B. Taxes

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Mr. Funt now lives in a country with a very specific tax laws. The total income of mr. Funt during this year is equal to n ($n \geq 2$) burles and the amount of tax he has to pay is calculated as the maximum divisor of n (not equal to n, of course). For example, if $n = 6$ then Funt has to pay 3 burles, while for $n = 25$ he needs to pay 5 and if $n = 2$ he pays only 1 burle.

As mr. Funt is a very opportunistic person he wants to cheat a bit. In particular, he wants to split the initial n in several parts $n_1 + n_2 + ... + n_k = n$ (here k is arbitrary, even $k = 1$ is allowed) and pay the taxes for each part separately. He can't make some part equal to 1 because it will reveal him. So, the condition $n_i \geq 2$ should hold for all i from 1 to k.

Ostap Bender wonders, how many money Funt has to pay (i.e. minimal) if he chooses and optimal way to split n in parts.

Input

The first line of the input contains a single integer n ($2 \leq n \leq 2 \cdot 10^9$) — the total year income of mr. Funt.

Output

Print one integer — minimum possible number of burles that mr. Funt has to pay as a tax.

Examples

input
4
output
2

input
27
output
3