

A. Find Amir

time limit per test

1 second

memory limit per test

256 megabytes

input

standard input

output

standard output

A few years ago Sajjad left his school and register to another one due to security reasons. Now he wishes to find Amir, one of his schoolmates and good friends.

There are n schools numerated from 1 to n . One can travel between each pair of them, to do so, he needs to buy a ticket. The ticker between schools i and j costs $(i + j) \bmod (n + 1)$ and can be used multiple times. Help Sajjad to find the minimum cost he needs to pay for tickets to visit all schools. He can start and finish in any school.

Input

The first line contains a single integer n ($1 \leq n \leq 10^5$) — the number of schools.

Output

Print single integer: the minimum cost of tickets needed to visit all schools.

Examples

input

Copy

2

output

Copy

0

input

Copy

10

output

Copy

4

Note

In the first example we can buy a ticket between the schools that costs $(1 + 2) \bmod (2 + 1) = 0$.