CS150 Intro to CS I

Fall 2014
Chapter 1
Introduction to Computers and Programming

- Reading: Chapter 1 (1.1 to 1.5)
- Good Problems to Work: p. 13 [1.11, 1.17] p. 18 [1.18, 1.21, 1.22, 1.23]
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- Office Hours:
  - MWF 10:30am - 11:30am
How to succeed in CS150

- Don’t miss class.
  - Take notes
  - Bring book and notes to lab, lecture, and office hours
- Try and read ahead
  - Bring questions to class!
- Start programming assignments early
  - they take much longer than you think
- Do as much on your own as possible. If you get stuck, come see me or one of the TAs
How to succeed in CS150

- Read the assignments carefully and follow all directions
- See me as soon as possible about any questions!
- Don’t forget that you are at a small school!
  - and you are paying for it!
To: ryandj@pacificu.edu  
From: smit1234@pacificu.edu  
Subject: CS150 - exam question  

Hello Prof. Ryan,

I’m studying for the exam and I ran across switch statements in the reading. Since we did not cover switch statements in class, I was wondering if switch statements could be on the exam?

Thanks,

Lesley
First Homework Assignment

• Fill out the survey on the class web page
• Print it out and staple in upper-left corner
• Turn in on Wednesday at the start of class
Programs and Programming Languages

- What is a program?

- Programs are written in high-level languages
  - Instructions look like everyday English (sort of)
  - Each instruction can perform many machine language instructions

- Compilers
  - translate programs into machine language which is
    - zeroes and ones
    - machine dependent
Programming

- Be very specific about what you want the computer to do.
- The computer follows directions precisely.
- You can't just make stuff up and expect the computer to understand.
- On the other hand, sometimes you don't know exactly what you want to do ... try something ... anything ... you can't hurt the computer!!!!! 😊
C++ Programming Language

- C++ is
  - based on the C programming language
  - a high-level programming language
  - one of today’s most popular programming languages
  - used extensively in industry
C++ Hello World Program

```cpp
#ifndef FILE_NAME:
Hello.cpp
# Author: Sharon Smith
# Date: 08/25/2014
# Purpose: This program displays a welcome message to
// the user after the user enters their name
#include <iostream>
#include <string>
using namespace std;

int main()
{
    string name;
    cout << "Type your name, then press enter" << endl;
    cin >> name;
    cout << "Hello " << name << "!" << endl;
    return EXIT_SUCCESS;
}
```

- What is the output?
Language Elements

- Key Words
  - Have special meaning in C++
  - using namespace int

- Programmer-Defined Identifiers
  - Names made up by the programmer
  - employer

- Operators
  - Perform operations
  - * =

- Punctuation
  - Used to mark the beginning and end of the program { }
  - Used to separate C++ statements ;
Syntax (Grammar)

- Rules that must be followed when constructing a program
- Controls the use of key words, programmer-defined identifiers, operators, and punctuation
Variables and Variable Definitions

- variable - named storage location in the computer’s memory which holds a piece of information
- variable definition - statement used to define one or more variables

Does the Hello World program have any variables?
Input, Processing, Output

- input, processing, and output are three main activities performed by a program
- assume we have three variables hoursWorked, payRate, and pay
- input
  ```
  cin >> hoursWorked;
  cin >> payRate;
  ```
- processing
  ```
  pay = hoursWorked * payRate;
  ```
- output
  ```
  cout << pay;
  ```