

CS211 ALGORITHMS & DATA STRUCTURES II

LAB 3

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QUICKSORT

Pen and Paper Exercise

Show clearly how the following numbers would be sorted by

- a) Ordinary quicksort
- b) Median of three quicksort

Highlight pivots, swaps and recursive calls

6 2 9 4 1 7 5 3

Programming Exercise

(HackerRank invitation will be provided on Friday)

Problem Statement

The goal is to sort a long list of words by special order. The special order is as follows. All the words are sorted by the 'greatest' character in that word. What this means is that all words whose greatest character is a 'a' (i.e. that feature only a's) should come first, followed by all words whose greatest character is a 'b' (e.g. "baa"), followed by all those words whose greatest character is an 'c' (e.g. "cab") and so forth. Here 'greatest' means furthest along in the alphabet. The very last words in the list will

be those whose greatest character is a 'z' (i.e. any words that have a 'z' in them).

For words that have the same greatest character (e.g. "salt" and "table", which both feature a 't' as their greatest character), these should be sorted alphabetically (so 'salt' would come first).

Hint: you can cast a character into an int like this: `(int)mystring.charAt(0)`. The values can then be compared to find the character that is the greatest.