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Greedy

MINIMIZECASHFLOW

The problem is the following:

We are given some payments to be done and we need to minimize the amount of interchanges among all the people who have to pay.

My solution for this problem is creating an ArrayList of Person (people) and two ArrayList of Payment (payments and results).

When we call the calculate method, the following algorithm is performed:

1. Populate the Person array with people holding information about their current balance.
2. Find the person who has to pay more (minimum balance), let's call them A.
3. Find the person who has to receive more (maximum balance), let's call them B.
4. If A has less money than B has to receive,
    - Add a new payment with all the money from A to B.
    - Update balance of B to the previous balance - received money.
    - Update balance of A to 0.
5. If A has more money than B has to receive,
    - Add a new payment with all the money B has to receive.
    - Update balance of A to the previous balance + paid money.
    - Update balance of B to 0.
6. Repeat steps [2-5] while there is an unbalanced person.

Complexity:

The complexity for this solution is O (n^2). I need to iterate with the while loop, and each time I need to find the minimum and maximum using an O (n) method.