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 to at 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