26 Goldbach's conjecture
14 points

Introduction

In 1742 the Prussian mathematician Christian Goldbach wrote a letter to his friend Leonhard Euler where he stated that:

"Any even number greater than 2 can be written as the sum of two prime numbers"

This statement is known as Goldbach's conjecture. Since then, mathematicians have been able to find such a pair of prime numbers for any even number greater than 2 that they've considered. It has been checked using computers for even numbers up to 4×10^{18}. Up to date nobody has been able to prove that this result holds for all even numbers. So, the conjecture remains unproven despite considerable effort.

Input

The input will be an even number greater than 4 and lesser than 5000. For example:
128

Output

The output of the program is a list of pair of prime numbers that sum up the number provided in the input. The list is ordered in increasing order considering the value of the first prime addend.
This is the output for the previous example:

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19 + 109
31 + 97
61 + 67
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