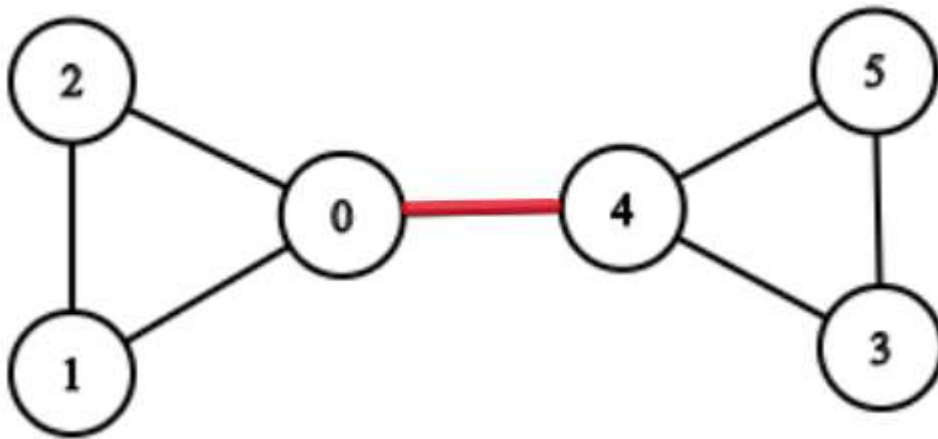


Problem Statement

[Suggest Edit](#)

Given an undirected graph of V vertices and E edges. Your task is to find all the bridges in the given undirected graph. A bridge in any graph is defined as an edge which, when removed, makes the graph disconnected (or more precisely, increases the number of connected components in the graph). For Example :

If the given graph is :



Then the edge between 0 and 4 is the bridge because if the edge between 0 and 4 is removed, then there will be no path left to reach from 0 to 4. and makes the graph disconnected, and increases the number of connected components.

Note :

There are no self-loops (an edge connecting the vertex to itself) in the given graph.

There are no parallel edges i.e. no two vertices are directly connected by more than 1 edge.

Sample Input 1 :

```
2
5 4
0 1
3 1
1 2
3 4
3 3
```

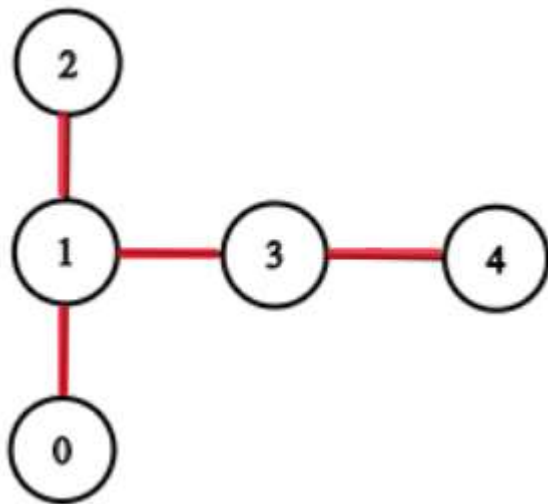
```
0 1
1 2
2 0
```

Sample Output 1 :

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

Explanation For Sample Input 1 :

For the first test case, the graph will be represented as



There are four bridges((0-1),(1-2),(1-3),(3-4)) in the above-given graph denoted by red lines.

For the second test case, there is no bridge present in the given graph.

Sample Input 2 :

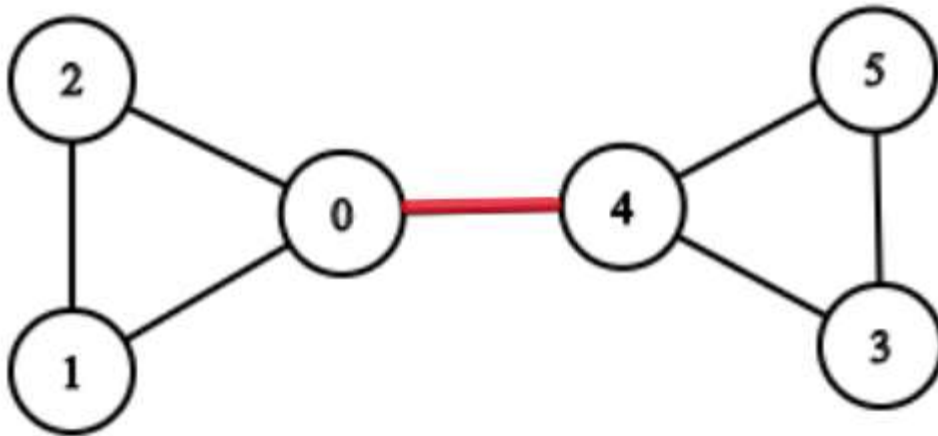
```
1
6 7
1 2
1 0
0 2
0 4
5 4
5 3
3 4
```

Sample Output 2 :

1
0 4

Explanation For Sample Input 2 :

For the first test case, the graph will be represented as



There is only one bridge((0-4)) in the above-given graph denoted by red lines.