Computer Science 320SC – (2020)

Assignment 6 (programming)

Due: Saturday, October 31st

Exam Creation

This assignment will test your understanding of applying network flow to solve a constrained selection problem. We want to decide if we have enough questions (in a database) of a particular type and difficulty level to create a good exam to assess an algorithms course.

Your teacher's main goals, as designer, is to provide a range of difficulty (such as Easy, Medium, Hard) and a diversity of topics (such as Brute Force, Divide and Conquer, Dynamic Programming). For example, the exam should have a couple very easy questions and should have at least one really hard question. At disposal is a database of questions of various topics and difficulty levels. We have a requirement to (hopefully) pick a subset of these questions to use as the composition of a final exam. Your task for this assignment is to write a program that checks if we can fulfill the requirements for a good exam to assess the class. If not, you
database.

Input

The input consists of a series of up to 1000 test cases. This integer is given line of the input.

Each test case begins with a line consisting of two integers $1 \leq n \leq 2000$ and $1 \leq m \leq 500$, denoting the number of questions in the exam database and the number of questions needed for the exam, respectively. The second line contains m strings (duplicates allowed), denoting the difficulty of the questions wanted for the exam. The third line contains m strings (duplicates allowed), denoting the topics of coverage required for the exam. The next n lines contain a description of the questions in the database. Each line contains three strings: the name of the question, the assessment topic and the difficulty of the question. The names of the n questions will be distinct. All strings in the input will only contain letters and digits (no spaces), with each length at most twenty characters.

Output

If there are m distinct questions that satisfy the requirements of the exam, then output `Yes`. Otherwise output `No`.

Sample input and output

Input	Output
2 7 6 Easy Easy Medium Medium Hard Hard Graphs Brute AdHoc Brute Geometry Math SexyLife Brute Medium BottomFeeder Graphs Hard BadCase AdHoc Easy Dominos Graphs Medium Elephant Brute Hard Flash Geometry Medium Geography Math Easy 2 2 Easy Medium Graph AdHoc Funny AdHoc Medium NotSoFun Graph Har	Yes No

Submission

For this assignment name your source code `examE.`ext where ext denotes one of programming language extensions supported by the au
test cases loaded for marks, where three marks are allocated to one (easy) and two marks are allocated for the other (hard). Eight submissions are allowed without penalty; 25% off if you require more, up to a hard limit of 20.