Assignment-6(Programming)

Discussion:

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- The code finds out first the parent-child node and save them as an adjacency list.
- Then it labels 2 different colors ‘r’ for red and ‘b’ for blue to parent and child node.
- Then if the graph is bipartite it separates and groups the nodes with different colors and prints the vertices.
- The bipartiteness of the graph is checked by the **‘cycle'** function, which creates an array and appends all the colors and nodes into it. The colors are assigned as previously different to parent and child.
- If some node contains 2 different colors then the graph is not bipartite.

Running time:

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- The adjacency list can be found in O(V.E) ,V=vertices,E=edges
- The cycle function can be calculated in O(VE)+O(V)+O(V) complexity.
- The labeling of vertices can be done in O(V.E) and the replace loop runs for O(V) complexity.
- The total time taken for the program is O(VE).