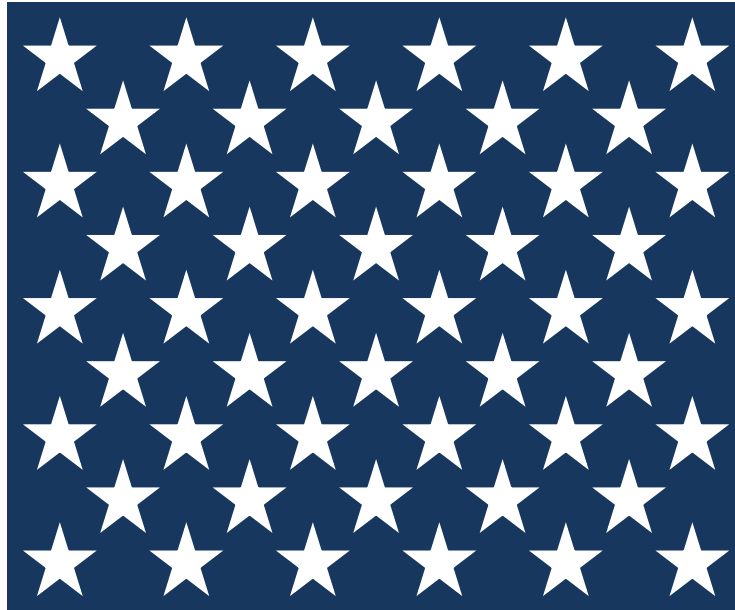# Star Arrangements

The recent vote in Puerto Rico favoring US statehood has made flag makers very excited. An updated flag with 51 stars rather than the current 50 would cause a huge jump in US flag sales. The current pattern for 50 stars is five rows of 6 stars (30), interlaced with four offset rows of 5 stars (20).

This pattern has some appealing properties: adjacent rows differ by no more than one star. This star arrangement can be represented uniquely in a compact notation by the first two rows' star counts: **6 5**.

A 51-star flag can have three rows of 9 stars, interlaced with three rows of 8 stars (27 + 24 = 51), or **9 8**. If Guam were to also become a state, a 52-star flag could have 13 rows of 4 stars, or **13 13** (because there are 13 stars in each of the first 2 rows).

A visually appealing star field satisfies these conditions:

1) There are at least 2 rows of stars.
2) All odd numbered rows have the same number of stars.
3) All even numbered rows have the same number of stars.
4) The difference in the number of stars between any two adjacent rows is either always 0, or always 1
5) The first row cannot have fewer stars than the second, nor can it have only 1 star.

Given a number of states, describe all possible appealing star fields in compact notation.

Input

Each input will consist of a single test case. Note that your program may be run multiple times on different inputs. Each test case will consist of a single line with single integer n ($3 \le n \le 10^6$), indicating the number of stars.

Output

Output all possible star field arrangements, in compact notation. Output them one arrangement per line, with a single space between the two integers. Output them in increasing order of the first integer. If the first integer of two arrangements is the same, output them in increasing order of the second integer.

Sample Input	Sample Output
3	2 1
50	2 1 2 2 3 2 5 4 5 5 6 5 10 10 13 12 17 16 25 25
51	2 1 3 3 9 8 17 17 26 25
52	2 2 4 4 7 6 13 13 26 26