METHOD AND SYSTEM FOR RE-ALLOCATING FUNDS ACROSS MULTIPLE ACCOUNTS

FIELD OF INVENTION

[0001] The present invention relates broadly, but not exclusively, to methods and systems for re-allocating funds across multiple accounts.

BACKGROUND

[0002] Currently, many people, especially those from younger generations (e.g. Millennials), tend to have multiple bank accounts. However, many of them do not actively and conscientiously track their multiple bank accounts. In addition, they may also have multiple banking relationships in terms of payment cards (e.g. credit cards, debit cards, etc.) and bank accounts, which makes management and tracking of the multiple bank accounts even more difficult. As a result, they may forget to settle their outstanding payables (e.g. bills, monthly installments), which can impact their credit history. For example, they may forget that a cheque has been deposited into one account and as a result, do not utilize funds from the account to settle payables that are linked to another account.

[0003] A need therefore exists to provide methods and systems for re-allocating funds across multiple accounts that seek to address at least some of the above problems.

SUMMARY

[0004] According to a first aspect of the present invention, there is provided a method for re-allocating funds across multiple accounts, the multiple accounts comprising a master account and a plurality of child accounts, the method comprising: receiving, from a mobile application server in communication with a core banking system, priority data corresponding to a priority of each of the multiple accounts, the master account having a highest priority; receiving, from the mobile application server, minimum balance data corresponding to a preferred minimum balance amount to be maintained in each of the multiple accounts; receiving, from an account module of the

core banking system, current balance data corresponding to a current balance amount in each of the multiple accounts; transferring, using a transaction module of the core banking system, funds out from one or more of the plurality of child accounts to the master account based on the priority data, minimum balance data and current balance data of each of the multiple accounts; and transferring, using the transaction module, funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the minimum balance data and current balance data of the multiple accounts.

[0005] The method may further comprise: receiving, from the account module, debit data corresponding to an amount to be debited from one or more of the multiple accounts; transferring, using the transaction module, the funds out from one or more of the plurality of child accounts to the master account based on the debit data of one or more of the multiple accounts; and transferring, using the transaction module, the funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the debit data of one or more of the multiple accounts.

[0006] The method may further comprise: determining, using a re-allocation module of the core banking system, a surplus amount in each of the multiple accounts based on (i) the current balance data and minimum balance data of each of the multiple accounts and (ii) the debit data of one or more of the multiple accounts; determining, using the re-allocation module, an initial total surplus amount based on a sum of the surplus amount in each of the multiple accounts; and transferring, using the transaction module, the funds out from the child account having the lowest priority to the master account based on the initial total surplus amount.

[0007] The method may further comprise: transferring, using the transaction module, all funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is negative and (ii) the surplus amount in the child account having the lowest priority is less than or equal to the initial total surplus amount.

[0008] The method may further comprise: determining, using the re-allocation module, a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority; and transferring, using the transaction module, all funds out from the child account

having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is negative and (ii) the surplus amount in the child account having the second lowest priority is less than or equal to the revised total surplus amount.

[0009] The negative initial total surplus amount or negative revised total surplus amount may indicate that there is insufficient current balance across the multiple accounts to maintain the minimum balance in each of the multiple accounts and to settle the amount to be debited from one or more of the multiple accounts.

[0010] The method may further comprise: transferring, using the transaction module, funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is positive and (ii) the surplus amount in the child account having the lowest priority is positive, wherein the amount of funds transferred out is based on the surplus amount in the child account having the lowest priority.

[0011] The method may further comprise: determining, using the re-allocation module, a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority; transferring, using the transaction module, funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is positive and (ii) the surplus amount in the child account having the second lowest priority is positive, wherein the amount of funds transferred out is based on the surplus amount in the child account having the second lowest priority.

[0012] Funds may be transferred from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account on a condition that the surplus amount in the one or more child accounts that did not have funds transferred out is negative. The amount of funds transferred from the master account may be based on the surplus amount in the respective child account that did not have funds transferred out.

[0013] The current balance data may comprise funds credited into each of the multiple accounts.

[0014] According to a second aspect of the present invention, there is provided a system for re-allocating funds across multiple accounts, the multiple accounts comprising a master account and a plurality of child accounts, the system comprising: a mobile application server; and a core banking system comprising an account module and a transaction module, the core banking system in communication with the mobile application server, and wherein the core banking system is configured to: receive, from the mobile application server, priority data corresponding to a priority of each of the multiple accounts, the master account having a highest priority; receive, from the mobile application server, minimum balance data corresponding to a preferred minimum balance amount to be maintained in each of the multiple accounts; receive, from the account module, current balance data corresponding to a current balance amount in each of the multiple accounts; transfer, using the transaction module, funds out from one or more of the plurality of child accounts to the master account based on the priority data, minimum balance data and current balance data of each of the multiple accounts; and transfer, using the transaction module, funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the minimum balance data and current balance data of the multiple accounts.

