CSE 333 13su Exercise 1

out: Wednesday June 26, 2013
due: Friday, June 28, 2013 by **9:00 am**.

Part A

Write a C program that tests whether or not the following data types are passed by reference or by value, and prints what it discovers to the terminal:

- a double
- an array of ints

For example, if your program discovers that a double is passed by reference and an array of ints is passed by value, your program should print:

```
bash$ gcc -Wall -g -std=gnu99 -o ex1a ex1a.c
bash$ ./ex1a
double: pass-by-reference
array of ints: pass-by-value
bash$
```

Part B

Write (in C) a function called CopyAndSort that accepts two arrays of uint64_t's, and an array length, as arguments. You should assume the length of the two arrays are the same. The function should iterate through the entries of the first array and use insertion sort to insert the entries into the second array, in ascending sorted order. (You might choose to decompose the problem into multiple functions.)

Write a main() function that exercises your CopyAndSort function. When your program runs, it should sort the following array and print out the results:

```
{3, 2, 5, 7, 10, 4, 1, 7, 9, 8, 6}
```

So, when your program compiles and runs, we should see:

```
bash$ gcc -Wall -g -std=gnu99 -o ex1b ex1b.c
bash$ ./ex1b
1 2 3 4 5 6 7 7 8 9 10
bash$
```

Your code must:

- compile without errors or warnings on CSE Linux machines (lab workstations, attu, or CSE home VM)
- have no crashes, memory leaks, or memory errors on CSE linux machines
- for part A, be contained in a single file called "ex1a.c" that compiles with the command "gcc -Wall -g -std=gnu99 -o ex1a ex1a.c" -- do not submit a Makefile. Similarly, for part B, your code should be contained in a single file called "ex1b.c".
- be pretty: the formatting, modularization, variable and function names, and so on must make us smile rather than cry. (Suggestion: check your code with the clint tool from hw0 to see if it discovers any problems.)
- be robust: you should think about handling bogus input from the user, and you should handle hard-to-handle cases (if there are any) gracefully.
- have a comment at the top of your .c file with your name, student number, and CSE or UW email address.

  You should submit your exercise using the assignment dropbox linked on the main course web page.