

Assignment 6

Test for Bipartiteness:

Every node and its neighbors should have a different color.

Explanation:- We traverse through the whole adjacency list and check if any two neighbors have the same color. If any two neighbors have the same color then the graph is not bipartite, else it is bipartite.

Analysis for Running Time:

1. To build Adjacency List = $O(|E|)$
2. For DFS = $O(|V|+|E|)$
3. For test for bipartiteness = $O(|E|)$

Therefore, Time Complexity = $O(|V|+|E|)$