# Lovely Triplets

Daniel loves graphs. He thinks a graph is *special* if it has the following properties:

- It is undirected.
- The length of each edge is $1$.
- It includes *exactly* $P$ different *lovely triplets*.

A *triplet* is a set of $3$ different nodes. A triplet is *lovely* if the minimum distance between each pair of nodes in the triplet is *exactly* $Q$. Two triplets are different if $1$ or more of their component nodes are different.

Given $P$ and $Q$, help Daniel draw a *special graph*.

**Input Format**

A single line containing $2$ space-separated integers, $P$ (the number of different lovely triplets you must have in your graph) and $Q$ (the required *distance* between each pair of nodes in a lovely triplet), respectively.

**Constraints**

- $1 \leq P \leq 5000$
- $2 \leq Q \leq 9$

**Output Format**

For the first line, print $2$ space-separated integers, $N$ (the number of nodes in the graph) and $M$ (the number of edges in the graph), respectively.
On each line $i$ of the $M$ subsequent lines, print two space-separated integers, $u_i$ and $v_i$, describing an edge between nodes $u_i$ and $v_i$.

Your output must satisfy the following conditions:

- $0 \leq N, M \leq 100$
- $1 \leq u_i, v_i \leq N$

If there is more than one correct answer, print any one of them.

**Sample Input**

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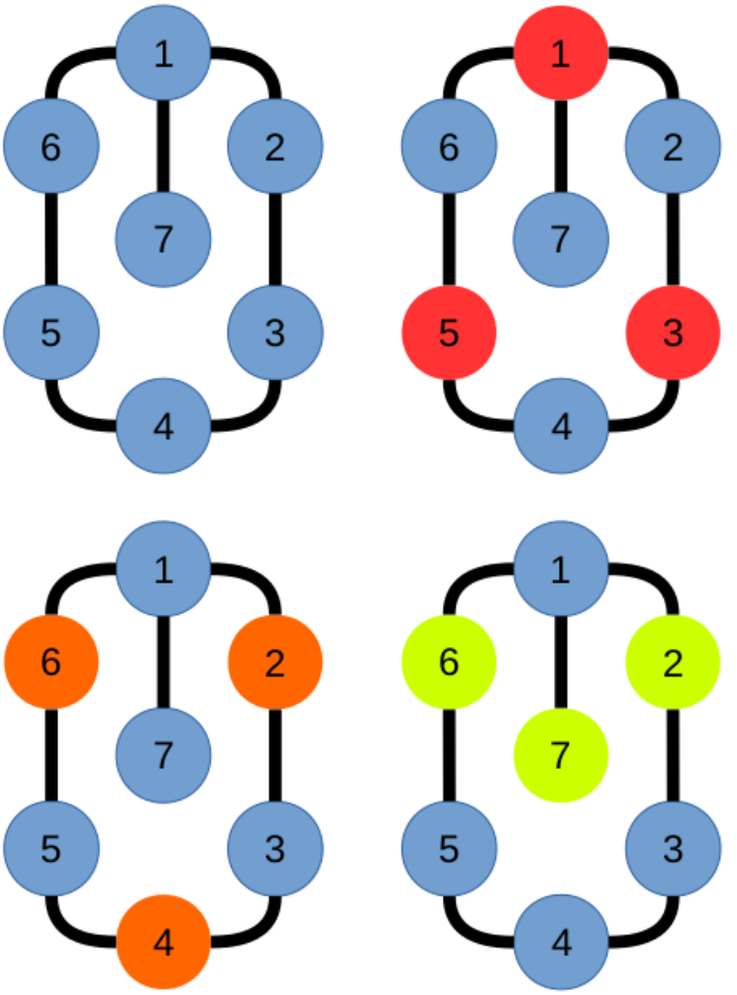
3 2
```

**Sample Output**

```
7 7
1 2
2 3
3 4
4 5
5 6
6 1
1 7
```

**Explanation**

There are exactly $P = 3$ lovely triplets in this graph: $\{1, 3, 5\}$, $\{2, 4, 6\}$, and $\{2, 6, 7\}$.




Observe that each node in a lovely triplet is $Q = 2$ edges away from the other nodes composing the lovely triplet.