AP Computer Science with Data Structures

More Practice with Linked Lists

Tips for Writing Recursive Methods:
1. Write `if`/`else`.
2. Test for the simplest case(s).
3. What should you do in this case?
4. Write the recursive call(s), passing arguments for a slightly simple problem.
5. Assume the recursive call works. How does this help you solve the original problem?

These questions are intended only as extra practice. For each method you attempt, try writing it on paper first.

1. Write the method `sum`, which takes in a list of numbers and returns the sum of those numbers.

2. Write the method `copy`, which takes in a list and returns a new list containing the same values as the old list. In other words, if the original list had 3 `ListNode`s, `copy` should return a list with 3 new `ListNode`s.

3. Write the method `append`, which takes in two lists, and attaches the beginning of the second list to the end of the first list. You should assume that the first list is not empty.

4. Write the method `sameSize`, which takes in two lists and returns true if they contain the same number of elements. Try writing `sameSize` without calling `size` or any other helper method.

5. Write the method `hasSize`, which takes in a list and a number, and returns true if and only if the number of elements in the list is equal to the given number. Try writing `hasSize` without calling `size` or any other helper method.

6. Write the method `removeLast`, which takes in a list of at least two elements, and removes the last element from the list.

7. Write the method `allSame`, which takes in a list, and returns `true` if and only if every value in the list is the same. (Hint: You will need to write a helper method.)

8. Write the method `withoutDups`, which takes in a list of values (some of which may occur more than once) and returns a new list with exactly one of each of these values. (Hint: You will need to write a helper method.)

9. Write the method `inCommon`, which takes in two lists and returns a new list containing only those values that appear in both lists.