# HW06 – Recursion [50 pts]

1. Obtain the following string: abcdefghijklmnopqrstuvwxyz (as input or using initialization)
2. Using recursion, write a reverse function that reverses the characters in a string or character array given two indices (starting and ending). The string or the character array should reflect the reversal.
3. Read indices as input
   11,18 (i.e. letters 12,19)
4. Call the reverse function to reverse letters: 12-19
5. Read indices as input
   4,22 (i.e. letters 5,23)
6. Call the reverse function to reverse letters: 5,23
7. Using the reverse function, reverse the alphabet
8. Print the reversed string or character array.

Your output should contain:

abcdefghijk**srqponml**tuvwxyz
abcd**wvutsrqponmlkjihgfe**xyz
**zyxwvutsrqponmlkjihgfedcba**

You should only have <u>one</u> execution.

Extra Credit [+5 pts]

Write an implementation for the *reverse function* using a loop. What are the differences between the recursive and iterative approaches? Test your iterative *reverse function* and demonstrate that its output is identical to the recursive implementations output.

Use the command script to capture your interaction compiling and running the program, including all operations, as shown below:

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CS1C Spring 2023 TTH HW06 50pts **Due: Th 2/16/2023**

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/06 $ script hw06.scr
Script started, file is hw06.scr
cs1c@cs1c-VirtualBox ~/cs1c/hw/06 $ date
...
cs1c@cs1c-VirtualBox ~/cs1c/hw/06 $ ls -l
...
cs1c@cs1c-VirtualBox ~/cs1c/hw/06 $ make all
...
cs1c@cs1c-VirtualBox ~/cs1c/hw/06 $ ls -l
...
cs1c@cs1c-VirtualBox ~/cs1c/hw/06 $ ./hw06

... // print out output from recursive calls in steps 1 - 8

cs1c@cs1c-VirtualBox ~/cs1c/hw/06 $ exit
Script done, file is hw06.scr
cs1c@cs1c-VirtualBox ~/cs1c/hw/06 $ make tar
...
```

Submit the tar package file hw06.tar by Thursday February 16, 2023.