

MEX Problem

Input file: **standard input**
Output file: **standard output**
Time limit: 4 seconds
Memory limit: 1024 megabytes

Little N has recently learned about MEX. MEX (Minimum Excluded) refers to the smallest non-negative integer that does not appear in an array. For example: $\text{MEX}([3, 1, 0]) = 2$, $\text{MEX}([2, 2, 1]) = 0$, $\text{MEX}([0, 3, 1, 2]) = 4$. Little N defines that for a non-negative integer array of length k , $[b_1, b_2, \dots, b_k]$, if $\text{MEX}([b_1, b_2, \dots, b_k]) = k$, then the array b is called a k – good array.

Given a positive integer n , for an n – good array p_1, p_2, \dots, p_n , Little N defines the function $f(p)$ as the number of integer pairs (l, r) that satisfy the following conditions:

- $1 \leq l \leq r \leq n$;
- p_l, \dots, p_r is a $(r - l + 1)$ – good array.

Little N has proven the following theorem: for any n – good array p , there holds $1 \leq f(p) \leq n$. Now, Little N hopes you can find the number of n – good arrays p for each $i \in [1, n]$ such that $f(p) = i$. Of course, this number may be very large, so you need to provide the result modulo 998244353.

Input

The input consists of a single line containing an integer n ($1 \leq n \leq 10^5$).

Output

Output a single line containing n integers, where the i -th integer represents the number of n – good arrays p satisfying $f(p) = i$, modulo 998244353.

Examples

standard input	standard output
1	1
3	0 2 4
7	0 2312 1424 728 352 160 64

Note

For $n = 3$, it can be proven that there are six 3 – good arrays, with corresponding function values:

$$f([0, 1, 2]) = 3, f([0, 2, 1]) = 2, f([1, 0, 2]) = 3, f([1, 2, 0]) = 2, f([2, 0, 1]) = 3, f([2, 1, 0]) = 3$$