Topic 25 - more array algorithms

"To excel in Java, or any computer language, you want to build skill in both the "large" and "small". By "large" I mean the sweeping, strategic issues of algorithms, data structures, ... what we think of basically as a degree in Computer Science. You also need skill in the "small" -- 10 or 20 line methods built of loops, logic, strings, lists etc. to solve each piece of the larger problem. Working with students in my office hours, I see what an advantage it is for students who are practiced and quick with their method code. Skill with the method code allows you to concentrate on the larger parts of the problem. Or put another other way, someone who struggles with the loops, logic, etc. does not have time for the larger issues."

- Nick Parlante
Stanford University, Google

More array problems

▶ write a method to change an array to a sub-array, similar to substring method

 – does initial version work?

▶ "rotate" elements in an array a given amount

▶ determine how many elements in an array of Strings variables are set to null

▶ determine if the elements in an array of ints or doubles are in sorted ascending order

More array problems

▸ shuffle an array

▸ determine the longest run length in array of characters (longest run of all characters the same)

▸ ensure all elements in an array are within a given range

▸ given an array with ints 1 to N determine if there are any duplicates in the array

More array problems

‣ given an array, create and return an array the same as the original expect all duplicates are removed

‣ implement the sieve of Eratosthenes to find prime numbers

‣ We'll say that an element in an array is "alone" if there are values before and after it, and those values are different from it. Return a version of the given array where every instance of the given value which is alone is replaced by whichever value to its left or right is larger. (from coding bat)