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B. Shrink

time limit per test: 2 seconds memory limit per test: 256 megabytes

A shrink operation on an array a of size m is defined as follows:

- Choose an index i $(2 \leq i \leq m-1)$ such that $a_i > a_{i-1}$ and $a_i > a_{i+1}$.
- Remove a_i from the array.

Define the score of a permutation* p as the maximum number of times that you can perform the shrink operation on p.

Yousef has given you a single integer n. Construct a permutation p of length n with the **maximum** possible score. If there are multiple answers, you can output any of them.

*A permutation of length n is an array consisting of n distinct integers from 1 to n in arbitrary order. For example, [2,3,1,5,4] is a permutation, but [1,2,2] is not a permutation (2 appears twice in the array), and [1,3,4] is also not a permutation (n=3 but there is 4 in the array).

Input

The first line of the input contains an integer t ($1 \le t \le 10^3$) — the number of test cases.

Each test case contains an integer n ($3 \le n \le 2 \cdot 10^5$) — the size of the permutation.

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, output any permutation p_1, p_2, \ldots, p_n that maximizes the number of shrink operations.

Example

input	Сору
2	
3	
6	
output	Сору
1 3 2 2 3 6 4 5 1	

Note

In the first test case:

- We choose p = [1, 3, 2].
- Choose index 2, and remove p_2 from the array. The array becomes p=[1,2].

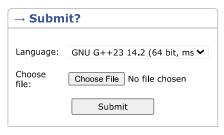
It can be shown that the maximum number of operations we can perform is 1. Another valid answer is p=[2,3,1].

In the second test case:

- We choose p = [2, 3, 6, 4, 5, 1].
- Choose index 5, and remove p_5 from the array. The array becomes p=[2,3,6,4,1].
- Choose index 3, and remove p_3 from the array. The array becomes p=[2,3,4,1] .
- Choose index 3, and remove p_3 from the array. The array becomes p = [2, 3, 1].
- Choose index 2, and remove p_2 from the array. The array becomes $p=\lceil 2,1
 ceil$.

The maximum number of operations we can perform is 4. Any permutation with a score of 4 is valid.





→ Last submissions		
Submission	Time	Verdict
323415627	Jun/08/2025 17:43	Accepted

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