
The cask of amontillado**P31675_en**

The thousand injuries of Fortunato I had borne as I best could; but when he ventured upon insult, I vowed revenge... We continued our route in search of the amontillado. We passed through a range of low arches, descended, passed on, and descending again, arrived at a deep crypt... I forced the last stone into its position; I plastered it up... In pace requiescat!

With the excuse of sampling a cask of amontillado, Montessor has guided poor drunken Fortunato through the catacombs under Montessor's palace. There, in a very remote crypt, Montessor has immured Fortunato inside a hidden niche. Now Montessor wants to return to the chamber where they started their route, but he has forgotten the way to get there. Fortunately, Montessor has a map of the catacombs, which shows all the chambers and their direct connections. (Note that some steps are so difficult that it may be possible to pass from one chamber u to another v , but not directly back from v to u .) The map also shows which chambers contain amontillado.

Montessor and Fortunato went from a starting chamber x to another chamber y where they are now. Ironically, Montessor knows that there is no path from x to any chamber with amontillado. Montessor also knows that it is possible to go from y back to x . However, he cannot identify which is x nor which is y in the map. Please help him by computing the number of possible combinations for x and y that are consistent with all this information.

Input

Input consists of several cases. Each one begins with the number of chambers n , a number c , and c different chambers that contain amontillado. Follows a number m , and m different pairs $u\ v$ (with $u \neq v$) denoting that there is a direct connection from u to v . Assume $0 \leq n \leq 10000$, $0 \leq c \leq n$, and $0 \leq m \leq 10n$. The chambers are numbered from 0 to $n - 1$.

Output

For every case, print its number, followed by the number of combinations for x and y that are consistent with Montessor's knowledge.

Sample input 1

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

Sample output 1

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Case #1: 2
Case #2: 6
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Problem information

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