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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  - Monday, Tuesday, and Thursday 2pm – 3pm
How to succeed in CS150

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How to succeed in CS150
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 it in on Tuesday 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++ HelloWorld Program
What is the output?

//***********************************************************
// File name: hello.cpp
// Author:    Sharon Smith
// Date:      08/25/2015
// 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;
}
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;
  ```