[0015] The core banking system may be further configured to: receive, from the account module, debit data corresponding to an amount to be debited from one or more of the multiple accounts; transfer, using the transaction module, the funds out from one or more of the plurality of child accounts to the master account based on the debit data of one or more of the multiple accounts; and transfer, using the transaction module, the funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the debit data of one or more of the multiple accounts.

[0016] The core banking system may further comprise a re-allocation module, and the core banking system may be further configured to: determine, using the re-allocation module, a surplus amount in each of the multiple accounts based on (i) the current balance data and minimum balance data of each of the multiple accounts and (ii) the debit data of one or more of the multiple accounts; determine, using the re-allocation module, an initial total surplus amount based on a sum of the surplus amount in each of the multiple accounts; and transfer, using the transaction module, the funds out from the child account having the lowest priority to the master account based on the initial total surplus amount.

[0017] The core banking system may be further configured to: transfer, using the transaction module, all funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is negative and (ii) the surplus amount in the child account having the lowest priority is less than or equal to the initial total surplus amount.

[0018] The core banking system may be further configured to: determine, using the re-allocation module, a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority; and transfer, using the transaction module, all funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is negative and (ii) the surplus amount in the child account having the second lowest priority is less than or equal to the revised total surplus amount.

[0019] The negative initial total surplus amount or negative revised total surplus amount may indicate that there is insufficient current balance across the multiple accounts to maintain the minimum balance in each of the multiple accounts and to settle the amount to be debited from one or more of the multiple accounts.

[0020] The core banking system may be further configured to: transfer, using the transaction module, funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is positive and (ii) the surplus amount in the child account having the lowest priority is positive, wherein the amount of funds transferred out is based on the surplus amount in the child account having the lowest priority.

[0021] The core banking system may be further configured to: determine, using the re-allocation module, a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority; and transfer, using the transaction module, funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is positive and (ii) the surplus amount in the child account having the second lowest priority is positive, wherein the amount of funds transferred out is based on the surplus amount in the child account having the second lowest priority.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

[0023] Figure 1 shows a flow chart illustrating a method for re-allocating funds across multiple accounts, according to an example embodiment;

[0024] Tables A to F show various steps of a method for re-allocating funds across multiple accounts, according to an example embodiment;

[0025] Figure 2 shows a schematic diagram illustrating flow of information between various entities during a method for re-allocating funds across multiple accounts, according to an example embodiment;

[0026] Figure 3 shows a schematic diagram illustrating flow of information between various entities during a method for transferring funds to and from multiple accounts, according to an example embodiment; and

[0027] Figure 4 shows a schematic diagram of a computer system suitable for use in executing the method for re-allocating funds across multiple accounts.

[0028] Figure 5 shows a schematic diagram of a system for re-allocating funds across multiple accounts, according to an example embodiment.

DETAILED DESCRIPTION

[0029] Embodiments of the present invention will be described, by way of example only, with reference to the drawings. Like reference numerals and characters in the drawings refer to like elements or equivalents.

[0030] Some portions of the description which follows are explicitly or implicitly presented in terms of algorithms and functional or symbolic representations of operations on data within a computer memory. These algorithmic descriptions and functional or symbolic representations are the means used by those skilled in the data processing arts to convey most effectively the substance of their work to others skilled

in the art. An algorithm is here, and generally, conceived to be a self-consistent sequence of steps leading to a desired result. The steps are those requiring physical manipulations of physical quantities, such as electrical, magnetic or optical signals capable of being stored, transferred, combined, compared, and otherwise manipulated.

[0031] Unless specifically stated otherwise, and as apparent from the following, it will be appreciated that throughout the present specification, discussions utilizing terms such as "receiving", "scanning", "calculating", "determining", "replacing", "generating", "initializing", "outputting", or the like, refer to the action and processes of a computer system, or similar electronic device, that manipulates and transforms data represented as physical quantities within the computer system into other data similarly represented as physical quantities within the computer system or other information storage, transmission or display devices.

[0032] The present specification also discloses apparatus for performing the operations of the methods. Such apparatus may be specially constructed for the required purposes, or may comprise a computer or other device selectively activated or reconfigured by a computer program stored in the computer. The algorithms and displays presented herein are not inherently related to any particular computer or other apparatus. Various machines may be used with programs in accordance with the teachings herein. Alternatively, the construction of more specialized apparatus to perform the required method steps may be appropriate. The structure of a computer suitable for executing the various methods / processes described herein will appear from the description below.

[0033] In addition, the present specification also implicitly discloses a computer program, in that it would be apparent to the person skilled in the art that the individual steps of the method described herein may be put into effect by computer code. The computer program is not intended to be limited to any particular programming language and implementation thereof. It will be appreciated that a variety of programming languages and coding thereof may be used to implement the teachings of the disclosure contained herein. Moreover, the computer program is not intended to be limited to any particular control flow. There are many other variants of the computer program, which can use different control flows without departing from the spirit or scope of the invention.

