CLA CS-101 (A1)

Introduction to Computers

Spring 1995

Homework # 2

Due on Tuesday 2/7/95

1 In this problem, we will take you in a quick tour through some of UNIX's simple commands. The solution to this problem is the printout you will obtain from step (n) below.

a. Log in as described in the "logging in" section of Problem #5 in Homework #1.

b. At the UNIX prompt type `ethics`. Read and keep in mind what comes out on the screen!

c. At the UNIX prompt type `man cal` to find out about the "cal" program. Use "man" to look at the "who" and "finger" commands... What about the "webster" program?

d. At the UNIX prompt type `script problem-2-1.solution` to start a script file of your session.

e. At the UNIX prompt type `date` to get the date and time.

f. Find out who is using **CSA** by typing `finger @csa` at the UNIX prompt.

g. How many people in Boston University have "Malloy" as their last name? Use the `ph malloy` command to find out. What is the phone number of the CS Department Administrator?

h. Display the calendar for the year you were born with the "cal" command. For example, if you are born in 1974, type `cal 1974`. What day of the week were you born?

i. Using the "cal" command (as before), find out the day of the week for 1/1/1, 1/1/2000, and 9/13/1752.

j. Using the "webster" command, find out all the 13-letter words in the English language that start with an "x" and end with an "a". Also, find out all the words in the English language that start with a "w", end with "nt" and contain a "c". What is the meaning of "automaton"?

k. Use the `calc` command (interactively) to compute 12+23/7 and to compute (12+23)/7.

l. End the script of your session (that started in step b. above) by typing `exit`.

m. Get a printout of your script file from one of the printers in MCS B19. At the UNIX prompt type `lpr -Psiskel problem-2-1.solution` to get the printout on printer "siskel". What would be the command to get the printout on printer "ebert".

2 In this problem you will get a taste of the basic editing capabilities of Emacs.[a] By the end of it, I hope that you will feel comfortable using Emacs as an editor. Your familiarity with Emacs is extremely important for you to be able to keep up with upcoming attractions (I mean homeworks!)[b]

a. Start an Emacs session by typing emacs at the UNIX prompt.

b. From within Emacs, create a file called *foo* using the CTRL-X CTRL-F command. In this file write an essay of about 1 full screen (about 30 lines), in which you describe what you expect to learn in CS101, your opinion about the material covered and the style of the lectures, and whether you like to see any changes in the course contents. Save your essay every now and then using the CTRL-Xs command. Also, if you want to check the spelling of a particular word from within emacs, position the cursor on that word and then type ESC-xspell-word followed by the "return" key. Get out of Emacs using the CTRL-X CTRL-C command.

c. Start another session on Emacs (same as step a.) and retrieve the contents of the file *foo* using the CTRL-X CTRL-F command. Did you find your essay intact? (It'd better be!) If you need to make changes go ahead..

d. Without leaving Emacs, create a new file using the CTRL-X CTRL-F command. Call the new file *foobar*. In this file describe in few words what each of the following commands does: CTRL-X CTRL-F, CTRL-P, CTRL-N, CTRL-B, CTRL-F, CTRL-V, ESC-V, CTRL-L, CTRL-D, CTRL-K, CTRL-Y, CTRL-T CTRL-X CTRL-C, ESC->, and ESC-<.

e. Without leaving Emacs, type CTRL-Xb.[c] Emacs will ask you whether you want to switch buffers. If you press the "return" key, Emacs will go back to editing the *foo* file.

f. Repeat step e. to go back to editing *foobar*. Now, add to *foobar* a description of what you think CTRL-Xb is doing.

g. Get out of Emacs using the CTRL-X CTRL-C command. Notice that if you haven't done so, Emacs will ask you if you want to save your files before getting out.. Remember, if you don't save it, you loose it!

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[a] If you want to spend more time learning about Emacs, you may want to try the teach-emacs command, which will take you in a tour of many of Emacs' features.

[b] The symbol CTRL- is used to indicate the use of the "control" key. For example, CTRL-A means press the "control" key and then (while still pressing it), press the character "A". The sequence ESC-means pressing and releasing the "Escape" key. For example ESC-v means press the "Escape" key, release it and then press the character "v".

