

Goldbach hypothesis

The Goldbach hypothesis is the statement that any even number, starting with 4, can be represented as the sum of two prime numbers.

Given an even positive integer N . It is required to find and output all pairs of numbers (P, Q) such that:

P is a positive integer prime,

Q is a positive integer prime,

$$P + Q = N.$$

Input

From a standard input device, a positive even integer N ($4 \leq N \leq 10^5$) is entered in the first line.

Output

It is required to print all suitable pairs of numbers (P, Q) .

A pair of numbers (E, F) must be output before a pair of numbers (K, P) if and only if the minimum element of a pair of numbers (E, F) is less than the minimum element of a pair of numbers (K, P) . **The numbers in the pair must be separated by a space; no space is required after the second member of the pair.**

Sample Input

10

Sample Output

3 7

5 5

Note

Try implementing the *isPrime*(n) function, which returns 1 when n is prime, and 0 otherwise.