2018.1.15 - Surveys

Between January 2017 and January 2019, a series of surveys were conducted on voters' preference for various political parties. Each survey resulted in the percentage of voters preferring various political parties. Following the evolution of these percentages, conclusions can be drawn such as:

1. Which political parties have had a continuous ascendant evolution (i.e. the parties which gained increasing percentages in each survey)?
2. Which political party won the most electorate in the analyzed period (i.e. the party whose difference $percentage_{Jan\ 2019} - percentage_{Jan\ 2017}$ is maximum)?

Requirement

Write a program that sets out which political parties can draw the conclusions outlined above and, for Case 2, also calculates and displays the percentage difference on which the decision was made.

Input data

The following data will be read from the keyboard (*stdin* stream):

- from the first line: two integers ***P*** and ***S***, separated by *space*, representing ***P*** - the number of political parties and ***S*** - the number of surveys;
- from the following ***P*** lines: a string N_p and ***S*** integers, separated by *space*, representing N_p - the name of the political party, respectively the ***S*** percentages obtained by the party in the surveys.

All lines containing input data end with the *newline* character (*Enter* key).

Output data

The program will display on the screen (standard output stream):

- on the front line: the names of the political parties that have had a continuous ascendant evolution, separated by space, in the order in which they appeared in the input data. If no party has had such an evolution, the phrase "It does not exist" will not be displayed;
- on the second line: the name of the party that won the most electorate and the percentage won (the two information will be separated by *space*).

ATTENTION to the compliance to the problem requirements: the display of results must be done EXACTLY as required! In other words, on the standard output stream there will be nothing displayed in addition to the problem requirements; following the automatic evaluation, any supplemental character displayed, or any display different than the requirements, will produce an eroneous result and will lead to the „Reject" of the solution.

Restrictions and remarks

1. The number of surveys ***S*** is an integer in the range [2; 20].
2. The number of parties ***P*** is an integer in the range [5; 20].
3. The percentages gained in the surveys are integers in the range [0; 100]
4. We guarantee that the names of the parties are strings comprising only lowercase and uppercase letters.
5. We guarantee that for the second conclusion there won't be several maximum differences.
6. **Warning:** According to the chosen programming language, the file containing the code must have one of the extensions .c, .cpp, .java, or .m. The web editor does not add automatically these extensions and the lack of the extensions leads to the impossibility of program compilation!
7. **Warning:** The source file must be named by the candidate as: <name>.<ext> where name is the family name (last name) of the candidate and the extension is the one chosen according to the previous warning. Attention to the restrictions imposed by the Java language regarding

the class name and the file name!

Example

Input	Output
5 10 ABC 50 44 43 40 35 32 30 28 22 20 DEF 0 0 0 0 0 10 20 30 30 28 GHI 20 20 20 20 20 20 20 20 20 19 JKL 20 19 18 17 16 15 15 15 15 13 MNO 10 17 19 23 29 23 15 7 13 20	It does not exist DEF 28%
Explanation There aren't any political parties with continuous ascendant evolution. Party DEF has won the most electorate: from 0% in the first survey, to 28% in the last one.(the difference is 28%).	

Input	Output
5 3 ABC 12 20 30 DEF 10 10 20 GHI 50 20 20 JKL 10 20 10 MNO 18 30 20	ABC DEF ABC 18%
Explanation Two political parties have had continuous ascendant evolutions: ABC and DEF. Although DEF stagnated in two consecutive surveys (10%), its evolution is considered continuously ascendant. Party ABC has won the most electorate: from 12% in the first survey, to 30% in the last one.(the difference is 18%).	

Available time: 120 minutes