Directed Acyclic Graph

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Given two integers n and m, you need to construct a directed acyclic graph (DAG) $G = (V, E)$ with exactly n vertices and m edges.

In the graph G, a vertex v is called *reachable* from vertex u if and only if there exists a path in the graph that starts at vertex u and ends at vertex v.

For a non-empty set of vertices $A \subseteq V$, a vertex w is defined as *good* for A if and only if it is reachable from **every** vertex in A, and we denote $f(A)$ as the set of all good vertices for A.

The graph you constructed should satisfy both of the following constraints:

- For every vertex i ($1 \le i \le n$), it is reachable from vertex 1.
- There exist k distinct non-empty sets of vertices $S_1, S_2, \ldots, S_k$, such that $f(S_1), f(S_2), \ldots, f(S_k)$ are pairwise distinct. Note that $f(S_i)$ can be empty.

To prove the graph G you constructed satisfies the second constraint, you also need to provide k sets $S_1, S_2, \ldots, S_k$ that satisfy the second constraint.

Input

The only line of the input contains three integers n, m, and k.

There are only 2 tests in this problem:

1. $n = 5$, $m = 6$, $k = 6$;
2. $n = 100$, $m = 128$, $k = 16\,000$.

Output

The first m lines of the output describe the graph G you construct. Each line contains two integers u, v representing an edge from u to v in the graph.

The next k lines of the output describe the k sets of vertices you provide. The i-th line first contains the size of the set S_i, followed by the $|S_i|$ numbers representing each vertex in the set.

Example

standard input	standard output

`5 6 6`	`1 2`
	`1 3`
	`2 4`
	`3 5`
	`2 5`
	`3 4`
	`1 1`
	`1 2`
	`1 3`
	`1 4`
	`1 5`
	`2 2 3`

Note

In the example, the output constructs a graph with $n = 5$ vertices and $m = 6$ edges. The corresponding $k = 6$ sets are $S_1 = \{1\}, S_2 = \{2\}, S_3 = \{3\}, S_4 = \{4\}, S_5 = \{5\}, S_6 = \{2, 3\}$.

Here, vertices 4 and 5 can both be reached from any element in $S_6 = \{2, 3\}$, so $f(\{2, 3\}) = \{4, 5\}$. Together with $f(S_1) = \{1, 2, 3, 4, 5\}, f(S_2) = \{2, 4, 5\}, f(S_3) = \{3, 4, 5\}, f(S_4) = \{4\}, f(S_5) = \{5\}$, these sets are all distinct, satisfying the constraints.