A. Special Permutation

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given one integer n ($n > 1$).

Recall that 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 of length 5, 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).

Your task is to find a permutation p of length n that there is no index i ($1 \le i \le n$) such that $p_i = i$ (so, for all i from 1 to n the condition $p_i \ne i$ should be satisfied).

You have to answer t independent test cases.

If there are several answers, you can print any. It can be proven that the answer exists for each $n > 1$.

Input

The first line of the input contains one integer t ($1 \le t \le 100$) — the number of test cases. Then t test cases follow.

The only line of the test case contains one integer n ($2 \le n \le 100$) — the length of the permutation you have to find.

Output

For each test case, print n distinct integers $p_1, p_2, \ldots, p_n$ — a permutation that there is no index i ($1 \le i \le n$) such that $p_i = i$ (so, for all i from 1 to n the condition $p_i \ne i$ should be satisfied).

If there are several answers, you can print any. It can be proven that the answer exists for each $n > 1$.

Example

input
2 2 5
output
2 1 2 1 5 3 4