PIC 10A Week 1 (Tues)

Alex Tong Lin

October 3, 2017
1. Computer Anatomy

2. Programming Language

3. From source code to executable

4. Hello World
What is a computer?

A computer basically consists of the following parts:

- CPU chip
- Memory
  - Fast memory (RAM and ROM)
  - Slow memory (Hard drive)
- Motherboard/Bus
CPU Chip
Memory

Figure: RAM

Figure: HDD and SDD
Motherboard and Bus

**Figure:** Motherboard

**Figure:** Bus
Schematic Design of a Personal Computer

Figure 5  Schematic Design of a Personal Computer
Programming hierarchy by proximity to the machine

Compilers for high level languages allowed programming to be independent of the processor.

Computer Language and its Types
Some programming languages (in no particular order)

- C++
- C
- Java
- Python
- C
- Ruby
- JavaScript
- C#
- PHP
- Objective-C
- SQL
- Go
- Ruby

We’ll be learning C++.
From source code to executable

From Lecture 2 of Professor Miroshnikov

**Figure 9** From Source Code to Executable Program
An example of a compiler

This is an example of a cc compiler for the programming language C

Figure 1: The internals of cc.
Edit-Compile-Debug Loop

Figure 10
Edit-Compile-Debug Loop
Your first program: Hello World

```cpp
#include <iostream>

using namespace std;

int main()
{
    cout << "Hello, World!\n";
    return 0;
}
```

Program Run

Hello, World!