
Description

Your friend recently gave you some slimes for your birthday. You have n slimes all initially with value 1.

You are going to play a game with these slimes. Initially, you put a single slime by itself in a row. Then, you will add the other $n - 1$ slimes one by one. When you add a slime, you place it to the **right** of the row with the slimes that are already placed.

Then you repeat the following procedure:

while the rightmost two slimes in the row have the same value v

- combine them together to create a slime with value $v + 1$.

You would like to see what the final state of the row is after you've added all n slimes. Print the values of the slimes in the row from left to right.

Input

The only line of the input will contain a single integer n . You are guaranteed $1 \leq n \leq 100,000$.

Output

Output a single line with k integers, where k is the number of slimes in the row after you've finished the procedure described in the problem statement. The i -th of these numbers should be the value of the i -th slime from the left.

Sample Input 1

1

Sample Output 1

1

Explanation: We only have a single slime with value 1. The final state of the board is just a single slime with value 1.

Sample Input 2

2

Sample Output 2

2

Explanation: We perform the following steps:

Initially we place a single slime in a row by itself. Thus, row is initially 1.

Then, we will add another slime. The row is now 1 1. Since two rightmost slimes have the same values, we should replace these slimes with one with value 2.

Thus, the final state of the board is 2.

Sample Input 3

3

Sample Output 3

2 1

Explanation: After adding the first two slimes, our row is 2. After adding one more slime, the row becomes 2 1.

Sample Input 4

8

Sample Output 4

4

Explanation: In the last sample, the steps look as follows:

1. 1
2. 2
3. 2 1
4. 3
5. 3 1
6. 3 2
7. 3 2 1
8. 4