[c] Notice that this is different from CTRL-X CTRL-B

3 In this problem set you will learn how to read and send Electronic Mail. There are many programs that one could use to send and receive Electronic Mail. The program we will be using is called `elm`.

a. Start an `elm` session by typing $\boxed{\text{elm}}$ at the UNIX prompt.[a]

b. At the bottom of the screen displayed by `elm` you will be given the following options: `delete`, `undelete`, `mail`, `reply`, `forward`, and `quit`. To chose an option, you must type the first character of that option. For example, if you type $\boxed{\text{m}}$, `elm` will assume that you want to send an Email message and will follow through with the steps necessary to accomplish that task, as detailed below.

c. The first thing that `elm` will need to know is the addressee, i.e. *who* should receive your message. Following the `Send the message to:` prompt type in the e-mail address of the user whith whom you want to correspond electronically. Well, your first message will be addressed to me. So, on that line, type my e-mail address, which is $\boxed{\text{best@cs.bu.edu}}$.[b]

d. Next `elm` will need to know what is the Subject of the message. Following the `Subject of message:` prompt type $\boxed{\text{Homework-3}}$ followed by your full name... Done!

e. Next `elm` will need to know if Carbon-copies of your message should be sent to other recipients. What about sending a copy of the message we are composing to the teaching fellow? And, for your own records, what about sending a copy of the same message to yourself! Here is how.. Following the `Copies to:` prompt type $\boxed{\text{rip@cs.bu.edu}}$, followed by a comma, and then your own E-mail address... Done!

f. Now you are ready to compose the message. For that purpose, `elm` will invoke Emacs and an Emacs screen will pop out. At this point, you can type whatever you want to send me (you have already learned how to use Emacs as an editor in the previous problem)... Well, what I want is the essay that you prepared in problem 1 (part b.) This essay was saved in a file named *foo*. To include the contents of this file in the message you are composing type $\boxed{\text{ESC-x insert-file}}$. After pressing the "return" key, Emacs will prompt you for the name of the file you want to insert. Type $\boxed{\text{foo}}$ and then press the "return" key. Now, you should have your essay inserted in the message.

g. Go to the end of the message and sign it – Well, just write your firstname or nickname.

h. Now, you are ready to send the message. To do so, just exit from Emacs in order to go back to `elm`. Type $\boxed{\text{CTRL-X CTRL-C}}$.

h. At this point `elm` will give you one of three choices. To further edit the message, to send the message, or to forget it! Well, type $\boxed{\text{s}}$ to send it. Congratulations!.. You have just finished sending your first electronic message..

i. Repeat the above process. This time send more messages (at least 4 or 5) to yourself – NO MORE MESSAGES TO ME OR TO THE TEACHING FELLOW. In the body of your messages just type any text. Also, you might want to exchange messages with friends of yours taking CS101-A1.

j. Get out of `elm` by chosing the "Quit" option from the menu.

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[a] The first time you start `elm`, a notice will be displayed, and at the end of that notice, you will be asked: "Shall I create the directory .elm for you and set it up (y/n/q)?" In response to that question, simply type `y` (for yes). Now you are ready to use `elm`.

[b] Notice that if you just type `best`, the system will assume (by default) that you mean `best@cs.bu.edu`. This is another instance where a "default" value is useful. Can you recall other instances you came across?

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In problem 3, you learned how to send messages using `elm`. In this problem, you will learn how to read messages sent to you.

a. Start an `elm` session.

b. If you have any messages in your electronic mailbox, `elm` will display them in the middle section of your screen. For each one of these messages, a line will be printed showing the *date*, *sender*. *size*, and *subject* of the message. One of these lines will be highlighted. Pressing the < **return** > key will select the message identified by this highlighted line. Select one of the messages you have in your mailbox for reading by pressing the < **return** > key. While reading a message, you can go back to the index by pressing the `i` key.

c. In order to delete a message, use the cursor to locate that message in your mailbox, and then press the $\boxed{\text{d}}$ key (for delete).

e. In order to reply to a message, use the cursor to locate that message in your mailbox, and then press the $\boxed{\text{r}}$ key (for reply), and follow the instructions.

f. Get out of `elm`..

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In problem 2, you created two files *foo* and *foobar* from within Emacs. These files are stored in your main directory. As we discussed in class, to be better organized, it's a good idea to make filenames meaningful. Also, we learned that it is a good practice to keep our files organized in directories to make future access easier. In this problem, we will use some Unix commands to accomplish these goals. The solution to this problem is the script you obtain from step (h) below.

a. Start a script using the `script` UNIX command (see problem 1 for "how to do a script").

b. Using the `mkdir` UNIX command, create a new directory under your main directory and call it "ps2" (for problem set 2).

c. Using the `cp` UNIX command make a copy of the file *foo* into the "ps2" directory. Name the new copy *course-evaluation.txt*.

d. Using the `cd` UNIX command, change directory to "ps2". Make sure you are there by using the `pwd` command.

e. Using the `cat` UNIX command, take a look at your essay (now named *course-evaluation.txt*).

f. Repeat steps c. and e. for *problem-2-1.solution* and *foobar*. Your copy of *foobar* should be given a meaningful name. What about *emacs-commands-reference.txt*?

g. Finish the script by typing $\boxed{\text{exit}}$ at the UNIX prompt. Get a printout of your script.

Have Fun!