

ECE 270 Test 2
Dec. 13, 1999
Honor code in effect

1. (35) Write a C program called prog1.c that will find the median value of a set of numbers using a function called find_median written by you. A filename for a file containing the data will be given on the command line. The following code fragment is an example of how it is to be used and may be used in your code if you wish:

```
double median, array[50];
int num;
/* Code goes here to read in data from file given on command line. */
median = find_median(num, array);
```

Here find_median finds the median value of the num data points contained in array[] where num will always be a positive odd number. Note that your program should consist of the functions main and find_median. Also, code in main is to print the median value after calling the function. Also note that this is **not** the median filter!!!

2. (35) Write a C program called prog2.c that will calculate the average of a set of numbers entered by the user **on the command line** using the function calc_average written by you. The following code fragment is an example of how it is to be used and may be used in your code if you wish:

```
double average, array[50];
int num;
/* Code goes here to read in data entered by the user on the command line */
average = calc_average(num, array);
```

Here calc_average finds the average of the num data points contained in array[]. Note that your program should consist of main and calc_average and that main is to print the average value after calling the function.

3. Briefly answer the following questions. Please save your answers as a comment at the end of prog2.c

- a. (5) Explain why function prototypes are useful.
- b. (5) How can it be determined if a file has been successfully opened?
- c. (5) Write the function prototype for the calc_average function in problem 2.
- d. (5) What is the significance of argc in the following code fragment?

```
void main(int argc, char *argv[])
{
```

- e. (5) How can data from a file be read by a program using only the scanf function?
- f. (5) Are variable names required for the arguments in a function prototype?

Note: You may only use the floppy disk that has been provided for this test. Also, please call your first program prog1.c and your second program prog2.c. **Please provide a printout for both programs if a printer is available.** It would be a good idea to save backup copies of your programs using file names like prog1bu.c and prog2bu.c. Please return this sheet with your name on it when you return your tests and floppies. **Be sure to include your name as a comment in each program, put your name on your disk, and sign the honor code below.**

I have neither given nor received aid on this examination _____

Print your name: _____