[0034] Furthermore, one or more of the steps of the computer program may be performed in parallel rather than sequentially. Such a computer program may be stored on any computer readable medium. The computer readable medium may include storage devices such as magnetic or optical disks, memory chips, or other storage devices suitable for interfacing with a computer. The computer readable medium may also include a hard-wired medium such as exemplified in the Internet system, or wireless medium such as exemplified in the GSM mobile telephone system. The computer program when loaded and executed on such a computer effectively results in an apparatus that implements the steps of the preferred method.

[0035] Figure 1 shows a flow chart illustrating a method 100 for re-allocating funds across multiple accounts, according to an example embodiment. The multiple accounts include a single master account and a plurality of child accounts.

[0036] During step 102 of the method 100, priority data corresponding to a priority of each of the multiple accounts is received. The priority data provides an indication of a priority, importance or ranking of each of the multiple accounts. As a general rule, the master account has a highest priority, importance or rank. The assignment of "master account" to one of the multiple accounts may be user defined and can be re-assigned at a later time.

[0037] Step 104 of the method 100 involves receiving minimum balance data corresponding to a preferred minimum balance amount to be maintained in each of the multiple accounts. The minimum balance amount is either a user-specified amount of money which the user would like to be maintained or is a mandate by banks to maintain such minimum balance in each of the multiple accounts. The amount of money to be maintained in each of the multiple accounts may be checked at a specific time, for example when step 106 and/or 108 (described in detail below) are/is performed. At other times (i.e. when step 106 and/or 108 are/is not being executed), the amount in an account may be below the minimum balance amount. Further, the minimum balance amount is an amount that is preferably, but not necessarily, maintained in each account. For instance, when the user has to withdraw large sums of money from multiple accounts for an unexpected expenditure, the amount in one or more of the accounts may fall below the minimum balance amount. The user-specified minimum balance amount of an account may be "zero", i.e. it is acceptable if the account has no balance.

[0038] At step 106, current balance data corresponding to a current balance amount in each of the multiple accounts is received. Steps 102, 104 and 106 may not necessarily be performed sequentially – e.g. step 104 or 106 can be performed before 102, or steps 102, 104 and 106 can be performed in parallel. The current balance data may include funds that are credited into each of the multiple accounts (e.g. receivables such as cheque deposits, salary deposits, dividends).

[0039] At step 108, funds are transferred out from one or more of the plurality of child accounts to the master account based on the priority data, minimum balance data and current balance data of each of the multiple accounts received at steps 102, 104 and 106 respectively. In other words, funds are transferred out from at least one (but not necessarily all) of the child accounts based on (i) the priority, importance or ranking of each of the multiple accounts, (ii) the user-specified amount of money to be maintained in each of the multiple accounts, and (iii) the current amount of money in each of the multiple accounts. The fund transfer(s) may be implemented in a manner that is similar to a Direct Debit facility, as known in the art – wherein the Master Account requests for receiving funds from Child Account(s) and since a mandate has been assigned, the Child Account(s) transfers funds on receiving a request. Alternatively, the fund transfer(s) may be implemented in a manner that is similar to Society for Worldwide Interbank Financial Telecommunication (SWIFT) transfers or peer-to-peer (P2P) transfers, as known in the art. In either case, no funds are transferred out from the master account during step 108.

[0040] At step 110, funds are transferred from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account at step 108. The amount of funds transferred from the master account to the relevant child account(s) is based on the minimum balance data and current balance data of the multiple accounts. In other words, if funds were transferred out from a particular account at step 108, the particular account does not receive funds at step 110. An account may only receive funds if no funds were transferred out at step 108. Similar to step 108, the fund transfer(s) may be SWIFT or P2P transfers.

[0041] The method 100 seeks to provide scheduled re-allocation funds across multiple accounts based on (i) a priority, (ii) a user-specified minimum balance amount, and (iii) current balance amount corresponding to each of the multiple accounts. Such scheduled re-allocation of funds advantageously transfers money automatically among a user's multiple accounts based on the user's requirements. The user does not

need to calculate the amount of money that has to be transferred in and out of each account, nor does the user need to remember to initiate the transfers at the appropriate time.

[0042] Oftentimes, the user may need to settle payables that are linked to an account. For example, utility bills, monthly installments, etc. may be linked to an account and debited from the account at specific times (e.g. at the end of every month). If there are insufficient funds in the account to settle a payable, an administrative fee, interest, or fine may be imposed. The user's credit history or rating may be affected if payments are late or remain unsettled. Sometimes, the payments are late or unsettled because the user has simply forgotten to maintain sufficient funds in the relevant account, yet has additional unused funds in other accounts.

