C++ Programming: Exam Variant 2 (Exam-2017-05-28)

Solutions for each task will be submitted in the form of compressed archive (.zip) files, containing .h and .cpp files.

Please be mindful of the strict input and output requirements for each task, as well as any additional requirements on running time, used memory, etc., as the tasks are evaluated automatically and not following the requirements strictly may result in your program's output being evaluated as incorrect, even if the program's logic is mostly correct.

For some of the tasks in this exam you are provided with files, which the Judge system places in your submitted solution. These files are the so-called "Solution Skeleton" and, depending on the task, may require you to write specific code for your solution to work (e.g. a Solution Skeleton may contain a file with the **`main()`** function defined, in which case your task will usually be to implement a class or function in another file, for the program to work correctly). DO NOT attempt to edit the Solution Skeleton files – the Judge system overwrites any files from the skeleton you submit, so it won't see your changes to them. Some tasks may contain additional files you can use (and edit) if you want – if so, this will be described explicitly in the task.

You can use C++03 and C++11 features in your code.

Unless explicitly stated, any integer **input** fits into **`int`** and any floating-point **input** can be stored in **`double`**.

Task 3 – Teams (E2-Task-3-Teams)

You are given a list of teams and their members, competing in a league for the Counter-Attack: Globally Offensive game *(yep, still shamelessly avoiding copyright)*. A player can be a member of multiple teams in the league, and each team can participate in multiple games throughout the league. Player scores are determined by the number of victories their team has throughout the league.

Write a program, which, given a list of teams and the players in those teams, and given another list with the winner for each game played, prints out the player scores, sorted by player name.

Input

The first line of the standard input contains a single integer number **T** – the number of teams.

Each of the following **T** lines describes a team. Each line begins with the team name (lowercase English characters), followed by a positive integer **`M`** – the number of players in the team, and followed by **`M`** player names (lowercase English characters). These are separated by single spaces.

The next line contains a single integer **G** – the number of games played in the league.

Each of the following **G** lines describes the result of a game – i.e. the name of the team that won.

Output

A single line containing integers, separated by single spaces – the scores of the players, ordered by the lexicographical order of the player names.

Restrictions

`0 < T <= 2000; 0 < M <= 10; 0 < G <= 10000`. Team and player names will contain only lowercase English letters (**`a-z`**) and will be at most **`10`** characters long. The total number of (unique) players throughout all teams will be at most **`2000`**.

In 50% of the tests: **`T <= 100; G <= 100;`** total number of unique players **`<= 100`**

Hint: use **`std::cin.sync_with_stdio(false); std::cout.sync_with_stdio(false);`** at the start of your **`main()`** function to speed-up console input and output (if you're using **`cin`** and **`cout`** for reading/writing)

The total running time of your program should be no more than **`0.1s`**

The total memory allowed for use by your program is **5MB**

Example I/O

Example Input	Expected Output	Explanation
3 A 3 a b c B 2 d e C 4 a b c d 4 A A C A	4 4 4 1 0	a, b, and c have 4 victories with teams A (3) and C (1). d has 1 victory with team C. e has no victories.
4 skplaying 5 risen ref warmzera burger bolt nnjsinhats 3 getleft lake toastberg mixone 2 risen getleft	4 4 5 2 4 7 2 4	skplaying has 4 victories mixone has 3 victories nnjsinhats has 2 victories sorted by player names:

mixtwo 2 lake toastberg
9
skplaying
mixone
mixone
skplaying
skplaying
nnjsinhats
skplaying
nnjsinhats
mixone
		bolt = 4
		burger = 4
		getleft = 3 + 2 = 5
		lake = 2
		ref = 4
		risen = 4 + 3 = 7
		toastberg = 2
		warmzera = 4