Lab2 Questions

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# Lab2.A

▶ XX lives in a town composed of n villages (numbered $1, 2, 3, …, n$ respectively), and m roads (each road connects two villages), of which the number of XX's village is $p(p \in [1, n])$. On the first day of the New Year, XX starts from his village and goes to another village to pay New Year's call through the road connected with his village. XX can also either go through the road he has passed or stay in her current village. Could you tell me the number of villages that XX might stay on the day k?

Input:

4 3 2 3
2 1
2 3
4 2
0
1
2

current village
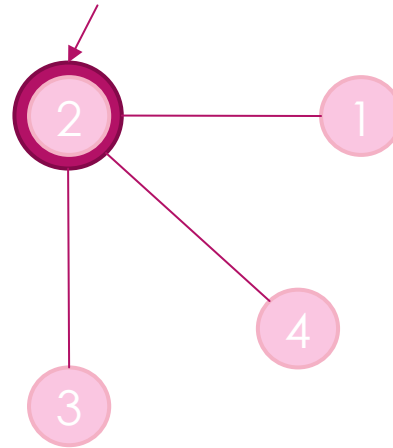
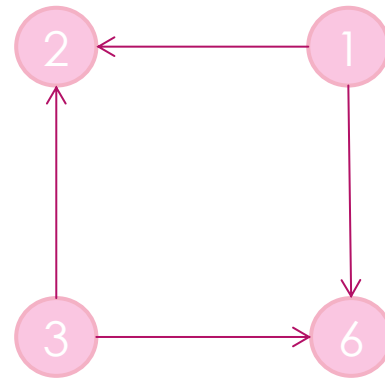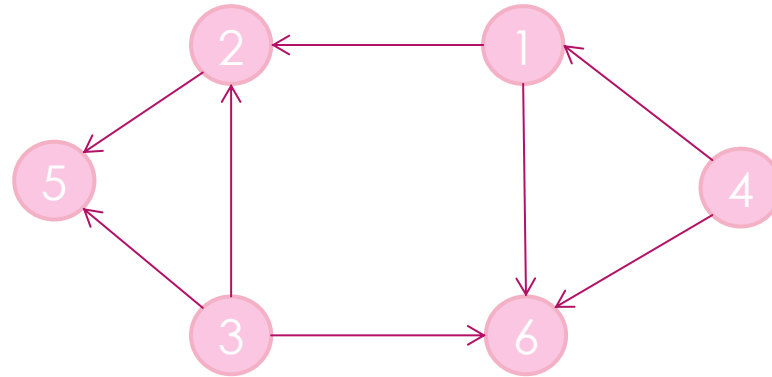|	Which villages XX may stay on	the number of villages
day 0:	2	1
day 1:	2,1,3,4	4
day 2:	2,1,3,4	4

Output:

1 4 4

Lab2.B Simplicity Favors Regularity

▶ **lhyyy** has a graph $G(V, E)$, but it's too complex. He wants to remove some vertices and edges to get a simple and regular subgraph.

▶ Suppose $V' = \{v_1, v_2, ..., v_k\}$, the graph $G'(V', E')$ is called simple if kk is even and $E' = \{(v_1, v_2), (v_3, v_2), (v_3, v_4) ..., (v_{k-1}, v_k), (v_1, v_k)\}$

▶ To make the subgraph simple, **lhyyy** wants to minimize $|V'|$

▶ However, **lhyyy** knows nothing about graph theory, can you help him?

Input:

1

6 8

1 2

3 2

3 6

1 6

2 5

3 5

4 6

4 1

Output:

4