CS 2110 Timed Lab 3

Due Date and Time

Day: Wednesday, March 2nd, 2016

Time: Before the end of you lab section

Policy

Submission

TURN IN THIS ASSIGNMENT ELECTRONICALLY USING CANVAS. SUBMISSIONS WHICH ARE LATE WILL NOT BE ACCEPTED. EMAIL SUBMISSIONS WILL NOT BE ACCEPTED UNDER ANY CIRCUMSTANCES! IN ADDITION IF YOU FORGET TO HIT THE SUBMIT BUTTON YOU WILL GET A ZERO.

Questions

If you are unsure of what questions mean, the TA's will clarify them to the best of their ability. We will not be able to answer any questions about how to reach a solution to the timed lab questions. You should know how by now!

What's Allowed

- The assignment files
- Your previous homework and lab submissions
- The ISA appendix in Complx
- Your mind
- Blank paper for scratch work

What's Not Allowed

- The Internet (except the Canvas Assignment page to submit)
    - Any resource on Canvas that is not given in the assignment.
    - Textbook or notes on paper or saved on your computer.
    - Dropbox (If your harddrive crashes we will let you retake it).
    - Email/IM
    - Contact in any form with any other person besides TAs

- If you have any questions on what you may not use then assume you can't use it and ask a TA.

Other Restrictions

- You may not leave the classroom until we have verified that you have submitted the lab. If you leave the classroom without submitting you will receive a zero.

1. **YOU MUST SUBMIT BY THE END OF YOUR LAB PERIOD**. Bear in mind that the clock on your computer may be a few minutes slow. You are supposed to have a full class period to work, and we are letting you use the 10 minutes between classes to make sure you have submitted your work. **WE WILL NOT ACCEPT LATE SUBMISSIONS**, be they 1 second or 1 hour late.
2. The timed lab has been configured to accept one submission. If you accidentally submit or submit the wrong version flag one of the TAs and we will reopen submission for you.

Violations

Failure to follow these rules will be in violation of the Georgia Tech Honor Code. **AND YOU WILL RECIEVE A ZERO** and you will be reported to Bill and the Office of Student Integrity.

We take cheating and using of unauthorized resources **VERY SERIOUSLY** and you will be in serious trouble if you are caught.

Remember

1. We allow you to use your homework assignment.
2. Please don't get stressed out during a timed lab. You have plenty of time; however, use your time effectively
3. Again, remember: Don't get stressed. Partial credit will be given for things you have done correctly. Do the best you can!
4. If you don't know something at least **TRY.** Do not just walk out of the lab or submit an empty file. Partial credit!
5. Remember what you can and can't use. If you don't know, then don't use it and ask a TA if you can use it. If we catch you with unauthorized resources we will give you a zero, so better to be safe than sorry.

The Assignment

PRECONDITIONS:
The array that is used in the function contains only positive integers followed by a -1. For the purposes of this problem, you are to only consider the values **preceding** the -1 entry as valid entries. The -1 is **NOT** considered to be an entry of the array you will be traversing.

The array will have at least one positive number and only one asking value before the -1 entry. This means that the size of the array you will be traversing will be of at least length 1. For instance, if the array had only 1 value within it, that value would be the asked entry.

Only test cases that fit the above conditions will be tested; don't worry about any other cases.

POSTCONDITIONS:
The label ASKED_VAL should contain the index of the asked value found in the array, only one asked value will exist in the array.

The label ODD_CNT should contain the total number of odd entries in the array.

The label LENGTH should contain the total length of the array.

PSEUDO-CODE:

```
void traverse(int[] array, int ask_val) {

      int ask_ind = 0;
      int odd_count = 0;
      int length = 0;
      int i = 0;

      while(array[i] != -1) {
            if (array[i] == ask_val) {
                  ask_ind = i;
            }
            if (array[i] & 1 == 1) {
                  odd_count++;
            }
            i++;
      }
      length = i;
}
```

WARNINGS:
If you forget to store your answers at the appropriate labels, you will receive no points. For example, if you leave the length of the array in R3 but do not save it to the label LENGTH, you will not get any points for that section.

Remember that -1 is the terminator to the array and therefore is **NOT** a valid asked value, and should **NOT** be added to the total number of entries, and should **NOT** increase the length of the array.

Finally, **code that doesn't assemble will get a zero**. No partial credit will be awarded for commented code or the part of your code that is valid, if you turn in a file that does not assemble.

THE TESTER:

You are given a tester, which is a .xml file, that allows you to check many cases of different arrays. If your code doesn't pass the given tests, you should debug your code through Complx. Then when you feel that your code works, try running it on the tester. Here is how:

Make sure traverse.xml and timedlab3.asm are in the same folder.

Navigate to that folder location on the terminal.

Enter the command: **lc3test traverse.xml timedlab3.asm**

The console will then output the results, what it is expected, and the actual output given. The lc3test **randomizes the contents of registers and all memory, and then loads** your code when it is inserted in the simulator.

Know that we will test different cases when we are grading your code but the tester covers a lot of cases. You should still be certain that your code works completely before turning it in, though.

RESTRICTIONS:

You may only use your old labs, homework, the complx appendix (F1 in complx), and the ISA reference sheet (shift+F1 in complx) when completing this assignment. Anything else (including but not limited to: internet searches, instant messaging, notes, or someone else's homework files) is academic misconduct and will be dealt with appropriately.

Deliverables

1) timedlab3.asm

Good luck!