

D. Mike and Fish

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

As everyone knows, bears love fish. But Mike is a strange bear; He hates fish! The even more strange thing about him is he has an infinite number of blue and red fish.



He has marked n distinct points in the plane. i -th point is point (x_i, y_i) . He wants to put exactly one fish in each of these points such that the difference between the number of red fish and the blue fish on each horizontal or vertical line is at most 1.

He can't find a way to perform that! Please help him.

Input

The first line of input contains integer n ($1 \leq n \leq 2 \times 10^5$).

The next n lines contain the information about the points, i -th line contains two integers x_i and y_i ($1 \leq x_i, y_i \leq 2 \times 10^5$), the i -th point coordinates.

It is guaranteed that there is at least one valid answer.

Output

Print the answer as a sequence of n characters 'r' (for red) or 'b' (for blue) where i -th character denotes the color of the fish in the i -th point.

Examples

input	Copy
4 1 1 1 2 2 1 2 2	
output	Copy
brrb	

input	Copy
3 1 1 1 2 2 1	
output	Copy
brr	

Codeforces Round #305 (Div. 1)

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

[Start virtual contest](#)

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

[Clone Contest](#)

→ Submit?

Language: GNU G++11 5.1.0

Choose file: [选择文件](#) 未选择任何文件

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

[Submit](#)

→ Problem tags

[constructive algorithms](#) [dfs and similar](#)
[graphs](#) [*2500](#)

No tag edit access

→ Contest materials

- Announcement (en)

[Codeforces](#) (c) Copyright 2010-2019 Mike Mirzayanov
The only programming contests Web 2.0 platform
Server time: Nov/26/2019 09:34:54^{UTC+8} (f3).
Desktop version, switch to [mobile version](#).
[Privacy Policy](#)

Supported by



ITMO UNIVERSITY