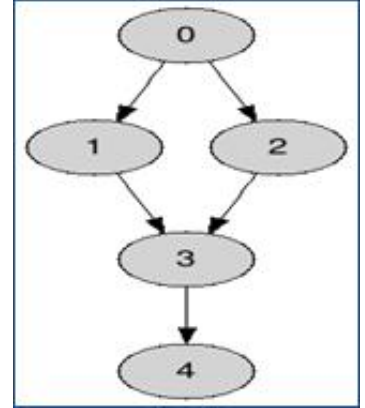


D**Dominator**

In graph theory, a node **X** dominates a node **Y** if every path from the predefined start node to **Y** must go through **X**. If **Y** is not reachable from the start node then node **Y** does not have any dominator. By definition, every node reachable from the start node dominates itself. In this problem, you will be given a directed graph and you have to find the dominators of every node where the 0th node is the start node.

As an example, for the graph shown right, **3** dominates **4** since all the paths from **0** to **4** must pass through **3**. **1** doesn't dominate **3** since there is a path **0-2-3** that doesn't include **1**.

**Input**

The first line of input will contain **T** (≤ 100) denoting the number of cases.

Each case starts with an integer **N** ($0 < N < 100$) that represents the number of nodes in the graph. The next **N** lines contain **N** integers each. If the **jth**(0 based) integer of **ith**(0 based) line is **1**, it means that there is an edge from node **i** to node **j** and similarly a **0** means there is no edge.

Output

For each case, output the case number first. Then output **2N+1** lines that summarizes the dominator relationship between every pair of nodes. If node **A** dominates node **B**, output 'Y' in cell **(A, B)**, otherwise output 'N'. Cell **(A, B)** means cell at **Ath** row and **Bth** column. Surround the output with |, + and - to make it more legible. Look at the samples for exact format.

Sample Input	Output for Sample Input
2	Case 1:
5	+-----+
0 1 1 0 0	Y Y Y Y Y
0 0 0 1 0	+-----+
0 0 0 1 0	N Y N N N
0 0 0 1 0	+-----+
0 0 0 0 1	N N Y N N
0 0 0 0 0	+-----+
1	N N N Y Y
1	+-----+
	N N N N Y
	+-----+
	Case 2:
	+--+
	Y
	+--+

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