
3. Bus Traffic

Program Name: Bus.java

Input File: bus.dat

The DART bus service supervisor is doing research about the busses in his territory. He is following different busses and counting the number of passengers getting on and off the bus at each bus stop. He wants to know which part of the route has the fewest number of passengers on the bus.

To help with his data collection, he has given each section of a trip for a given bus a letter beginning with letter A and continues to use consecutive letters of the alphabet for the following sections of trip. At the first stop, he records the number of passengers who board the empty bus. That will be the number of passengers for section A. Then, at the next stop, he counts the number of passengers who get off the bus and the number who get on the bus to determine how many riders are on the bus for section B. He continues this method until the last stop that the bus makes in his territory. The last pair of numbers is considered still in his territory. When he completes his route, he reviews his numbers for each section to determine which section, or sections, has the fewest passengers.

Input

The first line of input will contain a single integer n that indicates the number of busses he will follow. For each bus, there will be a single line of data composed of integers separated by a space. The first integer will be the number of passengers getting on the empty bus at the initial stop. The remaining pairs of numbers contain the number of passengers getting off the bus (either 0 or a negative number preceded by a negative (-) sign) followed by the number of passengers getting on the bus. The negative number (or 0) will always be the first number in the pair since passengers must get off the bus before new passengers get on.

Output

For each bus followed, you will print, on a single line and separated by a space, an alphabetical list of the letter(s) of the section(s) with the fewest number of passengers and the number of passengers in the section(s).

Example Input File

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12 -6 5 -5 8 -4 9 -7 7 -5 16 -2 8 0 5 -8 0 -11 7

23 -6 8 -8 5 -12 0 -5 9 -8 4 -12 14 -2 0

Example Output to Screen

B 11

D F H 10