University of Scranton
ACM Student Chapter / Computing Sciences Department
19th Annual High School Programming Contest (2009)

Problem 1: Fibonacci String Sequences

One of the most famous families of sequences in mathematics is the family of **Fibonacci** sequences. A Fibonacci sequence begins with two chosen values and is such that every value thereafter is the sum of the previous two. For example, if we choose to begin the sequence with 0 and 1, respectively, we get

$$0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, \ldots$$

The same idea can be applied to character strings. However, rather than adding two consecutive elements of a sequence to compute the next one, we concatenate them. For example, if we start with the strings `a` and `ba`, we get the sequence

`a`, `ba`, `aba`, `baaba`, `ababaaba`, `baabaababaaba`, `abababaabaabaababaaba`, ...

Develop a program that, given a positive integer m and two character strings, s_1 and s_2, displays the first m elements of the Fibonacci string sequence (as defined above) whose first two elements are s_1 and s_2, respectively.

Input: The first line contains a positive integer n indicating how many instances of the problem are described thereafter. Each instance of the problem is described on three lines, the first of which contains a positive integer m, the second of which contains a string s_1, and the third of which contains a string s_2. (Neither s_1 nor s_2 contains any spaces (or, more generally, "white space").)

Output: For each triple (m, s_1, s_2) given as input, display the first m elements of the Fibonacci string sequence that begins with s_1 and s_2, respectively, one string per line, and followed by a blank line.

Sample input and output are on next page.

```
Sample input
------------
2
6
a
ba
7
spock
kirk


Corresponding output
--------------------
a
ba
aba
baaba
ababaaba
baabaababaaba

spock
kirk
spockkirk
kirkspockkirk
spockkirkkirkspockkirk
kirkspockkirkspockkirkkirkspockkirk
spockkirkkirkspockkirkkirkspockkirkspockkirkkirkspockkirk
```