CPE 101
Fall 2009
Laboratory 5 – Part 2 (Loops and arrays)

Due Date

- **Friday October 23rd, 11:59pm**
- **You must turn in your source electronically on vogon using the <u>handin</u> command – instructions are provided in below.**

Objectives

- To practice writing loops.
- To practice using arrays.
- To practice writing functions.
- To practice problem solving.
- To develop a complete C program, compile it, and turn it in electronically.
- To practice using file redirection for input and output.
- To practice using diff to test the accuracy of output.

Resources

- This is a pair programming assignment; we will be keeping the same partners assigned for part 1.
- You may use your instructor, peers, texts, and your own innate capabilities and resourcefulness!

Ground Rules

- None

Orientation…

This lab will involve developing a small C program to compute the average age of a large number of people (in this case 10). You must develop the specified functions, using the specified data types (namely arrays).

Part 1: Develop a function to print an array of doubles.

The function will take two arguments, the array of doubles and the size of the array. Print the values with only a space between them with a final newline at the end of the input.

Part 2: Develop a function to prompt the user for input

Develop a function that prompts the user for their age (see example run). The function should take two arguments, the array of doubles and the size of the array. Fill in the array with the user's input.

Part 3: Develop a function to compute the average age of all inputs

Develop a function that computes the average value of all the array values. The function should take two arguments, the array of doubles and the size of the array. The function should return the average value.

Part 4: Complete the program

Your main function should declare any necessary variables and only call the three functions you've written. Below is the output of a sample run with only ten values.

```
Enter age: 18

Enter age: 19

Enter age: 18.5

Enter age: 20

Enter age: 21

Enter age: 19

Enter age: 19.25

Enter age: 20.5

Enter age: 18

Enter age: 19

18.00 19.00 18.50 20.00 21.00 19.00 19.25 20.50 18.00
19.00

Average Age is 19.23
```

Part 5: Test your results against the instructor provided input and output files

1. Download the three sample input files from the class webpage
   (http://www.csc.calpoly.edu/~zwood/teaching/csc101/examples)

2. Use file redirection to create your own output from the sample input
3. Be sure to match the output exactly by using diff

Part 6: Handing in Your Source Electronically…

4. Transfer your file (lab5p2.c) to vogon as you've done for previous labs
5. Log on to vogon using the Secure Shell Client program (or your favorite equivalent).
6. Change directory (cd-command) to the directory containing the source file or files to hand in.
7. Execute the following command:

   handin zwood csc101lab05 lab5p2.c

8. You should see messages that indicate handin occurred without error. You can (and should) always verify what has been handed in by executing the following command:

   handin zwood csc101lab05