

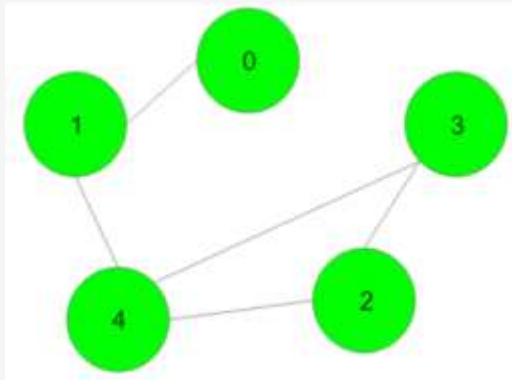
Articulation Point

Given an undirected connected graph with V vertices and adjacency list **adj**. You are required to find all the vertices removing which (and edges through it) disconnects the graph into 2 or more components.

Note: Indexing is zero-based i.e nodes numbering from (0 to $V-1$). There might be loops present in the graph.

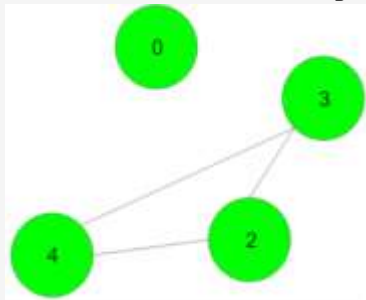
Example 1:

Input :

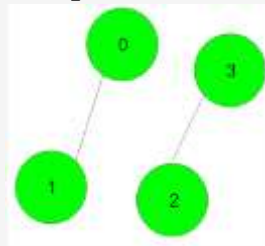


Output: {1, 4}

Explanation: Removing the vertex 1 will disconnect the graph as-



Removing the vertex 4 will disconnect the Graph as



Your Task:

You don't need to read or print anything. Your task is to complete the function **articulationPoints()** which takes V and adj as input parameters and returns a list containing all the vertices removing which turn the graph into two or more disconnected components in sorted order. If there are no such vertices then returns a list containing -1 .

Expected Time Complexity: $O(V + E)$

Expected Auxiliary Space: $O(V)$

Constraints:

$$1 \leq V \leq 10^5$$