

CSE 311
Operating Systems Concepts
Fall 2002
Self-test

Summary of Work:

***C Program will not be collected, but accounts must be established.**

1. If you do not have one already, get a “CSE” computer account. Everybody registered for this course should already have an account.
2. Make sure you know the combos to get into the UNIX labs on the first floor.
3. Complete the “C and UNIX Self-test” (see below) exercises to assure you have necessary background. **Results will not be turned in.**

C and UNIX Self-test:

You are expected to complete this assignment using your UNIX account. **Results will not be collected.** See the instructor for problems/questions/concerns, but you should be able to complete this assignment on your own without too much difficulty. If you are concerned about your background, it is in your best interest to take this self-test as soon as possible.

Write a program in C to accomplish the following tasks. We wish to sort a series of numbers in ascending order. The user should be able to enter a series of numbers in any order they wish. Furthermore, the user should have the option of adding numbers or deleting numbers to/from the current list. At any point, the user should be able to display the current list in ascending or descending order. You must store and modify your list as a dynamic linked-list (not a simple array). The user should be able to enter the type of sort as the first variable on the command line. Implement at least two of the following sorting algorithms: quick sort, bubble sort, insertion sort. Your solution should be robust. For example, errors such as attempting to delete from an empty list should not be allowed. You should utilize generic subroutines and available libraries whenever possible. It would be a plus if you could compile utilizing a makefile script, but this portion is not necessary. An example of one implementation follows:

```
% my_program
Usage:  my_program [quick | insertion | bubble]

% my_program quick

Using quick-sort algorithm.
Your list is currently empty.
Would you like to (a)dd, (d)elete, (p)rint, or (q)uit? d

Your list is currently empty.
Would you like to (a)dd, (d)elete, (p)rint, or (q)uit? a

Enter number to add, enter "xxx" to end adding to list.
17
28
4
-12
4
999
87
22
3
xxx

Quick sorting...done
Would you like to (a)dd, (d)elete, (p)rint, or (q)uit? d
```

Enter number to delete, enter "xxx" to end deleting from list.

4

xxx

Would you like to (a)dd, (d)elete, (p)rint, or (q)uit? a

Enter "xxx" to end adding to list.

13

22

xxx

Quick sorting...done

Would you like to (a)dd, (d)elete, (p)rint, or (q)uit? p

Would you like (a)scending or (d)escending order? a

-12, 3, 4, 13, 17, 22, 22, 28, 87, 999

Would you like to (a)dd, (d)elete, (p)rint, or (q)uit? q

Thanks for playing.

%