Programming Assignment 5: Shang-Chi

CECS 328

1 Deadline

THERE'S MORE HERE

2 Introduction

Shang-Chi has arrived in the magical village of Ta Lo and is preparing to do battle with a malevolent magical creature. In order to fight this creature, Shang-Chi has to combine three ingredients $(1, 2, 3)$ in such a way that they wind up turning into an x at the very end. There is a magical sequence of these three ingredients laid out on a table in order (e.g. 1211232333123).

Shang-Chi is allowed to combine any two *adjacent* ingredients on the table in order to create a single ingredient subject to a special chart. For example, the chart might show that two 1's combine to make a 2, 12 combines to make a 3, 21 combines to make a 2, and so on. At the end, Shang-Chi is required to wind up with 1 alone on the table.

You will determine the order of combinations that Shang-Chi needs to make in order to accomplish his magical mission.

3 Your code

You will be given a two-dimensional grid that consists of the result when you combine a left ingredient with a right. You will also be given the initial ordering of the ingredients on the table.

Your function will compute a sequence of positions that should be combined, one after the other, so at the end of the sequence, a 1 is obtained alone on the table. When you write out a position in the sequence you will start counting at 0 and assume that the position that you give is the left.

If you are writing the file in Java: StudentSolver.java should have a function with the header `public static ArrayList<Integer> solve(ArrayList<Integer> initialOrder, ArrayList<ArrayList<Integer>> magic)`

If you are writing the file in Python: studentsolver.py should have a function with the header `def solve(initialOrder,magic):`

If you are writing the file in C++: StudentSolver.h should have a line with the header `static std::vector<int> solve(std::vector<int> bulbs, std::vector<std::vector<int>> magic);`

4 Example

11:2

12:2

13:1

21:3

22:2

23:1

31:1

32:3

33:3

Then the input 2222213 could lead to the answer 550000.