

Problem I. Intelligent Tourist

Input file: `intelligent.in`
Output file: `intelligent.out`
Time limit: 2 seconds
Memory limit: 256 megabytes

Johnny is a tourist. But he is also a computer science student in the University of Flatland. Johnny has to pass n exams soon, so he need to prepare for them, but he has to go to m hiking expeditions.

Fortunately the expeditions are arranged in such way that no exam takes place during any expedition. However, preparing for exams requires internet access and great concentration, so it is impossible to study during the expedition. Johnny cannot skip an expedition.

Johnny has numbered all the ongoing days starting from 1. For each exam Johnny knows its day d_i and the number of days p_i the he needs to study to prepare for the exam. For each expedition Johnny knows its starting day s_j and its final day t_j . It is impossible to prepare for exams during any day between s_j and t_j , inclusive. No exam date is during any expedition. No two expeditions have a common day. Johnny's memory is very good, so he can prepare for any exam during any day, but he only prepares to one exam during one particular day. If Johnny doesn't prepare to an exam he doesn't try to pass it. Johnny doesn't prepare for exams during days of exams that he tries to pass. All exams are on different days.

Help Johnny to find the maximal number of exams that he can prepare for.

Input

The input file contains multiple test cases.

The first line of each test case contains n ($1 \leq n \leq 10^5$). The following n lines contain two integers each: d_i and p_i ($0 \leq p_i \leq 10^9$, $1 \leq d_i \leq 10^{18}$). The following line contains m ($0 \leq m \leq 10^5$). The following m lines contain two integers each: s_i and t_i ($1 \leq s_i \leq t_i \leq 10^{18}$).

The last test case is followed by a line containing zero, it must not be processed.

The sum of values of n in all test cases in one input file doesn't exceed 10^5 . The sum of values of m in all test cases in one input file doesn't exceed 10^5 .

Output

For each test case output two lines. The first line must contain k — the maximal possible number of exams that Johnny can prepare for. The second line must contain k integers: the numbers of these exams. The exams are numbered from 1 to n in order they are described in the input file.

If there are several optimal solutions, print any of them.

Examples

<code>intelligent.in</code>	<code>intelligent.out</code>
3	2
4 2	1 3
10 3	
13 4	
1	
5 8	
0	

In the given example Johnny can, for example, prepare for exam 1 during days 1 and 3, and prepare for

exam 3 during days 2, 9, 10 and 11. Days 4 and 13 are used for exams, days from 5 to 8 are used for the expedition.