1119 – Pimp My Ride

Today, there are quite a few cars, motorcycles, trucks and other vehicles out there on the streets that would seriously need some refurbishment. You have taken on this job, ripping off a few dollars from a major TV station along the way. Of course, there's a lot of work to do, and you have decided that it's getting too much. Therefore you want to have the various jobs like painting, interior decoration and so on done by garages. Unfortunately, those garages are very specialized, so you need different garages for different jobs. More so, they tend to charge you the more the better the overall appearance of the car is. That is, a painter might charge more for a car whose interior is all leather. As those "surcharges" depend on what job is done and which jobs have been done before, you are currently trying to save money by finding an optimal order for those jobs.

Individual jobs are numbered **1** through **n**. Given the base price **p** for each job and a surcharge **s** for every pair of jobs **(i, j)**, meaning that you have to pay additional **s** for job **i**, if and only if job **j** was completed before, you are to compute the minimum total costs needed to finish all jobs.

Input

Input starts with an integer **T (≤ 100)**, denoting the number of test cases.

Each case starts with an integer **n (1 ≤ n ≤ 14)** denoting number of jobs. Then follow **n** lines, each containing exactly **n** integers. The **i**th line contains the surcharges that have to be paid in garage number **i** for the **i**th job and the base price for job **i**. More precisely, on the **i**th line, the **i**th integer is the base price for job **i** and the **j**th integer **i ≠ j** is the surcharge for job **i** that applies if job **j** has been done before. The prices will be non-negative integers smaller than or equal to **100000**.

Output

For each case, print the case number and the minimum total cost.

Sample Input	Output for Sample Input
2 2 10 10 9000 10 3 14 23 0 0 14 0 1000 9500 14	Case 1: 30 Case 2: 42