EGRE 246 Introduction to Programming Using C
Homework #2 – Pointers and Dynamic Memory Allocation

This homework must be your own (individual) work as defined in the course syllabus and discussed in class.

1) Write a C program that reads in a list of letters, sorts them alphabetically and prints them to the screen. The program must adhere to the following specifications:

   a) The program must ask the user how many letters can be expected.
   b) The program then should ask the user for all the (capital or lower-case) letters and should make sure the letters entered are valid letters (and not symbols).
   c) Capital letters should be sorted before lower-case letters.
   d) Your program **must** use dynamic memory allocation for **all** arrays needed. In addition, pointers **must** be used for **all** operations that access the array(s). Thus, your program **must not include any square brackets** ('[' or ']') anywhere in the code.
   e) You program cannot allocate more memory than needed.
   f) Your program must consist of a `main()` function, a `sort(char *a, int size)` function, and a `swap(char *x, char *y)` function.
   g) Any dynamic memory allocated must be freed before the program exits.

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Program to sort a list of single-column characters
in alphabetical order. (Capital letters should be sorted before any lower-case l
etters)

How many letters do you want to enter (0..9): 5

Please enter letter #1: *
Invalid letter, please enter another letter: (
Invalid letter, please enter another letter: )
Invalid letter, please enter another letter: G

Please enter letter #2: d

Please enter letter #3: K

Please enter letter #4: B

Please enter letter #5: a
Sorted letters:
B       G       K       a       d
```

For this assignment, you must turn in a zip file with all of your C header files, source code files, and a working Makefile to compile your solution. Turn in your assignment by attaching the zip file to the assignment submission page.

Remember the class policy on late submissions – no late submissions are allowed unless prior arrangement is made with the instructor.