

Assignment I — Structs and Arrays

Puzzle

TA: Ben

Deadline: 23:59, Oct. 7, 2020

● Description:

The homework is to judge whether two puzzles can be fully merged on a three by three grid. The two puzzles are one immovable puzzle (the blue area in Figure 1 (a)) and one movable puzzle (the gray area in Figure 1 (b)). To merge these two puzzles, you can only rotate (90, 180, 270 degrees clockwise or counterclockwise) or translate (up, down, left, or right) the **movable** puzzle. Figures 1 (c) – (e) show the examples after rotating and/or translating the movable puzzle in Figure 1 (b). Figure 1(f) shows a successful merge. Two puzzles may not be able to fully merged. Figures 2 (a)-(c) show an example of an unsuccessful merging.

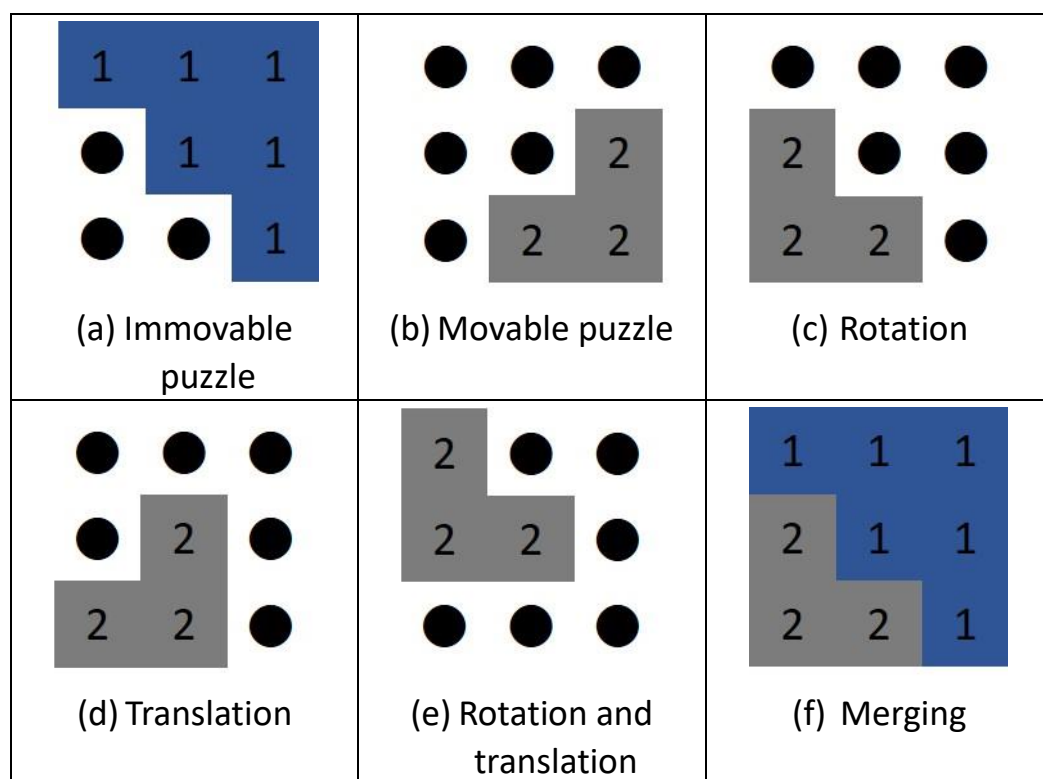


Figure 1. Example 1 - Successful merge

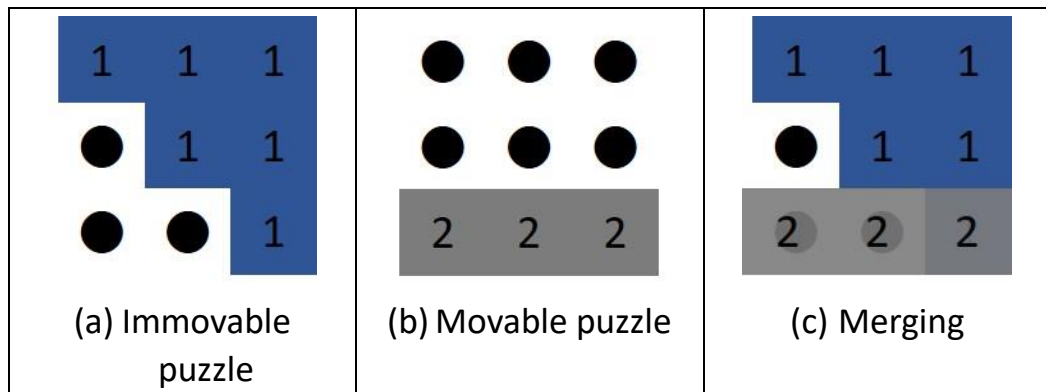


Figure 2. Example 2 - Unsuccessful merge

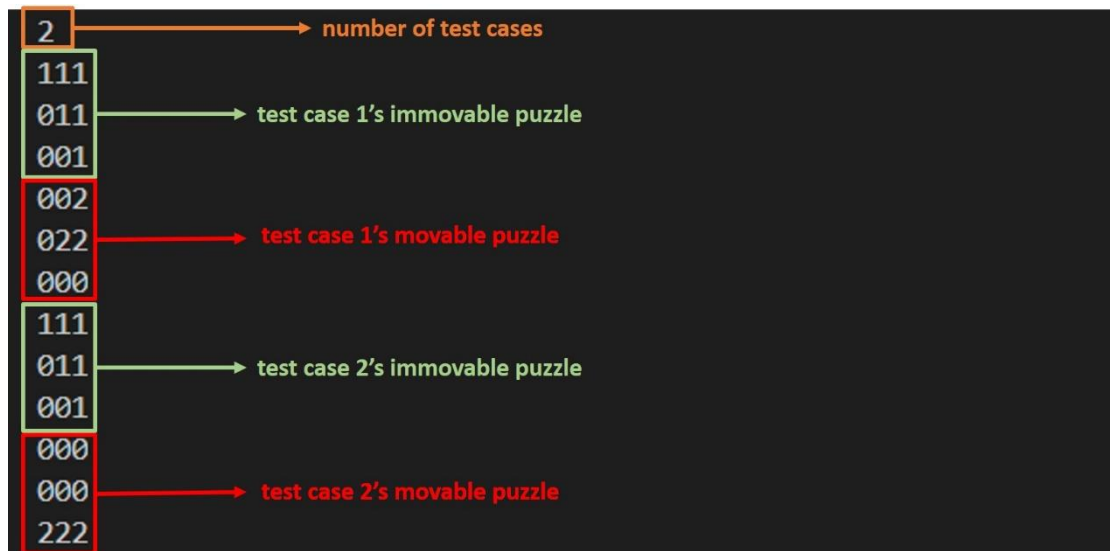
- **Input format:**

The first line of the input file contains an integer which indicates the number of test cases. Each test case contains two puzzles on a three by three grid.

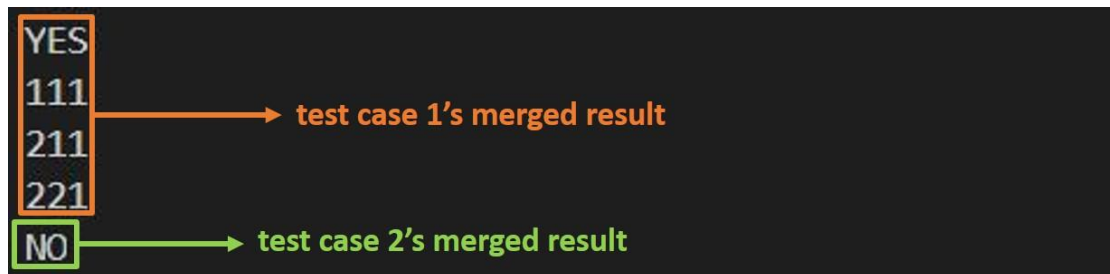
- **Output format:**

If they can be merged, you need output 'YES' and the merged result. For puzzles which have no possible solution, simply report 'NO.'

- **Sample input:**



- **Sample output:**



- **Readme, comments and style:**

An indicator for good source code is readability. To keep source code maintainable and readable, you should add comments to your source code where reasonable. A consistent coding style also helps a lot when tracing the source code. For this assignment, please also compose a readme file in *.txt format and name it as "README.txt". This file should contain a brief explanation of how to use your program. Please remember to have your source code comments and readme file in English.

- **Submission:**

To submit your files electronically, login DomJudge website through the following url :

<http://140.123.102.98:12345/>

Press the submit button and choose the homework questions you want to submit. After submitting your code, DomJudge will give you a result to tell you whether your code is correct or not. However, during the demo time, your code will be evaluated by different sets of test cases. Please make sure your code can work correctly based on the description above. Additionally, you must compress your code and the README file into a zip file and upload it to Ecourse2.

- **Grading policies:**

The TA(s) will mark and give points according to the following rules:

95% - Correctness of answer.

5% - Readme, comments and coding style.