CS16, 10S, H00 (Overview of C, Oualline, Chapters 1, 3) Total Points: 50
Online version: http://www.cs.ucsb.edu/~pconrad/cs16/10S/homework/H00 (printable PDF)

Accepted: **on paper, in lecture (1pm-1:50pm) on Wednesday, 03/31** in Chem 1171

Late Policy: No email submission allowed—and don't "slip it under my door". If you need to make it up, you must do so during office hours, or make an appointment to see me, and you must request this appointment within 48 hours of when the assignment was originally due.

Personal Day/Sick Day policy: Everyone is permitted one "personal day/sick day" when you get to make up a missed homework assignment for free during office hours or via appointment. After that, you may not make up the homework assignment—you can only earn back the points through extra credit opportunities.

(For more details, see the syllabus and the homework policy)

Name: (3 pts)_____ UMail address (3 pts) _____@umail.ucsb.edu

Lab Section (4 pts) Circle one: 9am 10am 11am noon crashing unknown

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

About the homework in this course:

You will have homework for almost every lecture and for almost every lab. This homework will usually involve first doing some reading in either the main textbook for the course (authored by Etter), or one of the online textbooks available at the following links:

- On campus: http://tr.im/safaribooks
- Off campus: http://tr.im/ucsbsafari (Use your umail username/password)

For Thursday, since I know from past experience that many of you will not yet have the textbook, I'm assigning two chapters of reading in an online textbook—Practical C Programming by Steve Oualline. Even though this book is a bit "dated"—as an example, find the sentence in Chapter 1 about how Java hasn't really caught on yet (!)—it is still a great resource for learning C, because those haven't changed much since 1997.

To link directly to this book, bring up this homework assignment online at this URL: http://www.cs.ucsb.edu/~pconrad/cs16, then click on "Homework", then "H00". Then you can use the links below to access the assigned chapters:

- Chapter 1: What Is C? (on campus), (off campus)

(Note: we'll **skip Chapter 2**—this covers a lot of specifics of accessing C on systems that are very different from what we'll be using this quarter. If you want to read ahead to Chapters 3 and 4, though, be my guest—a future homework assignment will cover part of that material.)

Once you've read these chapters, write answers to the questions on the reverse side of this sheet.

- Ideally, you'll do this directly on the sheet that was handed out in lecture—this helps keep all the submissions organized for the TA, and makes it easier to grade.
- If you missed the lecture where this was distributed, you can bring up this assignment online (see the links above), and print out the PDF version (that will keep it to two sheets of paper.)

Please turn over for questions to answer

Continued from other side

1. Chapter 1 starts with a discussion of some of the problems with writing programs in English rather than in a programming language such as C that has strict rules about the meaning of statements. Two examples of the ambiguity of English are cited: one having to do with shampoo, and another having to do with California motorcycle helmet law.

   a. (5 pts) What was the problem with shampoo?

   b. (5 pts) What was the problem with the motorcycle helmet law?

2. (5 pts) In Section 1.1 author describes machine language and assembly language. How would you describe the difference between "machine language" and "assembly language"?

3. (4 pts) Chapter 1 mentions the original purpose of FORTRAN, COBOL and Pascal, as well as the original purpose of the C programming language. According to the author, C was designed with one purpose in mind: what was that purpose?

4. (5 pts) The author warns against the assumption that "no one else but me will ever run this program"—he does so with a story of an embarassing incident involving a staff member using one of his programs.

   What did the author do in his code that came back to bite him later on—and what lesson can you learn from his mistake?

5. The author describes computer programs as having "two main parts": data and instructions. He then goes on to give examples of C statements that are representative of each part.

   a. (4 pts) Write a C statement that is representative of "data"

   b. (4 pts) Write a C statement that will eventually be turned into machine language instructions

6. (4 pts) In Chapter 1, the author mentions a way that, in C, we can group related data items (possibly of different types) together into a single unit. What is this unit called—and in the example code, what is the first word on the line of C that allows this grouping?

7. (4 pts) From your previous study of programming (prior to taking CS16) you should already be generally familiar with constructs such as if/else, while loops, and for loops that can change the order in which statements are executed. The author lumps all of those together under a general category of statement. What is the name the author users for this category of statement?

End of H00