



# Pepeland

Kingdom of Pepeland has  $n$  cities numbered from 1 to  $n$ . Engineering department of Pepeland has made a plan to build  $m$  tunnels between them. Tunnels are numbered from 1 to  $m$ . The  $i$ th tunnel is planned to be build between city  $u[i]$  and  $v[i]$  and has a label  $a[i]$ . Multiple tunnels can have same labels. If all of the tunnels are built, it will be possible to visit every city from every other city. There can be multiple tunnel plans between a pair of cities.

Not all of the tunnels will actually be built. Pepe has to label each city with an integer between 1 and  $10^9$  inclusive (multiple cities can have same labels). Let's say he labeled city  $i$  with  $b[i]$ . A tunnel connecting two cities will be built if the label of only one of the cities matches the label of the tunnel. More formally, tunnel  $i$  connecting city  $u[i]$  and  $v[i]$  with label  $a[i]$  will be built if and only if one of the following is true.

- $b[u[i]] = a[i]$  and  $b[v[i]] \neq a[i]$
- $b[u[i]] \neq a[i]$  and  $b[v[i]] = a[i]$

Help Pepe find a labeling of cities such that it is possible to visit every city from every other city only using the tunnels which will be built. If there are no such labeling print  $-1$ .

## Input

The input will be given in the following format:

- line 1:  $n \ m$
- line  $1 + i$  ( $1 \leq i \leq m$ ):  $u[i] \ v[i] \ a[i]$

## Output

If there are no such labeling print the output in the following format:

- line 1:  $-1$

Otherwise print the output in the following format:

- line 1:  $b[1] \ b[2] \ \dots \ b[n]$

If there are multiple correct solutions print any of them.

## Constraints

- $2 \leq n \leq 2 \cdot 10^5$
- $1 \leq m \leq 2 \cdot 10^5$
- $1 \leq a[i] \leq m$  for  $(1 \leq i \leq m)$
- $u[i] \neq v[i]$  for  $(1 \leq i \leq m)$
- If all of the tunnels are built, it will be possible to visit every city from every other city.

## Subtasks

1. (7 Points)  $n = 2$
2. (10 Points)  $n, m \leq 15$
3. (10 Points)  $m = n - 1, u[i] = 1$  for  $(1 \leq i \leq m)$
4. (18 Points)  $m = n - 1, u[i] = i, v[i] = i + 1$  for  $(1 \leq i \leq m)$
5. (27 Points)  $m = n - 1$
6. (10 Points)  $n, m \leq 1000$
7. (18 Points) No additional constraints.

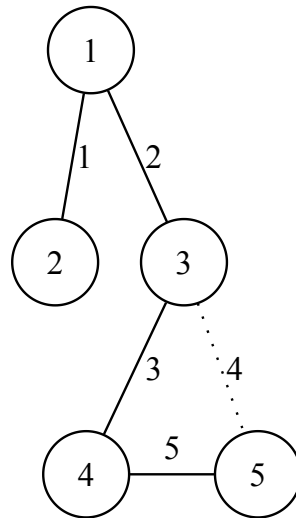
## Examples

### Example 1

```
5 5
1 2 1
1 3 2
3 4 3
3 5 4
4 5 5
```

One possible labeling can be:

```
2024 1 2 3 5
```



If we label the cities with  $b = [2024, 1, 2, 3, 5]$ :

- tunnel 1 will be built since  $b[1] \neq 1, b[2] = 1$
- tunnel 2 will be built since  $b[1] \neq 2, b[3] = 2$
- tunnel 3 will be built since  $b[3] \neq 3, b[4] = 3$
- tunnel 4 will not be built since  $b[3] \neq 4, b[5] \neq 4$
- tunnel 5 will be built since  $b[4] \neq 5, b[5] = 5$

## Example 2

```

4 3
1 2 1
2 3 2
3 4 1

```

One possible labeling can be:

```

2 1 2 1

```