[0043] Accordingly, in an implementation, the method 100 may further include the following three sub-steps. The first sub-step involves receiving debit data corresponding to an amount to be debited from one or more of the multiple accounts. The amount to be debited may be for settling a payable that is linked to an account. Not all the user's multiple accounts may have debit data. In contrast, with reference to steps 102 and 104 above, every one of the user's multiple accounts has a corresponding priority data and a minimum balance data. The first sub-step is preferably performed prior to step 108, e.g. before steps 102, 104 and 106 or in parallel with steps 102, 104 and/or 106.

[0044] The second sub-step involves transferring the funds out from one or more of the plurality of child accounts to the master account based on the debit data of one or more of the multiple accounts. The second sub-step may be performed in conjunction with step 108 such that funds are transferred out from one or more of the plurality of child accounts (but not necessarily all of the child accounts) to the master account based on (i) the priority, importance or ranking of each of the multiple accounts, (ii) the user-specified amount of money to be maintained in each of the multiple accounts, (iii) the current amount of money in each of the multiple accounts, and (iv) the user-specified amount of money to be debited from one or more of the multiple accounts.

[0045] The third sub-step involves transferring the funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the debit data of one or more of the multiple accounts. In

other words, funds are transferred from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account at the second sub-step. The third sub-step may be performed in conjunction with step 110 such that funds are transferred from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account based on (i) the user-specified amount of money to be maintained in each of the multiple accounts, (ii) the current amount of money in each of the multiple accounts, and (iii) the user-specified amount of money to be debited from one or more of the multiple accounts.

[0046] A standalone mobile electronic device such as a smartphone may be used to execute or facilitate the execution of one or more steps of the method for re-allocating funds across multiple accounts as described above. A mobile application ("app") that is installed on a user's mobile electronic device can allow the user to control and/or configure various aspects of the method. Alternatively or additionally, a computing device may be specially constructed or configured to execute or facilitate the execution of one or more steps of the method. Further details on the computing device will be provided below. The computing device may be in communication with the standalone mobile electronic device such that the computing device executes some steps of the method while the standalone mobile electronic device executes other steps of the method.

[0047] Tables A to F show various steps of a method for re-allocating funds across multiple accounts, according to an example embodiment. For illustrative purposes, some example data will be used in the following description. As shown in Table A, there are six accounts in all - a single master account ("Master Account") and five child accounts ("Child 1", "Child 2", "Child 3", "Child 4", and "Child 5"). The Master Account has priority data "1", indicating that the master account has the highest priority. Child 1 has the second highest priority and has priority data "2". Similarly, Child 2 has the third highest priority and has priority data "3", while Child 3 has the fourth highest priority and has priority data "4". Child 4 has the fifth highest priority and has priority data "5". Lastly, Child 5 has the lowest priority and has priority data "6". The minimum balance data corresponding to a preferred minimum balance amount to be maintained in each of the multiple accounts is also shown in Table A. For example, the minimum balance amount to be maintained in the Master Account is $5000, and the minimum balance amount to be maintained in Child 4 is $2000.

[0048] In this example, Child 1, Child 3, and Child 4 have debit data corresponding to an amount to be debited from these accounts. For example, the amount to be debited from Child 1 is "$1000". The debited amount may be used to settle payables that are linked to an account, such as utility bills and monthly installments. The Master Account, Child 2 and Child 5 do not have amounts to be debited.

[0049] The current balance data corresponding to a current balance amount in each of the multiple accounts is also shown in Table A. For example, the current balance in the Master Account is $4500, and the current balance amount in Child 4 is $3000.

[0050] The first step involves calculating an amount required to clear the payables linked to Child 1, Child 3, and Child 4 at the scheduled time. The scheduled time may be user-defined, e.g. at the end of every week or month. The amount required to clear the payables for each relevant account can be considered to be the minimum amount required to be transferred (if any) into each relevant account and is calculated based on a difference between the current balance and payable amounts. As shown in Table B, the amount required for Child 1 is $500 (i.e. $1000 minus 500), and the amount required for Child 3 is $1500 (i.e. $2000 minus 500). The amount required for Child 4 is $0 since there is sufficient current balance in Child 4 to completely settle the payable amount.

[0051] The second step (see Table C) involves calculating surplus funds in each account, but leaving aside minimum balance requirements of each account. The surplus funds in each account (disregarding the minimum balance requirement of the account) is calculated based on a difference between the current balance amount and the payable amount (if any) for each account. For example, the surplus fund for the Master Account is $4500 (i.e. $4500 minus $0, as there is no payable amount). The surplus fund for Child 1 is negative $500 (i.e. $500 minus $1000).

