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 ($1 \leq t \leq 10^3$) — the number of test cases.

Each test case contains an integer n ($3 \leq n \leq 2 \cdot 10^5$) — 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 Copy

```
2
3
6
```

output Copy

```
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 $p = [2,1]$.

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

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