Team Selection

Author:
Time limit: 1 second
Memory limit: 256 megabytes

For an upcoming International Programming Contest, IIUC needs a strong team of ***3*** members. To accomplish this, IIUC's Competitive Programming Community arranged an Intra-University programming contest for all the competitive coders of IIUC.

After the contest, the top ***n*** coders with the maximum scores have been selected. Among the ***n*** coders, ***3*** coders will be chosen to form a team. The selection process is based on two criteria:
1. The team must have the maximum total score, which is calculated as the sum of the scores of the i^{th}, j^{th}, and k^{th} coder $(1 <= i, j, k <= n)$.
2. The team's combined programming skills must cover ***10*** specific programming concepts, namely: String, Stack, Queue, Hashing, Searching, Recursion, DP, Graph, Tree, and Maths.

Your task is to find the maximum total score of such a team. A team that fulfills the given criteria always exists. The selected team will be eligible to participate in the International Programming Contest.

Input

The first line contains ***t***, the number of test cases $(1 <= t <= 10)$.
For each test case:

- The first line contains ***n***, the number of top participants after the contest $(3 <= n <= 20)$.
- The second line contains two integers s_i $(1 <= s_i <= 100)$ and c_i $(1 <= c_i <= 10)$, where s_i represents the score of the i^{th} $(1 <= i <= n)$ participant, and c_i represents the number of programming concepts he/she is proficient at.
- The last line contains ***c*** space-separated topics indicating the programming concepts the participant is skilled in.

Output

For each test case, print the total maximum score of the team.

Example

Input	Output
1 5 100 4 String Stack Queue Hashing 100 2 Hashing Searching 80 4 Recursion DP Graph Tree 70 5 Recursion DP Graph Tree Maths 90 1 Maths	270

Explanation

The maximum total score is achieved by selecting coders 1, 2, and 4. Their total score is 100 + 100 + 70 = 270, and they collectively have 10 programming concepts (String, Stack, Queue, Hashing, Searching, Recursion, DP, Graph, Tree, and Maths).