Problem K. Circuit

Time limit: 5 seconds
Memory limit: 256 Megabytes

Now there is a directed graph $G = (V, E)$ with n vertices and m edges (the graph does not guarantee connectivity). You need to calculate the length of the circuit with the smallest length. At the same time, on this basis you also need to count the number of the circuit with the smallest length. There are no multiedges and self-loops in the graph.

Input

The first line of input is a positive integer $T(T \le 15)$ representing the number of test cases. Description of the test cases follows:
The first line of each test case contains two integers n and m $(1 \le n \le 500, 0 \le m \le n \times (n-1))$—— the number of the vertices and edges in the given graph.
Each of the next m lines contains two integers u_i , v_i and w_i $(1 \le u_i, v_i \le n, 1 \le w_i \le 10^9)$meaning that there is a directed edge of length w_i between vertex u_i and vertex v_i in the tree.
The data guarantees that there will be no more than 10 groups with a value of n exceeding 100.

Output

For each case, output two integers representing the length and the number of the circuit with the smallest length. Since the number may be large, you need to output the result of modulating the answer to 998244353.Output -1 -1 if there is no circuit.

Example

standard input	standard output
3 3 4 1 2 4 2 1 3 2 3 2 3 1 1 2 1 1 2 1 5 7 1 2 4 2 1 4 1 3 1 3 4 1 4 2 2 2 5 2 5 1 2	7 2 -1 -1 8 4