

Program 1: C/C++ Proficiency

Assigned: Wednesday, August 30, 2006

Due: Wednesday, September 6, 2006 *before the start of class*

The goal of this assignment is to test your proficiency programming in C/C++. If you can complete this assignment with little trouble, you should be prepared for the programming required for this course. If you have trouble with or cannot complete this assignment, you may want to think about taking CS 455/555 after you have improved your programming skills. As with all assignments, your work should be your own. *No sharing of code is allowed.* As this assignment should help you assess your preparation for CS 455/555, relying on someone else only hurts you.

Assignment

Your program, named `prog1.c`, should meet the following requirements:

- Allow the user to specify a filename as a command-line parameter.
- Open the file given and read in up to the first 10 lines. (Your program must be able to handle files that have less than 10 lines.)
- Count and display the total number of characters that were read in. In this case, characters include spaces and newlines, but not null characters.
- Print out the lines in reverse order (*i.e.*, print the 10th line first, then the 9th line, *etc.*). You are not mirroring the text – that is, you should be able to read the text that is printed, just the order of the lines is reversed.

Your program should be documented well enough that the TA can understand how you designed your program. You may use either C or C++ constructs in completing this assignment. Your program must compile and run on the CS department Unix machines. *Put your name, assignment number, due date, and course number in the header comments of each of your source code files.*

Warning: We use an automated system to test your submissions. You will lose points if you do not name your program `prog1.c`.

Example

This example is given as an illustration of proper execution. Your program does not have to look the same, but it should meet all of the requirements described above.

Contents of `myfile.txt`:

Hi, this is a sample file.

```
% ./prog1 myfile.txt
```

```
Read up to the first 10 lines of myfile.txt.  
27 characters
```

```
First 10 lines in reverse order:  
sample file.  
is a  
Hi, this
```

Submission

You should submit `prog1.c` using Blackboard. Follow these directions, which are also available as “Submitting Assignments via Blackboard” located on the course webpage under **Useful Links**.

- Log in to the CS 455/555 Blackboard page
- Click the **Assignments** button
- Find the current assignment and select **View/Complete**.
- A new page will open. In the **Comments** section, include a short list of questions you had and/or problems you encountered while doing the assignment. Also, provide an estimate of the amount of time you spent working on this assignment (including design, coding, and debugging). Do not leave the Comments section blank.
- In the File To Attach section, click **Browse...** Your web browser will open a window in which you locate and select the file to attach. Use the Look in area's drop down menu at the top of the window to navigate to where the file is stored.
- Once you find the file you want to attach, click once on its name. Then click **Open** in the lower right corner.
- Click **Add Another File** so that the file you just chose will appear in the “Currently Attached Files” list.
Please do not add multiple copies of the same file.
- When you've finished adding all of the files that are needed for the assignment, click **Submit** at the bottom of the page. **Important:** If you click **Save** instead of **Submit**, your assignment will not be turned in.
- After you've clicked **Submit**, an assignment receipt page will display. Click **OK**. If you want, you can further verify that your assignment was submitted successfully by clicking the assignment's **View/Complete** link. An “Assignment Already Completed” page will open. Click **OK** to view the Assignment Information and your submitted work.

Important: If you submit your assignment and later realize you have made a mistake, Blackboard will not allow you to re-submit the assignment. You must contact the TA or Dr. Weigle to be able to re-submit the program. They will delete your first submission, and Blackboard will allow you to re-submit. You have not turned in your assignment until you re-submit. You are only allowed to re-submit *once* per assignment. You are not allowed to re-submit after the due date.

Note: Please complete this assignment as early as possible so that if there are any problems with submission using Blackboard, we can take care of them quickly.