Getting A Girlfriend

by Vichitr

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Life at `NITK` is awesome for everyone but have you heard about `failed_coder`? He is a geek at NITK and his life is playing a game with him. He is trying hard to get a girlfriend but still he hasn't got. This time he has come up with an idea. He selects a group of girls and then from the group he purposes a girl. As he is very smart, he always chooses such a group that there is maximum hope. What is the maximum probability that he will get a girlfriend this time?
Every girl has a status whether she has a partner or not. If a girl has a partner then she must reject failed_coder. Also, as there are very less girls at NITK so every girl has got some proposals already. If a girl has some proposals then there is same probability for every purposal to be accepted.

Input Format

The first line of input contains an integer n denoting the number of girls.
The second line of input contains n space separated integers A_1 , A_2, ..., A_n. Each A_i=0 or 1. 0 shows that i th girl has no partner and 1 shows that i th girl has a partner.
The third line of input contains n space separated integers B_1, B_2, ..., B_n. B_i shows the number of purposals i th girl has got before `failed_coder`'s proposal.

Constraints

$1 \le n \le 5000$.
A_i = 0 or 1 for every $1 \le i \le n$.
$0 \le B_i \le 10^9$ for every $1 \le i \le n$.

Output Format

Print the maximum probability that failed_coder will get a girlfriend.
The output should not have absolute error of more than 10^{-6}.

Sample Input 0

```
2
1 1
2 3
```

Sample Output 0

```
0
```

Explanation 0

Every girl already has a partner so they will reject him.

Sample Input 1

```
2
0 0
1 1
```

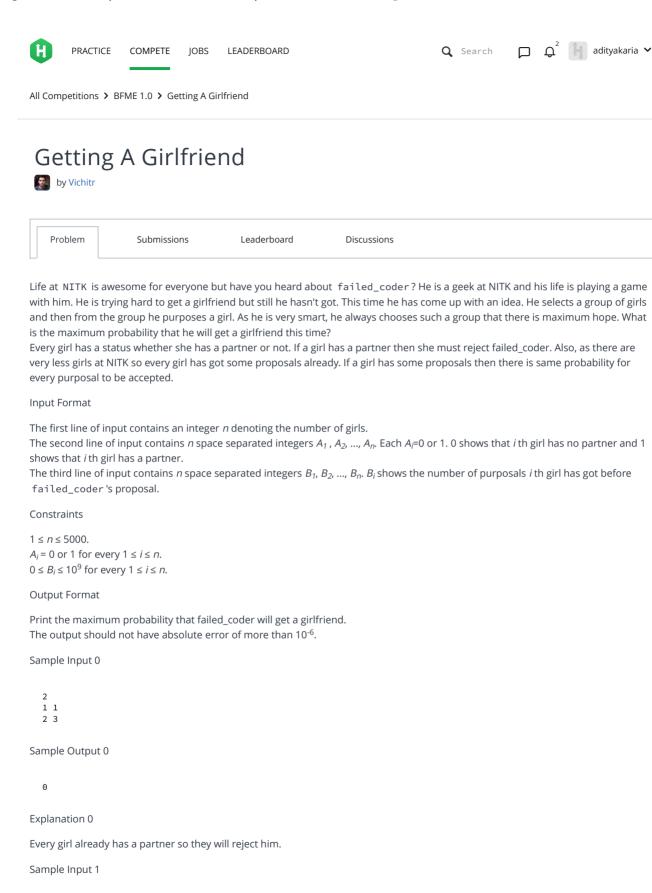### Sample Output 1

```
0.5
```

Explanation 1

Every girl has 2 proposals(1 already + 1 failed_coder's) so there is 50% chance.

Contest ends in 2 minutes

Submissions: 33
Max Score: 15
Difficulty: Medium

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```c
 1 #include <stdio.h>
 2 #include <string.h>
 3 #include <math.h>
 4 #include <stdlib.h>
 5
 6 int main() {
 7
 8     /* Enter your code here. Read input from STDIN. Print output to STDOUT */
 9     return 0;
10 }
11
```

Line: 1 Col: 1

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code

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