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Problem F

Inverso

The game of 'Inverso' is played on a 3x3 grid of coloured fields (each field is either black or white). Each field is numbered as follows:

1	2	3
4	5	6
7	8	9

The player can click on a field, which will result in the inversion of that field and all its direct neighbouring fields (i.e. the colour changes from black to white or vice-versa). Hence,

- Clicking field 1 inverts fields 1, 2, 4, 5
- Clicking field 2 inverts fields 1, 2, 3, 4, 5, 6
- Clicking field 3 inverts fields 2, 3, 5, 6
- Clicking 4 inverts fields 1, 2, 4, 5, 7 , 8
- Clicking 5 inverts fields all fields
- Clicking 6 inverts fields 2, 3, 5, 6, 8, 9
- Clicking 7 inverts fields 4, 5, 7, 8
- Clicking 8 inverts fields 4, 5, 6, 7, 8, 9
- Clicking 9 inverts fields 5, 6, 8, 9

The aim of the game is to find the shortest sequence of clicks to make all fields white from a given start colouring of the grid.

Input
The first line contains a number N (0≤N≤10000) of runs.
The following N lines each contain a string of nine letters '`b`' (black) or '`w`' (white) for the colour of the fields 1 to 9. This is the initial colouring of the grid.

Output
For each input string the shortest word in the letters '1', …, '9' (for clicking field one, …, nine) which makes all fields white. If there is more than one shortest word then the lexicographically smallest one must be printed ('`1234`' is smaller than '`1342`').

Sample input

```
3
bbwbwbwbw
bwwwbwbwb
bbbbwbbbw
```

Output for the sample input

```
2459
267
356789
```