

F. Grundy and K-Nim

Score: 1

CPU: 1s

Memory: 1024MB

Little Grundy loves the game of Nim. He is always challenging other boys and girls of his age to play the game. He is very good at it and always wins (well not always, because there are some games, which you can't win unless you are playing with an idiot).

Those who doesn't know the game of Nim, it's played between two players. The game can have several piles of stones. The players take turns to give their moves. In each move, a player can choose a non-empty pile and remove any positive amount of stones from the pile. The game ends when there are no stones left to remove. The player who can't make a move at her turn loses the game. For more details about the game you can visit: <https://en.wikipedia.org/wiki/Nim>

Now Grundy knows everything about traditional Nim. So to keep things interesting he is making variations of the game. One such variation is that instead of removing any positive number of stones, at each turn you can remove at most K stones from the chosen pile. Lets call this game K-Nim. Grundy always plays first. Given the pile sizes and the value of K for a K-Nim game, you need to determine if the given game can be won by Grundy. Each player plays optimally, meaning they will not make a move that causes them to lose the game if some better, winning move exists.

Input

Input starts with an integer, T ($T \leq 10$), number of test cases. Each case starts with N ($0 < N < 1001$), the number of piles. Next line contains N space separated integers P_i ($0 < P_i \leq 10^9$), which denotes the size of the i -th pile. Next line will have an integer Q ($0 < Q < 1001$), the number of queries. Q space separated integers will follow denoting the queries. Each query will contain an integer K ($0 < K \leq 10^9$). For each query, you should assume that the K-Nim game consists of the piles given in the case and the value of K is given in that query. You need to find out the winner of the game for each query.

Output

Output case no for each case. Then add query no for each query. For each query mention "Win" or "Lose" based on the outcome of the game for little Grundy. See sample for clarification.

Sample

Input

Output

Input

1
3
3 5 5
2
2 4

Output

Case 1:
Query 1: Lose
Query 2: Win