[0052] The third step (see Table D) involves calculating surplus funds in each account, but now taking into consideration minimum balance requirements of each account. The surplus funds in each account (taking into consideration the minimum balance requirement of the account) is calculated based a difference between the surplus funds in each account calculated at the second step above and the minimum balance requirements of each account. In other words, it is calculated based on a difference between the current balance amount and the payable amount (if any) for each account, and the minimum balance requirement of the account. For example, the surplus fund for the Master Account is negative $500 (i.e. $4500 minus

$5000). The surplus fund for Child 1 is negative $1500 (i.e. negative $500 minus $1000).

[0053] In addition, the surplus funds in each account is summed up, and this amount is designated as "total amount required" in Table D. A negative "total amount required" implies that there are not enough funds to meet the minimum balance requirements and settle all payables for all the accounts.

[0054] In the event that the "total amount required" is negative, the fourth step involves deducting complete funds from the relevant child accounts, starting from the child account with the lowest priority and sequentially moving to the child account with the next higher priority. With reference to Table E, the entire current balance ($2000) in Child 5 (i.e. the account with the lowest priority) is transferred out to the master account. In the current example, once this transfer is carried out, all other accounts are able to retain their minimum balance. The "remaining mandatory amount" provides an indication on the minimum balance required for each account. In this case, for Child 5, it is $1000 (i.e. total amount required (-$1000; see Table D) plus the amount of funds transferred out ($2000)).

[0055] In summary, the third and fourth steps described above include the steps of: (A) determining a surplus amount in each of the multiple accounts based on (i) the current balance data and minimum balance data of each of the multiple accounts and (ii) the debit data of one or more of the multiple accounts; (B) determining an initial total surplus amount (i.e. the "total amount required" in Table D) based on a sum of the surplus amount in each of the multiple accounts; and (C) transferring the funds out from the child account having the lowest priority (Child 5) to the master account based on the initial total surplus amount. In particular, for step (C), all funds are transferred out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is negative and (ii) the surplus amount in the child account having the lowest priority is less than or equal to the initial total surplus amount, as is the case with Child 5.

[0056] After funds have been transferred out from the account with the lowest priority, the next sub-step of the fourth step involves determining the amount of funds to deduct from the account with the second lowest priority (Child 4). In particular, the next sub-step includes: (D) determining a revised total surplus amount (i.e. "remaining mandatory amount" in Table E) based on a sum of the initial total surplus amount (refer to step (B) above) and the amount of funds transferred out from the child account

having the lowest priority (refer to step (C) above); and (E) transferring all funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is negative and (ii) the surplus amount in the child account having the second lowest priority is less than or equal to the revised total surplus amount.

[0057] Steps (D) and (E) are repeated for the subsequent Child accounts starting with the account with the next higher priority then ending with the Child account with the highest priority (i.e. Child 3, 2, then 1).

[0058] In the current context, a negative initial total surplus amount (i.e. the total amount required" in Table D) or negative revised total surplus amount (i.e. "remaining mandatory amount" in Table E) indicates that there is insufficient current balance across the multiple accounts to maintain the minimum balance in each of the multiple accounts and to settle the amount to be debited from one or more of the multiple accounts.

[0059] On the other hand, if (i) the initial total surplus amount is positive and (ii) the surplus amount in the child account having the lowest priority is positive, not all the funds are transferred out from the child account having the lowest priority (Child 5) to the master account. Rather, the amount of funds transferred out is based on the surplus amount in the child account having the lowest priority. Subsequently, a revised total surplus amount is determined based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority. Funds are transferred out from the child account having the second lowest priority (Child 4) to the master account on a condition that (i) the revised total surplus amount is positive and (ii) the surplus amount in the child account having the second lowest priority is positive. The amount of funds transferred out is based on the surplus amount in the child account having the second lowest priority. This is repeated for the subsequent Child accounts (i.e. Child 3, 2, 1).

[0060] The "pseudo-code" for Step 4 is as follows:
Step 4: Starting from the account with the lowest priority, start to do the following:

I. Check if the total funds needed for a particular span of time is sufficient. For the account with the lowest priority, it is the initial total surplus amount (i.e.

the "total amount required" in Table D). For others, it is the output of Step III below.

a. If available funds is less than zero (i.e. insufficient funds available; amount required becomes negative)

i. Check surplus funds in this child account + total amount required:

1. If less than or equal to zero, then deduct entire balance from this account

2. If more than zero, then deduct an amount that is equal to total balance minus surplus needed after leaving aside minimum balance required

b. If funds available is more than or equal to zero (i.e. sufficient funds available)

i. If available funds are greater than total amount needed, then determine difference of available funds and total amount needed

ii. If available funds is less than total amount needed, then transfer available funds

II. Calculate balance available for a particular account after transfer in Step I

III. Calculate minimum amount to be transferred after receiving funds as in Step I

IV. Return to Step I by considering Step III for total funds needed.

[0061] Referring to Table F, Step 5 involves transferring funds from the master account to the child accounts. In particular, funds are transferred from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account (at Step 4) on a condition that the surplus amount in the one or more child accounts that did not have funds transferred out is negative. The amount of funds transferred from the master account is based on the surplus amount in the respective child account that did not have funds transferred out.

