

Problem A

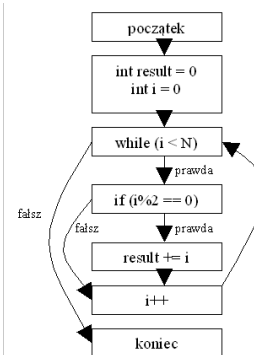
Code Analysis

You have just landed a job at Synopsys working on Coverity, their state-of-the-art static program analysis tool. Your first task on the job is to demonstrate your skills at static analysis by determining which instructions in a program could possibly be executed if the program begins execution at the first instruction.

Input

The first line contains a single integer $T \leq 20$ giving the number of programs to analyze. Each program starts with a line with an integer $N (1 \leq N \leq 20\,000)$, the number of instructions in the program. Each of the next N lines contains a single instruction in one of the following forms:

- NOP - Continue to the next instruction. If this is the last instruction, the program terminates.
- GOTO i - Jump to instruction $i (1 \leq i \leq N)$
- CGOTO i - Conditional jump to instruction $i (1 \leq i \leq N)$, meaning that the program may either jump or continue to the next instruction.



Output

For each program, output N lines. The i^{th} line should be “yes” or “no” depending on whether the i^{th} instruction is reachable, assuming the program begins execution at the first instruction.

Sample Input	Sample Output
2	yes
3	no
GOTO 3	yes
GOTO 3	yes
GOTO 3	yes
4	yes
CGOTO 3	no
GOTO 3	
GOTO 3	
NOP	