Problem B. Standard Problem

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

You are given n segments $[l_i, r_i]$ ($1 \le l_i \le r_i \le m$). Each segment has a weight c_i.

Let us choose a subsequence of segments, from each chosen segment choose an integer and arrange them in the same order as initial segments. By this operation we will get an integer sequence. We say that a subsequence of segments is **good** if we can construct a **nondecreasing** integer subsequence from it.

Let k be the maximum weight of a good subsequence (the sum of weights of all segments in the subsequence). Calculate k and the number of good subsequences of weight k. Since the number of subsequences can be large, calculate it modulo 998 244 353.

Input

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

The first line of each test case contains two integers n, m ($1 \le n, m \le 2 \cdot 10^5$).

Each of the next n lines contains three integers l_i, r_i, c_i ($1 \le l_i \le r_i \le m$, $1 \le c_i \le 10^9$) — description of the i-th segment.

It is guaranteed that both the sum of n and the sum of m for all test cases do not exceed $2 \cdot 10^5$.

Output

For each test case, print two integers — the maximum weight of a good subsequence and the number of good subsequences with maximum weight (the second number modulo 998 244 353).

Example

standard input	standard output
2 3 4 1 2 1 2 3 1 2 2 1 2 5 1 4 3 2 5 3	3 1 6 1