Algorithm 3 ChangeVehicleChain Optimization

Input: Vehicles, Frequent Customers, Planning Horizon

Select a random period p from the planning horizon
for each $vehicle\_from$ in vehicles **do**
    for each $vehicle\_middle$ in vehicles **do**
        for each $vehicle\_to$ in vehicles **do**
            // Find the best chain relocation:
            i) Evaluate moving a customer from $vehicle\_from$ to $vehicle\_middle$
            ii) Evaluate moving a customer from $vehicle\_middle$ to $vehicle\_to$
            iii) Calculate the total cost of both relocations
            iv) Validate if the chain relocation improves the objective function
            if the chain relocation improves the objective and is valid **then**
                Perform the relocation of customers between vehicles
                Update routes
            end if
        end for
    end for
end for

Output: Updated solution with new routes and total cost