4_角色分配 (Role Assignment)

(3分 /12分)

時間限制: 1 second
記憶體限制: 256 MB

題目敘述

MOBA 遊戲在年輕人中十分歡迎，相信大家也不陌生。它是一款 5 vs. 5 的遊戲，玩家們需要團隊合作取得勝利。每個角色都有不同的任務，比如 AD 主要負責輸出和拆塔，JG 主要負責帶領團隊經濟優勢等。該遊戲不僅僅是肉搏，而是智取。

由於每個人擅長的位置不太一樣，所以當五個好友一起遊戲時，會不知道怎麼去做角色分配。現在每次給你五個人分別擅長的位置，請你幫助我們回答共有多少種分配，可以使得每個人各司其職。

輸入格式

第一行有一個正整數 t，代表接下來有多少筆測資。

接下來有 $5t$ 行，每 5 行代表一組資料。每行第一個數 k，代表這位玩家擅長 k 個位置，同一行接著 k 個字串 $S_1, S_2, \ldots, S_k$，代表該玩家擅長的位置。

輸出格式

對每筆測資請輸出一個整數，代表有多少種角色分配。

資料範圍

- $1 \le t \le 1000$。
- $1 \le k \le 5$。
- $S_i \in \{\texttt{JG}, \texttt{MID}, \texttt{TOP}, \texttt{SUP}, \texttt{AD}\}$ $(1 \le i \le k)$。
- $S_i \ne S_j$ $(1 \le i < j \le k)$。

子任務

- 子任務 1, $k = 1$。
- 子任務 2, 無額外限制。

範例

輸入範例 1

```
2
1 JG
1 MID
1 TOP
1 SUP
1 AD
1 TOP
1 TOP
1 TOP
1 TOP
1 TOP
```

輸出範例 1

```
1
0
```

輸入範例 2

```
1
5 JG MID TOP SUP AD
5 JG MID TOP SUP AD
5 JG MID TOP SUP AD
5 JG MID TOP SUP AD
5 JG MID TOP SUP AD
```

輸出範例 2

```
120
```

範例說明

輸入範例 1 的兩筆測資中，第一筆有一組可行的分配 $(\text{JG}, \text{MID}, \text{TOP}, \text{SUP}, \text{AD})$，第二筆沒有任何一組分配可以使每個位置都有人負責，因此答案為 0。

輸入範例 2 的測資中，由於五個玩家都擅長五個位置，所以可行的分配有 $(\text{JG}, \text{MID}, \text{TOP}, \text{SUP}, \text{AD})$、$(\text{JG}, \text{MID}, \text{TOP}, \text{AD}, \text{SUP})$、$(\text{JG}, \text{MID}, \text{SUP}, \text{TOP}, \text{AD})$ 等等，共有 120 種，也就是全排列 $5! = 5 \times 4 \times 3 \times 2 \times 1$ 的數量。

4_Role Assignment

(3 Points /12 Points)

Time Limit: 1 second
Memory Limit: 256MB

Description

MOBA games are highly popular among young people, and I believe most of you are familiar with them.
It is a 5 vs. 5 game where players need to collaborate as a team to achieve victory.
Each character has different roles, such as AD (Attack Damage) responsible for dealing damage and destroying towers, and JG (Jungler) primarily responsible for leading the team's economy.
The game is not just about combat but also about strategy.

Since each person excels in different positions, when a group of five friends play together, they may not know how to allocate roles.
Now, you will be given the preferred positions of five individuals, and your task is to calculate how many possible role assignment can ensure that each person plays their respective roles.

Input Format

The first line contains a positive integer t, representing the number of testcases.

The next $5t$ lines contain the data for each testcase.
Each group of five lines represents a testcase.
Each line starts with an integer k, indicating the number of positions the player excels in.
Following k strings $S_1, S_2, \ldots, S_k$ on the same line, representing the player's preferred positions.

Output Format

For each testcase, output a single integer denoting the number of possible role assignment.
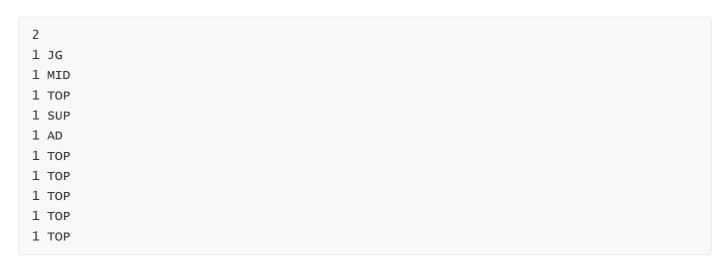
Constraints

- $1 \leq t \leq 1000$.
- $1 \leq k \leq 5$.
- $S_i \in \{\texttt{JG}, \texttt{MID}, \texttt{TOP}, \texttt{SUP}, \texttt{AD}\}$ $(1 \leq i \leq k)$.
- $S_i \neq S_j$ $(1 \leq i < j \leq k)$.

Subtasks

- Subtask 1, $k = 1$.
- Subtask 2, No additional constraints.

Test Cases

Input 1

```
2
1 JG
1 MID
1 TOP
1 SUP
1 AD
1 TOP
1 TOP
1 TOP
1 TOP
1 TOP
```

Output 1

```
1
0
```

Input 2

```
1
5 JG MID TOP SUP AD
5 JG MID TOP SUP AD
5 JG MID TOP SUP AD
5 JG MID TOP SUP AD
5 JG MID TOP SUP AD
```

Output 2

```
120
```

Illustrations

In the Input 1, there is one feasible allocation $(\text{JG}, \text{MID}, \text{TOP}, \text{SUP}, \text{AD})$ in the first testcase.
While in the second testcase, there is no allocation that makes each position to be filled by a player.
Therefore, the answer is 0.

In the Input 2, since all five players are skilled in all five positions, feasible allocations include
$(\text{JG}, \text{MID}, \text{TOP}, \text{SUP}, \text{AD})$, $(\text{JG}, \text{MID}, \text{TOP}, \text{AD}, \text{SUP})$, $(\text{JG}, \text{MID}, \text{SUP}, \text{TOP}, \text{AD})$, and so on, for a total of 120
possibilities, which is the factorial of 5, denoted as $5! = 5 \times 4 \times 3 \times 2 \times 1$.