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### 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