Graph Drawing

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	64 megabytes

Bobo decided to draw a (planar) graph with n vertices conveniently numbered by $1, 2, \ldots, n$ on the plane. Edges should be drawn in such a manner that no two edges intersect strictly (i.e. they could still share common ends). The planar graph would consist of m faces, where the i-th face had k_i vertices $v_{i,1}, v_{i,2}, \ldots, v_{i,k_i}$ arranged in couterclockwise order.

In addition, Bobo would like edges to be drawn either vertically or horizontally. Since such drawing was not always possible, Bobo was allowed to subdivide the edges by adding one or more extra vertices in the middle of the edges.

Bobo would like to figure out the minimum number of extra vertices to make the drawing possible.

Input

The first line contains 2 integers n, m ($1 \le n \le 200, 1 \le m \le n - 2$).

The i-th of the following m lines begins with an integer k_i, following by k_i integers $v_{i,1}, v_{i,2}, \ldots, v_{i,k_i}$ ($3 \le k_i \le n, 1 \le v_{i,j} \le n$).

It is guaranteed that the biconnected graph is valid planar graph with maximum degree no more than 4. Note that biconnected means the graph is connected and still remains connected without any vertices.

Output

An integer denotes the minimum number of extra vertices.

Examples

standard input	standard output
4 2 3 1 2 3 3 4 3 2	2
5 1 5 1 2 3 4 5	0