Administrivia

- Homework 1 has been posted
- Next Monday and Wednesday, i>clicker test sessions
WHY ARE WE HERE?
I’ve seen things you people wouldn’t believe…
Everyone should program!!!

- This is my *mission*!
Why learn to program?

a. Pervasive
b. Lucrative
c. Transferrable
d. Creative
e. Self-determination
Everyone can program

• Our goal is a safe, friendly, inclusive atmosphere for everyone to learn.
• You should feel welcome, regardless of gender, gender identity, ethnicity, nationality, religion, disability, sexual orientation, class, political views, or educational background.
• We are peers and allies. Let’s all treat one another with respect and kindness.
Programming is a **skill**!

- Learn by **doing**!
- Learn by **interacting**!
- You need to **constantly** practice.
- **Get help** when you need it!
- **WARNING**: If you are not committed to this class, you’re not going to make it!
HOW WILL THIS CLASS WORK?
Grading

- 20% homework
- 25% labs
- 10% lecture attendance (i>clicker)
- 20% midterms (2)
- 25% final exam

Official grade book will be on Compass
Required Supplies

- *No* textbook!
- i>clicker
- CodeLab account
Course website

- https://relate.cs.illinois.edu/course/sp16cs101/
  - Homework assignments
  - Course calendar
  - Course policies
- Can also find it via CoE course directory
  - https://courses. engr. illinois.edu
Labs

• *NO lab this week!*
• You *must* attend your lab section
Policies

• No late homework submissions
• All machine generated grades are final
• Late registrants should keep up with work
  – No extensions or exceptions for late registration
• **Never** copy code
Getting help

• Piazza
  – Be civil to peers and staff
  – All posts containing solutions should be made private
  – A privilege, not a right

• Office hours (TBA)
  – Have specific questions if you want assistance
Course Overview

• ≈ 6-7 weeks: programming (Python)
• ≈ 5-6 weeks: engineering programming
• 2 weeks: Matlab
WHAT IS PROGRAMMING?
Program

• A set of instructions a computer executes to achieve a goal
• Can be very long (millions of instructions)
• Also called “code” or “source code”
• Our programs will be called “scripts”
Data

• Information stored in a computer is called \textit{data}.
• All data is represented in \textit{binary}.
  – A series of 0’s and 1’s
• Each 0 or 1 is called a \textit{bit}.
• Bits are stored in groups of 8 called \textit{bytes}. 
Instructions

- Programs are data.
- Instructions are encoded in binary.
- Each instruction is typically 4 or 8 bytes.

```
00000001001010100100000000100000
```

```
add $t0, $t1, $t2
```
Programming Language

- An artificial language used to communicate instructions to a computer
- Rigorous and unambiguous
- Grammar is mathematically formal
- Has syntax and semantics like a natural language

\[ x = y + z \]

add $t0$, $t1$, $t2$
Programming Languages

- Low-level: `add $t0, $t1, $t2`
  - Define individual, machine readable instructions
- High-level: `x = y + z`
  - Human readable instructions translated into machine readable instructions
High-level languages

• Compiled languages
  – Compiler translates *entire* program into machine language

• Interpreted (scripting)
  – Interpreter translates program into machine language *line by line*
  – Translation happens “on the fly”
Python

• High-level language
• Interpreted language
• Strongly, dynamically typed language
• **WARNING**: Split between versions 2 and 3. We will use version 3!
Why Python?

• Freely available
• Cross platform
• Widely adopted
• Well documented
• Designed for teaching
• Beautiful
LET’S GET STARTED!
Reminder

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