

Round A APAC Test

[A. Seven-segment Display](#)

B. Super 2048

[C. Addition](#)

[D. Cut Tiles](#)

[Questions asked](#)

Submissions

Seven-segment Display

8pt	Not attempted 159/2058 users correct (8%)
14pt	Not attempted 34/155 users correct (22%)

Super 2048

6pt	Not attempted 875/2084 users correct (42%)
13pt	Not attempted 667/858 users correct (78%)

Addition

11pt	Not attempted 29/689 users correct (4%)
19pt	Not attempted 11/26 users correct (42%)

Cut Tiles

13pt	Not attempted 30/576 users correct (5%)
16pt	Not attempted 22/29 users correct (76%)

Top Scores

Prowindy	100
MRain	86
Dumbear2	86
Hao.Wu	84
Gyosh	71
LinKin	71
divanshu	70
Krooonal	70
dizem	59
LMH	57

Problem B. Super 2048

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input
6 points

Solve B-small

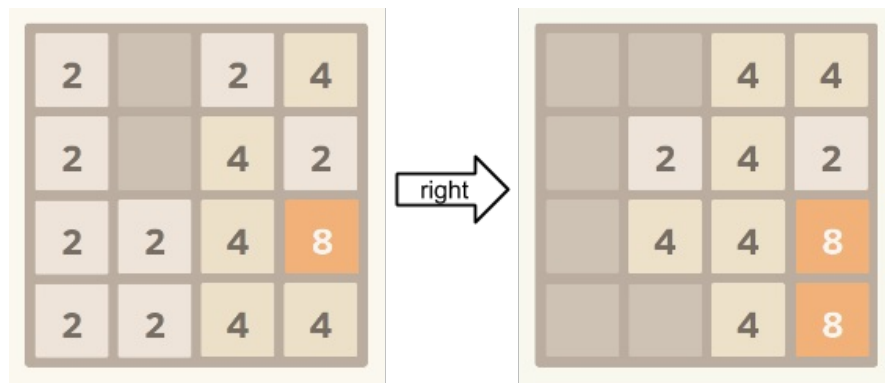
Large input
13 points

Solve B-large

Problem

2048 is a famous single-player game in which the objective is to slide tiles on a grid to combine them and create a tile with the number 2048.

2048 is played on a simple 4 x 4 grid with tiles that slide smoothly when a player moves them. For each movement, the player can choose to move all tiles in 4 directions, left, right, up, and down, as far as possible at the same time. If two tiles of the same number collide while moving, they will merge into a tile with the total value of the two tiles that collided. **In one movement, one newly created tile can not be merged again and always is merged with the tile next to it along the moving direction first.** E.g. if the three "2" are in a row "2 2 2" and the player choose to move left, it will become "4 2 0", the most left 2 "2" are merged.



The above figure shows how 4 x 4 grid varies when player moves all tiles 'right'.

Alice and Bob accidentally find this game and love the feel when two tiles are merged. After a few round, they start to be bored about the size of the board and decide to extend the size of board to $N \times N$, which they called the game "Super 2048".

The big board then makes them dazzled (no zuo no die -_-|). They ask you to write a program to help them figure out what the board will be looked like after all tiles move to one specific direction on a given board.

Input

The first line of the input gives the number of test cases, T . T test cases follow. The first line of each test case gives the side length of the board, N , and the direction the tiles will move to, DIR . N and DIR are separated by a single space. DIR will be one of four strings: "left", "right", "up", or "down".

The next N lines each contain N space-separated integers describing the original state of the board. Each line represents a row of the board (from top to bottom); each integer represents the value of a tile (or 0 if there is no number at that position).

Output

For each test case, output one line containing "Case #x:", where x is the test case number (starting from 1). Then output N more lines, each containing N space-separated integers which describe the board after the move in the same format as the input.

Limits

Each number in the grid is either 0 or a power of two between 2 and 1024, inclusive.

Small dataset

$1 \leq T \leq 20$
 $1 \leq N \leq 4$

Large dataset

$1 \leq T \leq 100$
 $1 \leq N \leq 20$

Sample

Input	Output
3	Case #1:
4 right	0 0 4 4
2 0 2 4	0 2 4 2
2 0 4 2	0 4 4 8
2 2 4 8	0 0 4 8
2 2 4 4	Case #2:
10 up	4 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
2 0 0 0 0 0 0 0 0 0	Case #3:
3 right	0 2 4
2 2 2	0 4 8
4 4 4	0 8 16
8 8 8	

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