Problem D. Journey to Un'Goro

Input file: `standard input`
Output file: `standard output`

Recently, you've taken a trip to Un'Goro.

A small road in Un'Goro has attracted your eyes. The road consists of n steps, each colored either red or blue.

When you go from the ith step to the jth, you count the number of red steps you've stepped. You will be satisfied if the number is odd.

"What is the maximum number of pairs (i, j) $(1 \leq i \leq j \leq n)$, such that I'll be satisfied if I walk from the ith step to the jth?" you wonder. Also, how to construct all colorings such that the number of pairs is maximized?

Input

The only line contains an integer n $(1 \leq n \leq 10^5)$, indicating the number of steps of the road.

Output

Output an integer in the first line, denoting the maximum number of pairs that make you satisfied.

Each of the following several lines contains a string with length n that represents a coloring scheme, in lexicographically ascending order. The ith character is the color of the ith step, where `r` is for red and `b` for blue.

If there are more than 100 different colorings, just find the lexicographically smallest 100 colorings.

Note that in lexicographical order, `b` is ordered before `r`.

Examples

standard input	standard output
1	1 r
2	2 br rb rr
3	4 brb rbr rrr