H Its all about the Bandwidth

Input: Standard Input
Output: Standard Output

... it is important to realize that any lock can be picked with a big enough hammer.

Sun System & Network Admin Manual

My appartment has **n** computers. My friend's appartment also has **n** computers. In each appartment, some pairs of computers are connected to each other with AcidNet cables (ignoring the routers). Each connection has a certain bandwidth (in bytes per second). My friend always brags about the speed of his computer network. He always shows me his **n**-by-**n** table that lists the bandwidths between each pair of computers. My network is slower, and I want to rebuild it. So I want to know how I should connect my computers in order to have the same **n**-by-**n** bandwidth table.

Since I don't want to buy too many AcidNet cables, you'll need to find a solution with the minimum number of connections. You may use AcidNet cables of any integer bandwidth - they all have the same price at my local Imaginary Hardware Store.

Problem, in short

Given a graph, you can compute the all-pairs maximum flow table, right? Now do the opposite: given an **n**-by-**n** symmetric table, find a graph with fewest edges that has the given table of all-pairs maximum flows.

Input

The first line of input gives the number of cases, **N**. **N** test cases follow. Each one is a line containing **n** ($0 < \mathbf{n} \leq 200$), followed by **n** lines with **n** integers each, giving the table **T**.

- **T**`[u][u]` will always be 0.
- **T**`[u][v]` will always be positive and equal to **T**[v][u].
- **T**`[i][j]` $\leq$ `10000`

T`[u][v]` is the largest possible speed (in bytes per second) for sending information from computer u to computer v, assuming there is no other traffic on the network.

Output

For each test case, output one line containing "Case #**x**:" followed by **m** - the number of cables I have to buy. The next **m** lines will each contain 3 integers **u**, **v** and **w** meaning that I need to connect computer **u** to computer **v** using an AcidNet cable of bandwidth **w**. Computers are numbered starting at 0.

If there is no solution, print "Impossible".

Sample Input	Output for Sample Input
4 2 0 10	Case #1: 1 0 1 10 Case #2: 2

10 0 3 0 1 1 1 0 2 1 2 0 1 0 4 0 2 2 1 2 0 2 2 2 2 0 2 1 2 2 0	0 1 1 1 2 2 Case #3: 0 Case #4: Impossible

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