D. Shifting

John Doe has found the beautiful permutation formula.

Let's take permutation $p = p_1, p_2, ..., p_n$. Let's define transformation f of this permutation:

where k $(k > 1)$ is an integer, the transformation parameter, r is such maximum integer that $rk \leq n$. If $rk = n$, then elements p_{rk+1}, p_{rk+2} and so on are omitted. In other words, the described transformation of permutation p cyclically shifts to the left each consecutive block of length k and the last block with the length equal to the remainder after dividing n by k.

John Doe thinks that permutation $f(f(... f(p = [1, 2, ..., n], 2) ... , n - 1), n)$ is beautiful. Unfortunately, he cannot quickly find the beautiful permutation he's interested in. That's why he asked you to help him.

Your task is to find a beautiful permutation for the given n. For clarifications, see the notes to the third sample.

Input

A single line contains integer n $(2 \leq n \leq 10^6)$.

Output

Print n distinct space-separated integers from 1 to n — a beautiful permutation of size n.

Examples

input
```
2
```
output
```
2 1
```

input
```
3
```
output
```
1 3 2
```

input
```
4
```
output
```
4 2 3 1
```

Note

A note to the third test sample:

- $f([1, 2, 3, 4], 2) = [2, 1, 4, 3]$
- $f([2, 1, 4, 3], 3) = [1, 4, 2, 3]$
- $f([1, 4, 2, 3], 4) = [4, 2, 3, 1]$