Problem I
ICPC Problem Selection

When it comes to organizing an ICPC, one of the most challenging job of the scientific comittee is to create a good problem set. Luckily, this year we received n task proposals. Each task proposal is tagged with at least one of the following categories: **dynamic programming** (dp), **graph theory** (graph), **math and geometry** (mathgeo), **data structure** (ds) and **adhoc** (adhoc).

The scientific commitee wants a balanced problem set. Thus, they introduced several selection rules:

- The number of problems with tag **dynamic programming** must be in range $[dp_{min}, dp_{max}]$.
- The number of problems with tag **graph theory** must be in range $[graph_{min}, graph_{max}]$.
- The number of problems with tag **math and geometry** must be in range $[mathgeo_{min}, mathgeo_{max}]$.
- The number of problems with tag **data structure** must be in range $[ds_{min}, ds_{max}]$.
- The number of problems with tag **adhoc** must be in range $[adhoc_{min}, adhoc_{max}]$.

Given the number of proposals n, the tags of every proposal and these numbers dp_{min}, dp_{max}, $graph_{min}$, $graph_{max}$, $mathgeo_{min}$, $mathgeo_{max}$, ds_{min}, ds_{max}, $adhoc_{min}$, $adhoc_{max}$; your task is to calculate the number of non-empty problem sets which satisfy all the above rules. Each problem set is a subset of the n given proposals. Two problem sets A and B are considered different iff there exists at least one proposal which is included in A but not in B, or vice versa.

Input

- The first line contains an integer n ($1 \le n \le 50$) — the number of task proposals .
- In the next n lines, the i-th one describes the i-th proposal. It starts with an integer t_i ($1 \le t_i \le 5$) denoting the number of tags assigned to the i-th proposal, and follows by t_i pair-wise distinct strings describing these tags. Each string is one of the categories listed above.
- The next line contains 2 integers dp_{min} and dp_{max} ($0 \le dp_{min} \le dp_{max} \le 15$).
- The next line contains 2 integers $graph_{min}$ and $graph_{max}$ ($0 \le graph_{min} \le graph_{max} \le 15$).
- The next line contains 2 integers $mathgeo_{min}$ and $mathgeo_{max}$ ($0 \le mathgeo_{min} \le mathgeo_{max} \le 15$).
- The next line contains 2 integers ds_{min} and ds_{max} ($0 \le ds_{min} \le ds_{max} \le 15$).
- The last line contains 2 integers $adhoc_{min}$ and $adhoc_{max}$ ($0 \le adhoc_{min} \le adhoc_{max} \le 15$).

Output

Print a single integer denoting the number of different problem sets that satisfy the selection rules.

Explanation of the samples

- In the first sample, we must use all proposals 3, 4, and 5. Among proposals 1, 2, and 6; there are 5 ways to use some of them: $\{1, 2\}$, $\{1, 6\}$, $\{2, 6\}$, $\{1, 2, 6\}$ and $\{6\}$.
- In the second sample, we don't have any proposals with the tag **math and geometry**, thus there is no satisfying problem set.

Sample Input 1	Sample Output 1
6 1 dp 1 graph 1 mathgeo 1 ds 1 adhoc 2 dp graph 1 2 1 2 1 2 1 2 1 2	5

Sample Input 2	Sample Output 2
2 2 dp adhoc 2 ds graph 1 2 1 2 1 2 1 2 1 2	0