[0062] In the current example, Child 1 and 3 did not have funds transferred out to the master account at Step 4. Therefore, at Step 5, funds are transferred from the master account to Child 1 and 3 provided that the surplus amount in Child 1 and 3 is negative. With reference back to Table D, the surplus amount in Child 1 and 3 is negative $1500 and negative $2500, respectively. As such, at Step 5, $1500 and $2500 is transferred

from the master account to Child 1 and 3, respectively. With to Table D, the surplus amount in the Master Account is negative $500. As such, at Step 5, $500 remains in the Master Account.

[0063] The "pseudo-code" for Step 5 is as follows:

I. For Master Account,

a. the funds remaining is based on netting of all transfers (i.e. difference of total amount transferred in Step 4) and amount received in each child account in the steps above for all accounts

b. Account opening balance + amount received by account – amount paid out

c. Final balance after paying out funds as well

II. For Child Accounts,

a. If funds were transferred out in Step 4, the Child account receives nothing

b. If funds were not transferred out in Step 4:

i. If amount to transfer in Step 4 is greater than or equal to initial balance, then negate value as in surplus funds keeping aside funds in account from Step 4

ii. Account opening balance + amount received by account – amount paid out

iii. Final balance after paying out funds as well

[0064] In an embodiment, there is provided an apparatus for re-allocating funds across multiple accounts, the multiple accounts comprising a master account and a plurality of child accounts. The apparatus includes at least one processor and at least one memory including computer program code. The at least one memory and the computer program code are configured to, with at least one processor, cause the apparatus at least to: receive priority data corresponding to a priority of each of the multiple accounts, the master account having a highest priority; receive minimum balance data corresponding to a preferred minimum balance amount to be maintained in each of the multiple accounts; receive current balance data corresponding to a current balance amount in each of the multiple accounts; transfer funds out from one or more of the plurality of child accounts to the master account based on the priority data, minimum balance data and current balance data of each of the multiple accounts; and transfer funds from the master account to one or more of the plurality of child accounts that did

not have funds transferred out to the master account, based on the minimum balance data and current balance data of the multiple accounts. The apparatus may be further configured to execute any one of the processes / steps described above.

[0065] Figure 2 shows a schematic diagram illustrating flow of information between various entities during a method 200 for re-allocating funds across multiple accounts, according to an example embodiment. There are three entities involved in the method 200 – a customer 202, financial institution 204 and mobile application 206. There are three distinct phases in the method 200 – an account addition phase, payables/receivables addition phase and calculation phase (i.e. calculation of amounts to be transferred).

[0066] During the account addition phase, the customer 202 opens 208 the mobile application (app) 206 that is installed on his/her mobile electronic device. A user interface provided by the app 206 displays 210 a list of financial institutions that the customer 202 has a relationship with. The customer 202 can then select 212 the financial institution 204 that administers the account that the customer 202 wishes to add. At step 214, the app 206 displays 214 a banking webpage. At step 216, a banking web log-in page of the selected financial institution 204 is opened. At step 218, the banking web log-in page requests for the relevant log-in details from the customer 202. At step 220, the customer 202 inputs the relevant log-in details, sets the priority and the minimum balance requirements for the account that he wishes to add. The log-in details are verified 222 by the financial institution 204. The financial institution 204 pulls up relevant data 224 such as card number, account number, Interbank Card Association (ICA) number, etc. At step 226, the financial institution 204 creates mandates required for a Direct Debit facility, as known in the art.

[0067] At step 228, one account is assigned as the Master Account. As a general rule, the master account has a highest priority, importance or rank. The assignment of "master account" to one of the multiple accounts may be user defined and can be re-assigned at a later time. Alternatively, the account that is first added by the customer 202 is assigned the "master account" by default. At step 230, the app 206 receives account information (e.g. card details), mandate ID, priority data, etc. The app 206 securely stores 232 account details with mandate ID, priority data, and minimum balance data.

[0068] During the payables/receivables addition phase, the customer can input 240 the details on payables/receivables, for example, by manually inputting this information or scanning an image of the payables/receivables (e.g. utilities bill, cheque, etc.). The details are received 242 by the app 206 and updated 244 against the account. The details on payables can be updated as debit data against the account. The details on payables/receivables may include, but is not limited to, payable/receivable amount, date of payment/receipt and corresponding account number.

[0069] During the calculation phase (i.e. calculation of amounts to be transferred), the app waits 250 for a scheduled time, which may be user-defined, e.g. at the end of every week or month. At the scheduled time, a balance enquiry message is sent from the app 206 to the financial institution 204 to check 252 the account balance. The financial institution 204 responds with the balance. The app 206 retrieves 254 the current balance data for each account, and this data is loaded 256 against the customer 204. At step 258, the collective balance for all accounts is loaded against the customer 204. At step 260, the app 206 calculates the amount to be transferred across all accounts based on the priority, payables and balances of each account. Details of the step 260 have been described above in conjunction with Figure 1 and Tables A to F.

