



Princeton Computer Science Contest – Fall 2024

Problem 1: Degree Progress (5 points) [Codeforces]

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The registrar servers have tragically crashed, and they have lost all their data tracking degree progress for all undergrads. Luckily, students' transcript data are still intact, so they have recovered which classes every student has taken. The staff at the Registrar are busy scheduling final exams under the new finals system so they've employed you to help write software to re-track all students' degree progress.

To start they ask you to focus on the data for COS majors. They want you to perform two tasks for every student.

1. Count the number of COS classes the student has taken.
2. Report if they have taken COS 126, 226, and 217.

Your goal is to write a program that takes a single student's transcript data and performs these tasks.

Input

The first line consists of a single integer n , the number of total number of courses the student has taken. The next n lines consist of one course per line, with the three-letter department code D_i followed by a space, followed by the three-digit course number K_i .

Output

The output should consist of two lines. On the first, output the count of COS classes in the transcript. On the second, output YES if the student has taken COS 126, COS 226, **and** COS 217, and output NO otherwise.

Constraints

It is guaranteed that $N \leq 48$ (we hope that none of you are planning on taking six-course semesters every single semester) and that D_i is the department code of a real Princeton department and that $100 \leq K_i \leq 599$.

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Example

Input:

```
18
COS 126
MAT 103
PHY 103
FRS 127
ARC 206
COS 226
MAT 104
LIN 201
PHY 104
COS 217
MAT 201
ANT 201
REL 244
COS 324
COS 343
MAT 202
PHI 201
LIN 205
```

Output:

```
5
YES
```

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