# CS 350: Programming Assignment 1: 100 Points

**Due 11:59 PM Feb 15, 2015**

The objective of this assignment is to write several string manipulation functions in C. The functions to be written and their expected semantics are described below.

1. **Converting to integer:** Read the user input as a string. Convert to positive or negative integer and display the output as the number followed by twice the number. If the user enters non-numeric characters (other than '-') as part of the input, an error message should be displayed. You are not allowed to use the string library function atoi() or atof(). For the string "123", the output should be 123 246. For the string "-12", the output should be -12 -24.

2. **Converting to float:** Read the user input as a string. Convert to positive or negative float variable and display the output as the number followed by twice the number. If the user enters non-numeric characters as part of the input (other than '–' and '.'), an error message should be displayed. You are not allowed to use the string library function atoi() or atof().For the string "123.2", the output should be 123.2 246.4. For the string "-12.1", the output should be -12.1 -24.2

3. **Convert to upper case and zeros:** Read the user input as a string and convert all alphabet characters into uppercase, every other character into '0', and display the converted string.

4. **Reverse a string:** Write a function to reverse the input string

5. **Palindrome:** Write a function to determine if the input string is a palindrome

The program should be named “assignment1.c”. The program should allow the input string(s) and the function to be called as command line parameters. For example,

**./assignment1 “This is a string” 4**

The above call implies that the function to be called is reversing words (number 4 in the list above). The input string is put inside quotes. When you run the program, the variable argc will be set to 3. argv[0] will be set to the program name. argv[1] will be equal to the string “this is a string”. argv[2] will be set to the string “8”. You will have to parse these parameters and perform the required function. The output should only display the final output, i.e., string a is This. Do not say things like “the output is … etc.”. Also make sure there are no other debug statements printed in your final submission.

*Note that, if you do not use quotes to input your string, each word will be treated as a separate parameter*.

Based on the function that is called, if the required number of parameters is not input or if there is an error in the specification of the parameters, an error should be displayed. All error messages should start as “Error: “, followed by your own error message. For example, if the user asks for converting to integer and the string contains alphabets, you should print “Error: not a number”.

You can assume that the maximum length of each input string will be 100 characters.

## Submission Instructions:

Programs, written in C, must compile using *gcc* compiler on LCSEE Linux cluster (shell.csee.wvu.edu). To receive full credit, your program must be submitted by the deadline. Please note that Linux keeps track of the submission time. You are advised to keep a copy of your submission in your own account (with the original time-stamp). Remember that late assignments will be penalized by 5% of the grade for each day of delay (including weekend days). To submit, use the following command from the shell server, inside the folder where your code is stored:

**>> submit –c /cloudproject/2015springcs350/assignment1.submit assignment1.c**

The due date is **11:59PM, Sunday, February 15th**.

No assignment will be accepted after 11:59 PM, Tuesday Februrary 18th. Programs that cannot be compiled will receive up to 30% of the assignment grade. Only well written, well documented, nicely structured, fully functional programs, will receive a full credit.

## Academic Honesty:

Each student in the class is expected to develop his/her assignment alone. Do not share programs, or program parts, with your colleagues. Violators of this policy will be held responsible for academic dishonesty, and will bear consequences in accordance to the rules and regulations of West Virginia University.