[0070] Figure 3 shows a schematic diagram illustrating flow of information between various entities during a method 300 for transferring funds to multiple accounts, according to an example embodiment. In this example, there are three accounts – a Master Account 306 (having a highest priority), Child Account 1 308 (having a second highest priority), and Child Account 2 310 (having a lowest priority). There are three distinct phases in the method 300 – a "transfer funds to Master account" phase, a "transfer funds to Child accounts" phase and an update phase.

[0071] The "transfer funds to Master account" phase begins with step 312, where a mobile application (hereinafter "app") 306 receives amounts to be transferred from each account. The amount of funds to be transferred to the Master Account 306 is calculated based on the methods described in detail above. At step 314, Child Account 1 308 receives a request for transfer of funds to the Master Account 306. Similarly, at step 316, Child Account 2 310 receives a request for transfer of funds to the Master Account 306. In steps 314 and 316, the Child Accounts 308 / 310 receive a request to transfer funds to the Master Account 306 similar to a direct debit payment. Since each of the Child Accounts 308 / 310 have a mandate assigned to it, the Child Accounts 308

/ 310 transfer funds to the Master Account 306 even without a user / cardholder needed to re-authorize the transaction. At step 318, the Master Account 306 receives funds from Child Account 1 308 and Child Account 2 310. Thereafter, at step 320, information regarding the amounts received at step 318 is updated 320.

[0072] The "transfer funds to Child accounts" phase begins with step 322, where the app 304 initiates funds to be transferred to the Child Accounts. The amount of funds to be transferred to the Child Accounts is calculated based on the methods described in detail above. At steps 324 and 326, Child Account 1 308 and Child Account 2 310 receive their calculated amounts, respectively.

[0073] The update phase includes step 328 where the app 304 prepares to update the customer 302, and step 330 where the customer 302 receives an account statement for the actions taken (i.e. re-allocation of funds) and the updated balances in each account.

[0074] In summary, the re-allocation of funds involves transferring of funds from one or more Child accounts to a Master Account, followed by transferring funds from the Master Account to one or more Child accounts which did not initially contribute funds to the Master Account. The actual amounts to be transferred between the accounts depend on variables such as priority data, minimum balance data, current balance data, debit data, and/or surplus amount of each of the multiple accounts.

[0075] Figure 4 shows a schematic diagram of a computer device / system 400 suitable for use in executing one or more steps of the method for re-allocating funds across multiple accounts. One or more such computing devices 400 may be used to execute the above-described method for re-allocating funds across multiple accounts. The following description of the computing device 400 is provided by way of example only and is not intended to be limiting.

[0076] As shown in Figure 4, the example computing device 400 includes a processor 404 for executing software routines. Although a single processor is shown for the sake of clarity, the computing device 400 may also include a multi-processor system. The processor 404 is connected to a communication infrastructure 406 for communication with other components of the computing device 400. The communication infrastructure 406 may include, for example, a communications bus, cross-bar, or network.

[0077] The computing device 400 further includes a main memory 408, such as a random access memory (RAM), and a secondary memory 410. The secondary memory 410 may include, for example, a hard disk drive 412 and/or a removable storage drive 414, which may include a magnetic tape drive, an optical disk drive, or the like. The removable storage drive 414 reads from and/or writes to a removable storage unit 418 in a well-known manner. The removable storage unit 418 may include a magnetic tape, optical disk, or the like, which is read by and written to by removable storage drive 414. As will be appreciated by persons skilled in the relevant art(s), the removable storage unit 418 includes a computer readable storage medium having stored therein computer executable program code instructions and/or data.

[0078] In an alternative implementation, the secondary memory 410 may additionally or alternatively include other similar means for allowing computer programs or other instructions to be loaded into the computing device 400. Such means can include, for example, a removable storage unit 422 and an interface 420. Examples of a removable storage unit 422 and interface 420 include a program cartridge and cartridge interface (such as that found in video game console devices), a removable memory chip (such as an EPROM or PROM) and associated socket, and other removable storage units 422 and interfaces 420 which allow software and data to be transferred from the removable storage unit 422 to the computer system 400.

[0079] The computing device 400 also includes at least one communication interface 424. The communication interface 424 allows software and data to be transferred between computing device 400 and external devices via a communication path 426. In various embodiments of the inventions, the communication interface 424 permits data to be transferred between the computing device 400 and a data communication network, such as a public data or private data communication network. The communication interface 424 may be used to exchange data between different computing devices 400 which such computing devices 400 form part an interconnected computer network. Examples of a communication interface 424 can include a modem, a network interface (such as an Ethernet card), a communication port, an antenna with associated circuitry and the like. The communication interface 424 may be wired or may be wireless. Software and data transferred via the communication interface 424 are in the form of signals which can be electronic, electromagnetic, optical or other signals capable of being received by communication interface 424. These signals are provided to the communication interface via the communication path 426.

