Nickolas Komarnitsky

02/16/2017

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Assignment 05

1. Graphs
2. Answer this question: Quick sort works best when the partition is the middle element of the array which is (for normal data) very close to the average value of all elements in the array. Thus: A better pivot choice would seem to be to use the average value of the array. There are two flaws to this. Identify and discuss them.

The average value could not exist in the array itself and then an extra value ends up being added to the array. Also, it could end up with values in the wrong places, comparing to a different average each time as a value is added to the array.

1. Answer this question: Why does the Fisher-Yates shuffle use the following line:

j ← random interger from zero to i

instead of

j ← random interger from zero to N

Because i is the maximum value that can be put into that spot, whereas N is the amount of items to add to the array.

1. Finally, discuss what you have learned about a) implementation tweaks to improve performance, and b) algorithmic choices to improve performance.

I have learned that it can be fairly simple to figure out the algorithm and understand it, but then complex to make it work with actual code.