Problem D. Distance Parities

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Andrii had a connected graph with n vertices. For every two different vertices i and j of this graph, he calculated the length of the shortest path between them $- d_{i,j}$. Unfortunately, then Andrii lost the graph and forgot the numbers $d_{i,j}$. But he remembered the parity of all numbers $d_{i,j}$.

So for every two different vertices i, j Andrii told you $a_{i,j} = d_{i,j} \bmod 2$. Construct an example of a graph that Andrii could have had, or determine that such a graph does not exist and Andrii is lying to you.

Input

The first line contains a single integer t $(1 \le t \le 10^4)$ — the number of test cases. The description of test cases follows.

The first line of each test case contains one integer n $(2 \le n \le 500)$ — the number of vertices.

The i-th of the next n lines contains a binary string s_i of length n. The j-th character of this string is `0` if $a_{i,j} = 0$, and `1` if $a_{i,j} = 1$.

It is guaranteed that $a_{i,i} = 0$ for all $1 \le i \le n$, and $a_{i,j} = a_{j,i}$ for all $1 \le i < j \le n$.

It is guaranteed that the sum of n^2 over all test cases does not exceed 250000.

Output

For each test case, if such a graph does not exist, print `NO`.

Otherwise, print `YES`. On the next line print a single integer m $(n - 1 \le m \le \frac{n(n-1)}{2})$ — the number of edges. In the i-th of the next m lines print two numbers u_i, v_i $(1 \le u_i, v_i \le n, u_i \ne v_i)$, denoting the edge between the vertices u_i and v_i.

All edges must be pairwise distinct. The graph must be connected.

You can print `YES` and `NO` in any case (e.g. the strings `yEs`, `yes`, `Yes` will be taken as a positive answer).

Example

standard input	standard output
3 3 011 101 110 4 0100 1000 0001 0010 5 01010 10101 01010 10101 01010	YES 3 1 2 1 3 2 3 NO YES 4 1 2 2 3 3 4 4 5

Note

In the first test case, such a graph on three vertices exists — you can just take a triangle. All pairwise distances are equal to 1 and hence odd.

It can be shown that in the second test case, such a graph does not exist.

In the third test case, we have a chain with edges $(1, 2), (2, 3), (3, 4), (4, 5)$. In it, the distance between vertices i, j is odd if and only if i and j have different parity.