Aqua Blu Sharm Aqua Park

Input file:	`marwan.in`
Output file:	`stdout`
Time limit:	15 seconds
Memory limit:	1024 megabytes

Marwan Mostafa Fahmy Naggar (A contestant in Bugs Factory team, a world finalist in The ACM-ICPC world finals in Ekaterinburg, Russia 2014 and a Facebook intern) was very tired after qualifying to the world finals in ACPC 2013. The next day after the contest, he won a free ticket to Aqua Blu Sharm Aqua Park and a free day in the hotel, all because of his achievement. The only problem was that he was very tired and did not have enough energy to visit all the play areas, such as water slides, splash pads, spray grounds (water playgrounds), lazy rivers, or other recreational bathing, swimming, and barefooting environments. However since he used to know exactly how much calories he has (Marwan is too professional that he can know the maximum number of calories he wants to lose) and also he knows the number of calories lost in each play area, as well as the number of calories needed to move from each play area to the other. Can you help Marwan to know the maximum number of different play areas he can visit without losing more calories than the allowed maximum?

Initially Marwan will be at the entrance of the Aqua Park, it will be noted in the input as the play area number 0, and the cost of staying there is 0 calories. Marwan should start moving from there.

Input

Given the number of test cases T ($1 \leq \mathbf{T} \leq 100$), each test case is as the following:

N [The number of play areas + the entrance] ($1 \leq \mathbf{N} \leq 15$)

C [The number of calories Marwan initially has] ($1 \leq \mathbf{C} \leq 100$)

N-1 numbers [the ith number (starting from 1) should be the calories required to play in play area i]

N*N Matrix [The jth element in the ith row represents the minimum number of calories needed to move from play area i to play area j]

The cost of playing at any play area will be a maximum of **10 calories**, and the cost of moving between any 2 play areas will be a maximum of **10 calories**.

You may assume that the N*N matrix contains the smallest number of calories needed to move between each 2 play areas.

Output

The output should be like that:

Case x: y

x is the case number starting from 1.

y is the maximum number of different play areas Marwan can visit.

Print a new line after each test case.

Examples

marwan.in	stdout
2 3 100 100 50 0 100 40 10 0 20 40 20 0 3 82 9 8 0 6 2 6 0 8 2 8 0	Case 1: 1 Case 2: 2