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:
  - Monday, Tuesday 10:30am - 11:30am
  - Thursday 1:30pm - 2:30pm

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 <u>much longer</u> 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 <u>as soon as possible</u> about any questions!

- Don't forget that you are at a small school!
  - and you are paying for it!

How to send an effective email

To: shereen@pacificu.edu
From: smit1234@pacificu.edu
Subject: CS150 - exam question

Hello Prof. Khoja,

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

- Turn in on Wednesday at the start of class time

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
//*********************************************************
//  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
  - Example: **employer**, **name**
- 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;
  ```