

CS150 Intro to CS I

Fall 2015

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]

Chris Lane

Mathematics and Computer Science

- Web Page: <http://zeus.cs.pacificu.edu/lanec/>
- Email: lanec@pacificu.edu
- Office: Price 211
- Office Hours:
 - Monday, Wednesday 11am-12pm and Tuesday 10-11am or by appointment

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!

How to send an effective email

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

Hello Prof. Lane,

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 lab 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;
```