

# RengaRengaRenk

There are  $N$  buildings in Sincan which connect with following property.

For any subset  $A$  of 7 buildings of all buildings, there are some two buildings  $a, b \in A$ , and some building  $c \notin A$  such that all paths from  $a$  to  $b$  contain building  $c$ .

You will help the prime minister of Sincan to find the number of ways to properly color these buildings in  $1, 2, \dots, n$  colors modulo 998244353

All buildings are colored in  $k$  colors by assigning an integer from 1 to  $k$  to every building. If any two buildings are connected, their colors must be different.

## Input Format:

The first line of the input contains two integers  $n$  and  $m$ : the number of building and the number of connections in Sincan.

The next  $m$  lines contain description of the connections of the Sincan. Each of these lines contains two integers  $a_i$  and  $b_i$  describing an connection between buildings  $a_i$  and  $b_i$ . There are no multiple connections.

It is guaranteed that for any subset  $A$  of 7 buildings of the Sincan, there are some two buildings  $a, b \in A$  and some building  $c \notin A$  such that all paths from  $a$  to  $b$  contain building  $c$ .

## Constraints:

$$1 \leq n, m \leq 10^5$$

$$1 \leq a_i, b_i \leq n, a_i \neq b_i$$

## Output Format:

Print one line containing  $n$  space-separated integers. The  $i$ -th integer must be the number of ways to properly color the Sincan in  $i$  colors, taken modulo 998244353.

## Explanations:

### Input 1

```
3 1
1 2
```

### Output 1

```
0 4 18
```