CLA CS-101 (B1)
Introduction to Computers
Fall 1995

Homework # 1
Due on Tuesday 9/26/95

$\boxed{\textbf{1}}$ A friend of yours is seeking your advice concerning the purchase of equipment that would aid him/her in writing term papers. Your friend narrowed down his/her choices to two:

a. An electronic typewriter with a built-in word-processor that would allow your friend to edit, format, check the spelling, ... etc. of documents that he/she can store/retrieve to/from floppy disks.

b. A personal computer and a printer. The personal computer comes with a number of software packages that include a word-processing program that would allowyour friend to edit, format, check the spelling, ... etc. of documents that he/she can store/retrieve to/from floppy disks.

Your friend is confused since both choices seem to offer the same word-processing functions. **Can you explain the difference? Which choice would you recommend? why?**

$\boxed{\textbf{2}}$ In class we discussed the various component of a computer's hardware. Answer the following questions:

- ◇ Name the different components of a computer hardware and indicate in 1-2 sentences the function of each one of the components.
- ◇ Draw a block diagram showing these components and indicate how information flows between them (use arrows to indicate the direction of information flow).
- ◇ Name 8 different hardware devices (*e.g.* mouse, floppy, ...) and indicate their function (*i.e.* to which hardware component they belong).

$\boxed{\textbf{3}}$ With reference to the history of computing detailed in Chapter 13 of the textbook, answer the following questions:

a. Give an etymology of the word "bug". What is the current meaning of the verb "to debug"?

b. Who invented the notion of a "computer family"? What makes different computer models belong to the same "family"? Both IBM PCs and Macintoshes are microcomputers. Does that make them belong to the same computer family?

$\boxed{\textbf{4}}$ Figure 2.6 in the textbook (Computing Unbound) implies that the number of transistors on memory chips was 1 Million in 1986. What would be your guess as to the number of transistors on memory chips today (*i.e.* in 1995), assuming that Moore's Law holds. Explain how you obtained your answer.

5 To be able to use a multi-user (timesharing) computer system, you must have an *account* on that system. In this problem, you will go through the exercise of *applying* for an account on **CSA**, the computer system that we will be using for CS101. Follow the steps highlighted in the lecture (and section) and open your course account. You should remember the following:

a. The terminal room is in MCS B19 (this is in the basement of 111 Cummington street).
b. In addition to the course number, your name, and your id, the program to open an account will ask you to enter a *login name* and a *password*.
   - The *login name* (also known as your user name) you pick will be used throughout this semester as your identification. To make an analogy, your *login name* is similar to your bank account number. It remains associated with you as long as your account is still active. Usually, computer users choose their last names as their login names. You are free, however, to choose any name (e.g. your first name, your nickname, ...) Since login names are used for identification purposes, the computer will not accept a login name that somebody else is using.
   - The *password* you pick is a secret sequence of characters that you will be using to gain access to your account. This is similar to the password you use when you use teller machines. Your *password* should be at least 6 characters. It should not be anything that is easy to guess (like your first name, or your birthday, or any word in the dictionary, ... etc.). It must have both, letters and numbers, in it. Unlike your login name, your *password* can be changed once your account is opened. Notice that whenever the computer is expecting you to enter a password, it will not display what you type. This is necessary to ensure secrecy.
c. The process of opening an account must be verified by one of the TAs (Terminal Assistants) in the terminal room. After you are finished with steps a. through d., ask one of the TAs to verify it. The TA will need to see your BU ID with a valid current registration sticker, so make sure to have yours!
d. Once your application for an account is completed, it will be processed and approved within the 24 hours following your application. Only then will you be able to proceed with the solution of the next problem as well as the ones in the following homeworks.

There is nothing to hand in for this problem. We will be able to check automatically whether or not you succeeded in opening your account or not.

6 In this problem you are asked to *log in* and *out* of the system.

Logging in: To start a work session on **CSA** you need to identify yourself to the computer system. At the **login:** prompt, enter the *login name* you chose when you applied for the account. Now, the computer will ask you to enter your **password:**. Type it in. (Notice that nothing will be displayed on the screen as you type in your password for security reasons.) Now, the computer will display a welcoming message. Now, you are done with logging in, and UNIX, the operating system of the system is ready for your orders! To tell you that it is waiting for your instructions, a UNIX *prompt* consisting of your login name and a % sign will be displayed.

Logging out: To finish a work session on **CSA** all you have to do is to inform UNIX that you want to “log out”. To do this, just type `logout` at the UNIX prompt.

There is nothing to hand in for this problem. We will be able to check automatically whether or not you succeeded in logging in and out of your account.

Have Fun!