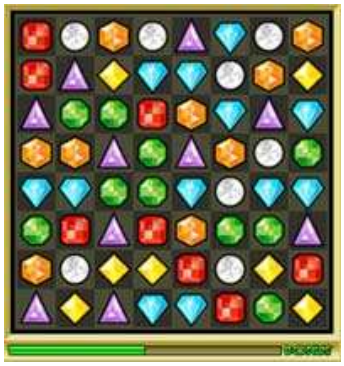
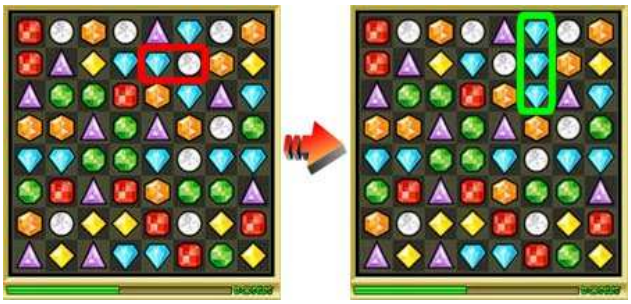
Problem E- Bejeweled Help



Bejewled is a game about swapping gems. You are given an 8×8 board filled with different types of gems, like the sample at right. Each cell can be described by its row and column coordinates, with origin from the upper left corner. For example, the $(0, 0)$ cell (at row 0 and column 0) is a red ruby. Cell $(1, 4)$ is thus a sapphire (aqua blue).

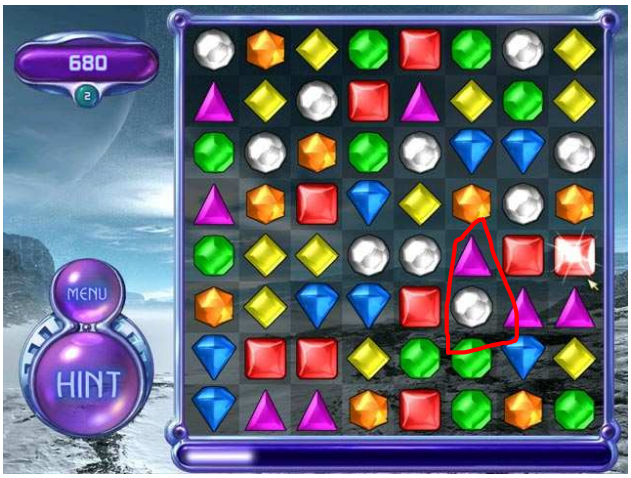


In this game, you are allowed to alter the board by swapping two neighbouring gems (left $\leftrightarrow$ right OR top $\leftrightarrow$ bottom). In the board shown at right, there are no three in a row nor three in a column. However, if you swap cell $(1, 4)$ with cell $(1, 5)$, you get three in a column.

Any consecutive N gems will score you N points. The three in a column sapphires thus translate to 3 points. In the board below, if you swap cell $(4, 5)$ with cell $(5, 5)$, you will have three in a row of diamond and another three in a row of purple amethyst, translating to 6 points.

Please note that overlapping gems are not double counted:

```
                          XXXX
  X           XXXX        Y  X
XXX             X         Y  X
  X             X         YYYY
5 pts         6 pts      12 pts
```



In this problem, you will write a program that takes in a board without any three in a row/column gems. Find the best swap that alters the board for a maximum number of points.

Input Specification:

The first line of input will contain an integer $1 \leq T \leq 100$, the number of test cases. T test cases will follow.

Each test case will be presented in 8 lines, each containing 8 characters, representing the 8×8 board. Each type of gem is translated to a unique letter (`A-Z`, `a-z`).

Output Specification:

For each test case, first print a line containing the maximum score you can get from a single swap. After that, print out the swap that attains that score in the format: <row> <col> <direction>, where the direction is either '`D`' for down or '`R`' for right.

If there is more than one possible swap, print all of them by ascending order of row, then ascending order of columns, then '`D`' before '`R`'.

Sample Input:

```
2
WOYGRGWY
PYWRPYGY
GWOGWBBW
PORBYOWO
GYYWWPRR
OYBBRWPP
BRRYGGBY
BPPORGOG
ABABABAB
AABABABA
CBABCBAB
BABCAABA
ABABCBAB
BABABABA
BBABABAB
CABABABA
```

64 * 100 = 6400

switch ab = switch ba
Loop all

Check 3 col/row

Sample Output:

```
6
4 5 D
8
1 2 R
3 6 R
6 2 R
```

More than once, all