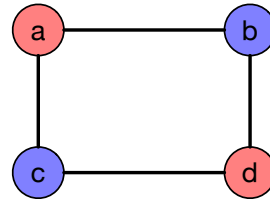
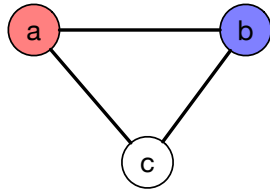


Homework 7 – Algorithms

You are given an undirected graph $G = (V, E)$. Find an $O(|V| + |E|)$ algorithm that determines whether it is possible to assign labels “Red” and “Blue” to all vertices such that an edge only goes from a “Red” to a “Blue” vertex.

To understand this better: A triangle cannot be colored in this manner, but a square can.



You need to provide a proof that your algorithm works and has the desired asymptotic complexity.