1089 - Points in Segments (II)

Given **n** segments (1 dimensional) and **q** points, for each point you have to find the number of segments which contain that point. A point p_i will lie in a segment A B if $A \le p_i \le B$.

For example, if the segments are (6 12), (8 8), (10 12), (8 11), (0 12) and the point is 11, then it is contained by 4 segments.

Input

Input starts with an integer $T \leq 5$, denoting the number of test cases.

Each case starts with a line containing two integers n ($1 \le n \le 50000$) and q ($1 \le q \le 50000$).

Each of the next n lines contains two integers $A_k B_k (0 \le A_k \le B_k \le 10^8)$ denoting a segment.

Each of the next q lines contains an integer denoting a point. Each of them range in [0, 10⁸].

Output

For each case, print the case number in a single line. Then for each point, print the number of segments that contain that point.

Sample Input	Output for Sample Input
1	Case 1:
5 4	4
6 12	3
8 8	1
10 12	0
8 11	
0 12	
11	
12	
2	
20	

Notes

Dataset is huge, use faster I/O methods.