CS 160
CS Orientation

Intro to CS & Number Conversions

OSU Oregon State University

Odds and Ends…

- Get Assignment #1 demoed this week!!!
- Assignment #2 posted!

Computers Are Everywhere

- Examples:
  - homes, offices, rooms/servers, phones, pacemakers, cars, etc.
- What is the difference b/w these?
  - Complexity
  - Size

What is an algorithm?

sequence matters

- Step-by-step description of how to accomplish a task, i.e. recipe
- Algorithmic thinking = computational thinking
- Expressed in any language
  - Natural 1
  - Programming 2

What is programming?

- Problem Statement
- Solve the Problem
- Specify Algorithm
- Algorithm -> Computer Language

Hardware vs. Software

- Computer: **machine** that manipulates data and carries out **set of instructions**
- Hardware
  - CPU
  - RAM
  - Hard Disk
- Software
  - Programs

ALU ← math op
registers

Software/Programs

- Primary piece of software on computer? OS
- What is its purpose? interface
- What are applications? apps/ other progs

hardware

Programming

- Writing **code** that a computer can **execute**
  - Does that mean we have to write in binary?
- High-level language — python
  - **Translated Continuously during runtime**
    - Interpreted
    - Just in time compilation/caching
  - Translated Prior/Ahead of time to runtime
    - High-level -> machine language
    - High-level -> intermediate language

slow