

Design and implement a C language program based on the following specifications:

1. The user interface will prompt for ten unique *character strings* to be entered from the keyboard. Each character string must have a `strlen()` value between 1 and 25 inclusive, otherwise an error message is displayed and the user is re-prompted. The program sorts this series of ten character strings (based on `strcmp()`), and reprints all ten strings in ascending OR descending order based on user specification. The program then prints and labels the character string with the lowest ascii value and that with the highest ascii value as determined by `strcmp()`. Character strings may NOT include the following characters: '!', '@', '#', '\$', '%', '^', '(', or ')'. 6 Points
2. Include additional error checking for: Empty string, Duplicate string, Character other than 'A' or 'D' for sort specification. 2 Point
3. Include at least 4 *user defined* functions outside of the `main()`. 2 point
4. The program must be well commented.
5. Submit a single *.c file* entitled *HW1-Gnum.c*. This file must be readable using the vi or emacs text editor and must compile using gcc.
6. Your full name and Gnumber must be included within the comment section at the top of the page.
7. Submitted via Blackboard no later than 11:59 PM Sep 26, 2022.

Example interface and output:

<pre>Hals-iMac:~ halgreenwald\$./hw1 Enter 10 character strings: Enter string 1: Test string 1 Enter string 2: Test string 1 Enter string 3: hello world Enter string 4: CS 531 Enter string 5: George Mason University Enter string 6: abcd fg hijk Enter string 7: George Mason University Error: duplicate string – please re-enter Enter string 7: k j i Enter string 8: Test string 2 Enter string 9: test string @ Error: @ is an illegal character – please re-enter Enter string 9: test string 1 Enter string 10: test String 1</pre>	<pre>...cont Print character strings in Ascending or Descending order: A <u>Ascending order:</u> CS 531 George Mason University Test string 1 Test string 1 Test string 2 abcd fg hijk hello world k j i test String 1 test string 1 String with lowest ascii value: CS 531 String with highest ascii value: test string 1</pre>
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