DMOPC '15 Contest 6 P6 - Graf Zeppelin

Time limit: 1.4s **Memory limit:** 256M

Graf has a graph, a graph with N vertices and M bidirectional edges. In this graph, Graf wonders: for each vertex how many vertices are within distance K of it?

Input Specification

The first line will have space-separated N ($1 \leq N \leq 1\,500$), M ($1 \leq M \leq \frac{N \times (N-1)}{2}$), and K ($1 \leq K \leq 5$).
The next M lines will describe the edges: there is an edge between every pair of integers on the next M lines. Edges will not be repeated in the input.
10% of the test data will additionally have $N \leq 200$.

Output Specification

Output N lines, the answer for vertex number i on line i.

Sample Input 1

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

Sample Output 1

```
3
5
3
4
2
3
```

Sample Input 2

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

Sample Output 2

```
4
4
4
4
```