ExpenseTracker Resolve Debts Algorithm

A : +100
B : -70
C : +50
D : +200
E : -250
F : -30

Accounts of a group

$\Longrightarrow$ Group::resolveDebts()

↓

Terminal Output
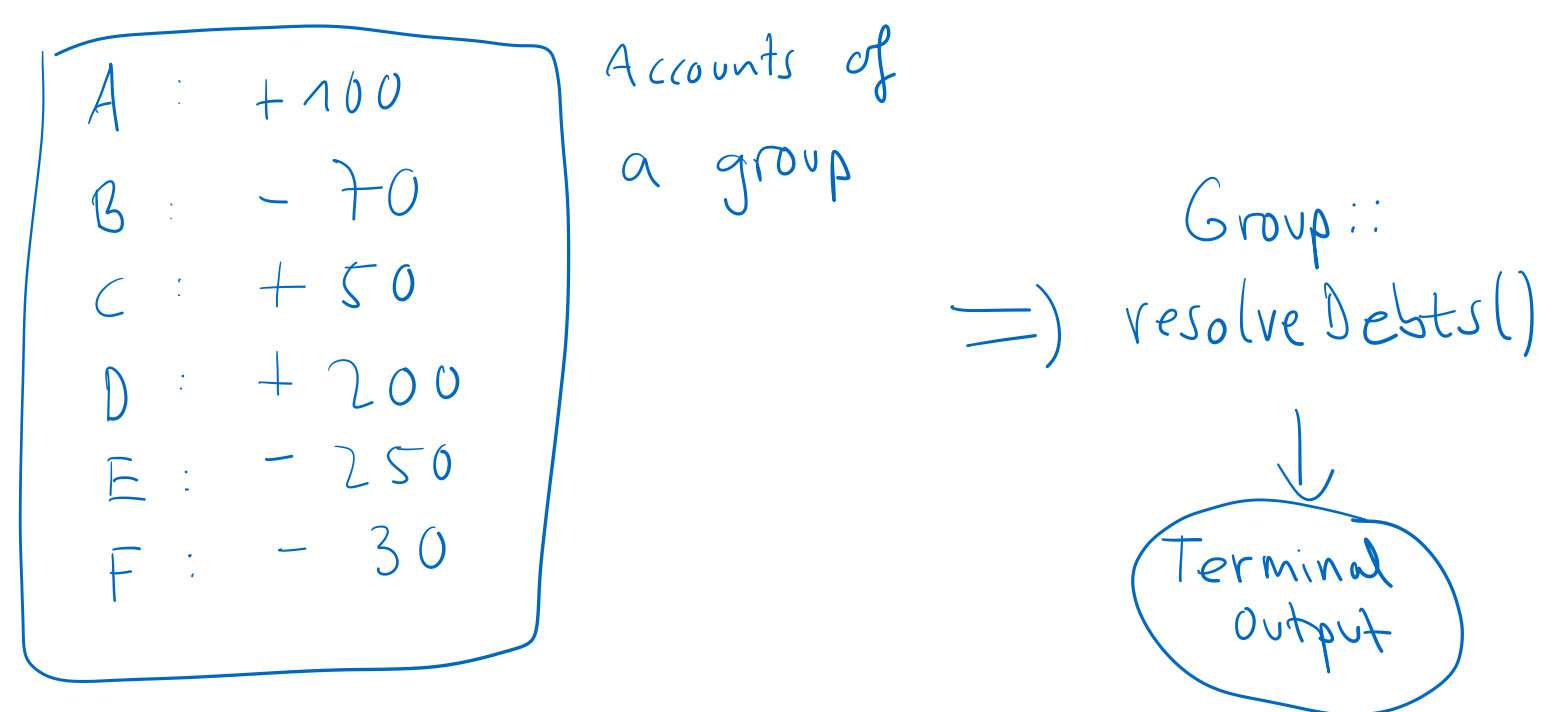
Possible Reimbursement Process

Creditors
A | +100
C | +50
D | +200

Debtors
B | -70
E | -250
F | -30

⇓ Sort()

D | +200
A | +100
C | +50

E | -250
B | -70
F | -30

1) E $\xrightarrow{200}$ D

D | 0
A | +100
C | +50

E | -50
B | -70
F | -30

2) E $\xrightarrow{50}$ A

D | 0
A | +50
C | +50

E | 0
B | -70
F | -30

3) B $\xrightarrow{50}$ A

D | 0
A | 0
C | +50

E | 0
B | -20
F | -30

4) B $\xrightarrow{20}$ C

D | 0
A | 0
C | +30

E | 0
B | 0
F | -30

5) F $\xrightarrow{30}$ C

D | 0
A | 0
C | 0

E | 0
B | 0
F | 0

Ende

#Payments = 5

(could be minimized
in an optimization problem)

(C++) Implementation

1) Separate into +/- List

2) Sort both Lists (optional step!)

3) First debtor pays to first creditor
.
Last debtor pays to last creditor

4) End algorithm if all accounts = 0