Haitang and Graph

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Haitang calls a graph **perfect** if, for any pair of vertices (x, y) and for all $z \in [0, 2^w)$, there exists a path from x to y (not necessarily a simple path) such that the XOR sum of the weights of all edges on the path is equal to z. Specifically, if an edge is traversed multiple times, its weight is **counted multiple times** in the XOR sum.

A graph is simple if it does not contain multiple edges or self-loops.

Two graphs are considered different if there exists a pair of vertices (u, v) such that one graph has an edge (u, v) while the other does not, or if the weights of edge (u, v) are different in the two graphs.

Given four integers n, m, m_0, w, find the number of **perfect** simple undirected graphs with n vertices, m edges, edge weights in the range $[0, 2^w)$, with the given m_0 edges.

Print the answer modulo 998244353.

Input

The first line contains four integers n, m, m_0, w ($1 \le n \le 32$, $n - 1 \le m \le \frac{n(n-1)}{2}$, $0 \le m_0 \le m$, $0 \le w \le 60$).

Each of the next m_0 lines contains three integers u_i, v_i, c_i ($1 \le u_i, v_i \le n$, $0 \le c_i < 2^w$), representing an edge.

It is guaranteed that the given edges form a simple graph.

Output

The only line contains an integer — the answer modulo 998244353.

Examples

standard input	standard output
3 3 1 1 1 2 1	2
4 6 0 3	86016
11 45 14 19 1 2 123 2 3 456 3 4 789 4 5 890 6 7 233 7 8 2333 8 9 23333 9 10 233333 6 8 333333 7 9 433333 8 10 0 11 1 4307 11 2 5307 11 3 6418	783514377