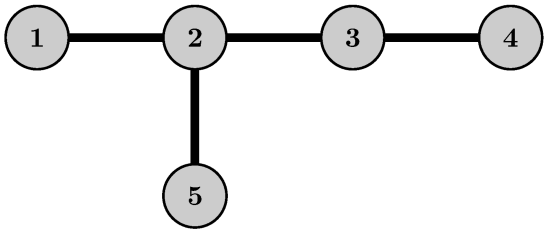
Problem B
Backbone Network

FPT Telecom is planning to build a new Internet backbone network to better serve their customers. The network should consist of n stations, which are numbered from 1 to n. It should also consist of $n-1$ bidirectional links, each connects two distinct stations. These links should guarantee reachability between every pair of stations. In other words, the network should form a tree.

The *realiability* of a network is the expected number of pairs of stations that are still connected if one link is down, assuming that links are down with equal probability.



For example, from the above network:

- If the link 1 — 2 is down, all 6 pairs of stations among $2, 3, 4, 5$ are connected.
- If the link 2 — 3 is down, there are 4 pairs of connected stations: $(3, 4), (1, 2), (1, 5), (2, 5)$.
- If the link 3 — 4 is down, all 6 pairs of stations among $1, 2, 3, 5$ are connected.
- If the link 2 — 5 is down, all 6 pairs of stations among $1, 2, 3, 4$ are connected.

Thus, the reliability of this network is $\frac{6+4+6+6}{4} = 5.5$.

Obviously, we want to build a network with maximum reachability. Given the number of stations n, your task is to build such a network.

Input

The input contains a single integer n ($2 \le n \le 50$).

Output

- The first line contains a single number — the maximum reliability of a network.
- In the next $n-1$ lines, each contains two integers u and v ($1 \le u, v \le n$) meaning that there is a link connecting two stations u and v.

Your answer will be considered correct if its relative or absolute error doesn't exceed 10^{-6}. Namely: let's assume that your answer is a, and the answer of the jury is b. The checker program will consider your answer correct, iff $\frac{|a-b|}{max(1,b)} \le 10^{-6}$.

If there are multiple solutions, you can output any of them.

Sample Input 1	Sample Output 1
3	1.000000 1 2 2 3