CS16, 09F, H04 (Etter 1.3, 2.1-2.3) Total Points: 50

Available online at: http://www.cs.ucsb.edu/~pconrad/cs16/09F/homework/H04 (printable PDF)

Accepted: on paper, in lecture (1pm-1:50pm, Chem 1171) on Wednesday, October 7
See syllabus and Homework assignment H00 for explanation of "late policy" and "sick day/personal day" policy.

Name: (2 pts)_____ UMail address (2 pts) _____@umail.ucsb.edu

Lab Section (1 pts) Circle one: 8am 10am 11am noon unknown

(Note: For now, circle the lab section you are registered for on GOLD.
If you need to request a different lab section because of an ACTUAL SCHEDULE CONFLICT, please email pconrad@cs.ucsb.edu with details)

As promised last week, starting today, you need the official textbook for this course by Delores Etter.

Here is a memo from the bookstore regarding availability of textbooks:

Hi everybody:
Fall quarter is here and I wanted to send out a reminder regarding what to say to students who complain that they can't get the book....if you would forward this email to your faculty it would be much appreciated and hopefully eliminate some anxiety for students and faculty.
TELL THE STUDENTS TO COME TALK TO US IN THE TEXTBOOK DEPARTMENT**. We will make sure they get a book. **If we are out, we can get more copies in approximately three to five business days.
If students don't talk to us we have no way of knowing somebody wants a book. We base our reordering on need. Students shop in so many different places these days we cannot predict how many will want to shop here. Freight is hugely expensive, as is the labor involved in bringing books in that we might not be able to sell. Therefore, we need to hear from our students if they want something.
Thanks for your support.
Best wishes,
Cynthia Ellestad
Course Materials Department Manager, UCSB Bookstore

The textbook is not yet on reserve in the library, but should be soon. In the meantime, if you want to read a copy, you can come to my office hours, or those of your TA and read a copy there. The current office hours are available on the syllabus link of the course web page—there is at least one hour every day of the week (Mon-Fri), and at least two opportunities between every pair of lectures. http://www.cs.ucsb.edu/~pconrad/cs16/09F/syllabus (scroll down to where they are listed).

For Wednesday, read sections 1.3, and sections 2.1 through 2.3. (You may also like to read the rest of Chapters 1 and 2—there will be later homework assignments that focuses on that material)

Then, answer these questions:

1. Section 1.3 presents a five step problem solving methodology in the context of a program that calculates the distance between two points.

    a. (5 pts) What is the formula that is used to calculate this distance? Describe it in math notation, rather than in C.

    b. (5 pts) How does this formula look after it is converted into C code?

Please turn over for questions to answer

Continued from other side

2. Section 2.1 begins with a review of the C program solution to the problem outlined in Section 1.3, including a review of each line of code and its purpose in the program. This description includes many defintions of technical terms.

   These technical terms are helpful to know, because when your program contains syntax errors, the resulting error messages often contain these technical terms.

   a. (5 pts) Which of the lines of code is a *pre-processor directive* that pulls in information related to the square root function?

   b. (5 pts) Section 2.1 describes declarations and statements.

      Java and C++ also have declarations and statements—in those languages, the two can be interleaved in many different orders. That is not true in C, though.

      Instead, in C, which must come first: declarations, or statements?

3. (5 pts) In Section 2.2, the author mentions the C is a case-sensitive language. What does this mean?

4. Section 2.2. discusses how characters are encoded in binary using a code called ASCII.

   The binary value 3 can be represented in eight bits as 00000011. However, the character '3' is not represented by '00000001'.

   What is the ASCII representation of '3', both as

   a. (5 pts) a decimal number

   b. (5 pts) a sequence of eight bits?

      (Side note: According to section 2.2, "the most commonly used binary codes for character data are ASCII and EBCDIC". However, this is a bit out of date—in fact, EBCDIC usage, which is confined mainly to IBM Mainframe systems, is fading. ASCII is still very important and is the character encoding we'll focus on in this course. There is also an important new encoding called Unicode that can encode symbols from many languages used throughout the world—you might encounter this in future courses, particularly in the context of Java and/or Web systems.)

5. Section 2.3 discusses both unary operators and binary operators.

   a. (5 pts) Give an example of a unary operator

   b. (5 pts) Give an example an a binary operator

End of H04