

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:

```
abcdefghijklmnopqrstuvwxyz  
abcdwvutsrqponmlkjihgfexyz  
zyxwvutsrqponmlkjihgfedcba
```

You should only have one 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 Summer 2019 MTWTH HW06 50pts **Due: Th 6/27/2019**

```
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 June 27, 2019.