimentel
- E-mail us as soon as possible if you have a time conflict!

Collaboration

- Groups for midterms and studying!
  - Midterms have group parts.
  - You will be assigned groups of 3-4 people in section on Thursday.
- **EPA**: Effort, Participation, and Altruism
  - 2 points awarded at the end of the semester.
- You are encouraged to help each other learn; however, there are limits.
  - Please don't cheat.
  - Do not ***look*** at another student's homework or project code.

Academic Dishonesty

- No, really, don't cheat: We ***will*** find out.
- Do not misrepresent someone else's work as your own.

Remember: *HAVE FUN!*

Welcome to CS61Awesome!