

graph

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Given two positive integers n, m , qwqkawaii has a sequence of positive integers $c_1, c_2, \dots, c_m$ of length m , satisfying that each c_i is less than n and all c_i are distinct.

qwqkawaii wants to construct a directed graph G with n vertices, where G has no self-loops, multiple edges, or bidirectional edges. Moreover, for each $1 \leq i \leq m$, there exists a vertex in G such that either its out-degree is c_i or its in-degree is c_i .

qwqkawaii wants to know the minimum number of edges required for a graph G to meet such requirements, and when n is relatively small, provide a specific construction of G . More precisely, qwqkawaii will give a parameter $opt \in \{0, 1\}$. When $opt = 0$, qwqkawaii needs to know the minimum number of edges of graph G and a corresponding G that meets the minimum number of edges. When $opt = 1$, qwqkawaii only needs to know the minimum number of edges of graph G .

Input

The first line contains an integer opt ($opt \in \{0, 1\}$), representing the type of the query.

The second line contains two positive integers n and m ($1 \leq m < n \leq 10^6$), representing the number of vertices of graph G and the sequence length, respectively. When $opt = 0$, it is guaranteed that $n \leq 2 \times 10^3$.

The third line contains m positive integers $c_1, \dots, c_m$ ($1 \leq c_i \leq n - 1$). It is guaranteed that all c_i are distinct.

Output

If $opt = 0$:

- First, output a line with a positive integer x , representing the minimum number of edges in G .
- Next, for the next x lines, output two positive integers u and v for each line, representing that vertex u is connected to vertex v with a directed edge. Please ensure that $1 \leq u, v \leq n$.

If $opt = 1$:

- Output a positive integer x , representing the minimum number of edges in G .

Example

standard input	standard output
0	7
5 4	3 2
3 1 4 2	4 1
	3 4
	4 5
	3 5
	4 2
	3 1

Note

For the example case, the graph G has 7 edges. The out-degree of vertex 4 is 3, the in-degree of vertex 2 is 1, the out-degree of vertex 3 is 4, and the in-degree of vertex 1 is 2. One can prove that 7 is the minimum number of edges for graph G .