



Problem F. Colorful Graph 3

Having delved into the complex theory of quantum chromodynamics once again, Little Cyan Fish has become fascinated with the concept of color charge. To test your understanding of this theory, he has proposed the following task to you.

Given an integer n , and k non-negative integers c_1, c_2, \dots, c_k , construct an undirected graph with n vertices satisfying the following conditions:

- Each edge has a color w_i which is an integer in $[1, k]$.
- For all $1 \leq i, j \leq n$ and all $1 \leq t \leq k$, there exists a path connecting the vertices i and j such that the number of edges with color t on the path does not exceed c_t . (Note that the paths for different t 's need not be the same.)
- The number of edges in the constructed graph is minimized.

It is guaranteed that there is at least one possible solution.

Input

The first line of the input contains a single integer T ($1 \leq T \leq 5 \times 10^4$), indicating the number of test cases.

For each test case, the first line of the input contains two integers n, k ($2 \leq n, k \leq 10^5$).

The next line of the input contains k integers c_i ($0 \leq c_i \leq n$).

It is guaranteed that there is at least one possible solution, and the sum of n and the sum of k over all test cases do not exceed 10^5 respectively.

Output

For each test case, output an integer m on its own line, indicating the number of edges in your constructed graph.

The next m lines of the output describe your graph. The i -th line of these lines contains three integers u_i, v_i , and w_i ($1 \leq u_i, v_i \leq n, 1 \leq w_i \leq k$), indicating an edge connecting the vertex u_i and v_i with color w_i .

Example

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