Tag

SEASON 10 - SIXTH ROUND

Before the Covid pandemic programming competitors really loved gathering in the park after competitions and... playing tag. Once, K programmers gathered in a park with N-1 alleys that cross in N points, so that every crossing point can be reached from every other one by walking through some of the alleys. At the beginning of the game, every programmer must stand at one of the crossing points of the alleys and in order for the game to last longer, the path between every two programmers must contain at least D alleys.

Since all the players are programmers, they always look for interesting problems everywhere and now they are wondering in how many ways they can choose K of the crossing points, so that the path between every two of them consists of at least D alleys. Sadly, this problem is too hard for them and they can't solve it, so they ask you for help. Write a program which finds the answer and prints it modulo 100 003.

Input (tag.in)

The first line of the input file tag.in contains 3 integers **N**, **M** and **D**. Each of the following N - 1 lines contain two numbers - the indices of the points, connected by the corresponding alley.

Output (tag.out)

On a single line print the answer to the problem modulo 100 003.

Constraints

$2 \leq N \leq 1\ 000$
$2 \leq K \leq N$
$1 \leq D \leq N - 1$

Examples

Input	Output
7 3 2 0 1 1 2 1 3 0 4 4 5 4 6	12