

Who Advanced?

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Many residents of Bitaculandia participate in the stages of international programming olympiads. There are seven such olympiads held in Bitaculandia:

1. IOI - International Olympiad in Informatics
2. CEOI - Central-Eventora Olympiad in Informatics
3. EGOI - Eventora Girls Olympiad in Informatics
4. EJOI - Eventora Junior Olympiad in Informatics
5. BaltOI - Balticodian Olympiad in Informatics
6. BalkOI - Balkolian Olympiad in Informatics
7. JBOI - Junior Balkolian Olympiad in Informatics

Miss M is responsible for organizing various stages of olympiads, as well as selections (training camps) for all seven international stages. After the last selection round, teams of four to six people are formed for all seven olympiads. However, only those participants who meet the criteria for participation in the olympiad should be sent to each competition. Here is a list of algorithms for determining the participants of the teams for the olympiads:

1. IOI - Top 4 participants based on the total scores from all selection rounds.
2. CEOI - Top 4 participants based on the total scores from all selection rounds.
3. EGOI - Top 4 female participants based on the total scores from all selection rounds.
4. EJOI - Top 4 participants at most 15 years old based on the total scores from all selection rounds.
5. BaltOI - Top 6 participants based on the total scores from all selection rounds.
6. BalkOI - Top 4 participants who are not in 11th grade based on the total scores from all selection rounds.
7. JBOI - Top 4 participants who are not in 11th or 10th grade based on the total scores from all selection rounds.

If there are fewer participants than the required number, it means that the team will consist of fewer people. For example, if you need to determine the team for EGOI and there are only two girls, it means that the team will consist of only two participants, not four.

Since there are many participants and many olympiads, and the results are desired immediately after the competition ends, Miss M asks to write a program that, based on the results and information about the participants, provides the composition of the teams for the international stages of the olympiads.

Input

The first line contains an integer n ($1 \leq n \leq 10^4$) — the number of olympiad participants.

Each of the following n lines contains information about the olympiad participants:

- *id* — unique participant number ($10^6 \leq id < 10^7$);
- *gender* — participant's gender (**male** — male, **female** — female);
- *grade* — participant's grade level ($1 \leq grade \leq 11$);
- *age* — participant's age ($10 \leq age \leq 20$);
- *score* — the number of points participants have from all selection rounds ($0 \leq score \leq 10^8$).

It is guaranteed that all *id* and *score* of participants are different.

The next line contains an integer *m* ($1 \leq m \leq 7$) — the number of international olympiads for which Miss M wants to know the composition of the participant teams.

The following *m* lines contain the names of the international olympiads for which the composition of the participant teams needs to be output. Possible olympiads: IOI, CEOI, EG0I, EJ0I, Balt0I, Balk0I, JB0I. It is guaranteed that all olympiads are different.

Output

Output *m* lines, containing the names of the international olympiads, in the same order as specified in the input data, and the *id* of participants who are part of the teams, in the format of **increasing** participant *id* number.

Scoring

In this problem, there are tests where $m = 1$ for each possible olympiad. That is, if you can only solve the problem for a certain olympiad, you are guaranteed to receive points.

Example

standard input	standard output
10	IOI
1000001 female 10 16 400	1000002
1000002 male 10 17 500	1000003
1000003 male 11 17 505	1000005
1000004 male 11 16 405	1000006
1000005 female 11 17 450	
1000006 female 10 15 480	EG0I
1000007 male 9 15 445	1000001
1000008 male 6 12 350	1000005
1000009 male 8 13 399	1000006
1000010 male 10 16 430	
3	Balt0I
IOI	1000002
EG0I	1000003
Balt0I	1000005
	1000006
	1000007
	1000010

Note

All participants can take part in IOI, the results table will look like this:

1. 1000003 — 505 points

2. 1000002 — 500 points
3. 1000006 — 480 points
4. 1000005 — 450 points
5. 1000007 — 445 points
6. 1000010 — 430 points
7. 1000004 — 405 points
8. 1000001 — 400 points
9. 1000009 — 399 points
10. 1000008 — 350 points

The participants who will go to the olympiad are 1000003, 1000002, 1000006, 1000005.

Only girls can participate in **EGOI**, the results table will look like this:

1. 1000006 — 480 points
2. 1000005 — 450 points
3. 1000001 — 400 points

The participants who will go to the olympiad are 1000006, 1000005, 1000001.

All participants can take part in **BaltOI**, the results table will look the same as for **IOI**. The same participants who will go to **IOI** will also go to **BaltOI**, as well as 1000007 and 1000010.