

# Exercise of Algorithms

## Problem

There are two types of professional wrestlers: “babyfaces” (“good guys”) and “heels” (“bad guys”). Between any pair of professional wrestlers, there may or may not be a rivalry. Suppose we have  $n$  professional wrestlers and we have a list of  $r$  pairs of wrestlers for which there are rivalries. Give an  $O(n + r)$ -time algorithm that determines whether it is possible to designate some of the wrestlers as babyfaces and the remainder as heels such that each rivalry is between a babyface and a heel. If it is possible to perform such a designation, your algorithm should produce it.