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 $\mathbf{p_i}$ will lie in a segment **A B** if $\mathbf{A \leq p_i \leq B}$.

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 (≤ 5)**, denoting the number of test cases.

Each case starts with a line containing two integers **n (1 ≤ n ≤ 50000)** and **q (1 ≤ q ≤ 50000)**.

Each of the next **n** lines contains two integers $\mathbf{A_k}$ $\mathbf{B_k}$ $\mathbf{(0 \leq A_k \leq B_k \leq 10^8)}$ denoting a segment.

Each of the next **q** lines contains an integer denoting a point. Each of them range in $\mathbf{[0, 10^8]}$.

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 5 4 6 12 8 8 10 12 8 11 0 12 11 12 2 20	Case 1: 4 3 1 0

Notes

Dataset is huge, use faster I/O methods.