Pintando con distancias

Manuela really likes to color graphs. She has decided that she wants to color connected graphs with exactly n vertices. To color this type of graph she has made a plan consisting of m integers $a_1, a_2, \ldots, a_m$. Manuela colors the graph in the following way: in day 0 she selects a vertex and paints it. In the day i (for each i between 1 and m) she paints all the vertices of the graph that are exactly a_i away from any vertex already painted. (The distance between two vertices is the number of edges on the shortest path between them).

Manuela says that a plan is cool if, for any connected graph of n vertices, a vertex can be selected in day 0 that makes all vertices be painted in the end. Given n and a plan, determine whether the plan is cool and, if it is not, provide an example of a graph with n vertices and connected such that, regardless of which vertex is chosen in the first day, there is always one vertex left unpainted.

Input and output

The first line of the input contains the number of cases T.

For each case, the input starts with a line with two integers n and m the number of nodes and the number of days. Then follows a line with m integers $a_1, a_2, \ldots, a_m$.

For each case, the output must contain a line with a "SI" if the plan is cool or a "NO" if the plan is not cool. If the plan is not cool, another line should be printed with a number k: the number of edges in the counterexample network, followed by k lines, each with two numbers x_i, x_j indicating that the network has an edge between nodes x_i and x_j. The nodes must be indexed starting at 0.

Example

Input:

```
3
4 1
3
6 5
4 1 2 3 5
10 2
1 1
```

Output:

```
NO
6
0 1
0 2
0 3
1 2
1 3
2 3
SI
NO
9
```

```
0 1
5 4
7 8
0 2
2 3
7 6
2 9
3 4
5 6
```

Constraints

$1 \leq T \leq 100$

$1 \leq m \leq 100$

$2 \leq n \leq 100$

$1 \leq a_i \leq n - 1$

The sum of the values of n over all cases will be less than 1000, the same will be true for the sum of the values of m.

Subtasks

1. (19 points) $2 \leq n \leq 5$.
2. (30 points) $a_i = 1$ for all i.
3. (51 points) No additional restrictions.