

Assume you have a list of names that you want to sort in alphabetical order. Use bucket sort to solve this problem (i.e. the program should run in average case $O(n)$). However, use **bucket sort recursively** to ensure that each of the final buckets that are sorted via insertion sort contain no more than 10 elements/names. The way you would do this is when sorting each bucket, if there are more than 10 elements/names in the bucket then you would create sub-buckets and run a mini-bucket sort on only those elements in this large bucket. You may assume there are no spaces in the names and only contain normal English alphabet characters. Also the first letter of names will be capitalized.

Sample output.txt (sorted name array separated by spaces (no space after final name)):
Candy Mahesh Rishi Svetovid

Sample input.txt (unsorted names separated by spaces (no space after final name)):
Svetovid Candy Rishi Mahesh