[0080] As shown in Figure 4, the computing device 400 further includes a display interface 402 which performs operations for rendering images to an associated display 430 and an audio interface 432 for performing operations for playing audio content via associated speaker(s) 434.

[0081] As used herein, the term "computer program product" may refer, in part, to removable storage unit 418, removable storage unit 422, a hard disk installed in hard disk drive 412, or a carrier wave carrying software over communication path 426 (wireless link or cable) to communication interface 424. Computer readable storage media refers to any non-transitory tangible storage medium that provides recorded instructions and/or data to the computing device 400 for execution and/or processing. Examples of such storage media include floppy disks, magnetic tape, CD-ROM, DVD, Blu-ray™ Disc, a hard disk drive, a ROM or integrated circuit, USB memory, a magneto-optical disk, or a computer readable card such as a PCMCIA card and the like, whether or not such devices are internal or external of the computing device 400. Examples of transitory or non-tangible computer readable transmission media that may also participate in the provision of software, application programs, instructions and/or data to the computing device 400 include radio or infra-red transmission channels as well as a network connection to another computer or networked device, and the Internet or Intranets including e-mail transmissions and information recorded on Websites and the like.

[0082] The computer programs (also called computer program code) are stored in main memory 408 and/or secondary memory 410. Computer programs can also be received via the communication interface 424. Such computer programs, when executed, enable the computing device 400 to perform one or more features of embodiments discussed herein. In various embodiments, the computer programs, when executed, enable the processor 404 to perform features of the above-described embodiments. Accordingly, such computer programs represent controllers of the computer system 400.

[0083] Software may be stored in a computer program product and loaded into the computing device 400 using the removable storage drive 414, the hard disk drive 412, or the interface 420. Alternatively, the computer program product may be downloaded to the computer system 400 over the communications path 426. The software, when executed by the processor 404, causes the computing device 400 to perform functions of embodiments described herein.

[0084] It is to be understood that the embodiment of Figure 4 is presented merely by way of example. Therefore, in some embodiments one or more features of the computing device 400 may be omitted. Also, in some embodiments, one or more features of the computing device 400 may be combined together. Additionally, in some embodiments, one or more features of the computing device 400 may be split into one or more component parts.

[0085] Figure 5 shows a schematic diagram of a system 500 re-allocating funds across multiple accounts, the multiple accounts including a master account and a plurality of child accounts. The system 500 comprises a core banking system 502, at least one mobile application server (only one mobile application server 504 is shown in Figure 5 for brevity), and a plurality of mobile electronic devices such as smartphones and tablet computers (only two mobile electronic devices 506a / 506n are shown in Figure 5 for brevity). The core banking system 502 is in communication with the mobile application server(s) 504. The mobile electronic devices 506a / 506n are in communication with the mobile application server 504.

[0086] The core banking system 502 is configured to process banking transactions (e.g. interbank fund transfers, intrabank fund transfers, payment of interest, etc.), maintain records for all the transactions and manage customer accounts (e.g. customer information, current account balance, etc.). The core banking system 502 has various modules, each module configured to perform a particular function (e.g. transaction module 502a for performing fund transfers; account module 502b for managing customer accounts; and re-allocation module 502c for determining relevant data or amounts to facilitate re-allocation of funds).

[0087] The core banking system 502 also comprises a processor for executing software routines, a communication infrastructure and memory module(s). The processor is connected to the communication infrastructure for communication with other components of the system 502 such as the transaction module 502a, account module 502b, and re-allocation module 502c.

[0088] The mobile application server(s) 504 is configured to administer profiles of users including (i) a list of accounts (Master and Child accounts) and (ii) the above-mentioned priority data and minimum balance data corresponding to each account belonging to a user.

[0089] A user inputs the priority data and minimum balance data for each account using his mobile electronic device (e.g. 506a). The mobile application server(s) 504 administers the inputted priority data and minimum balance data from all users received from their respective mobile electronic devices.

[0090] In order to re-allocate funds across a user's multiple accounts, the core banking system 502 receives the relevant priority data and minimum balance data from the mobile application server(s) 504. The current balance data corresponds to a current balance amount in each of the multiple accounts, and is received or retrieved from the account module 502b. Thereafter, the transaction module 502a is configured to: (i) transfer funds out from one or more of the plurality of child accounts to the master account based on the priority data, minimum balance data and current balance data of each of the multiple accounts; and (ii) transfer funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the minimum balance data and current balance data of the multiple accounts.

[0091] Further to the above, debit data corresponding to an amount to be debited from one or more of the multiple accounts may be received or retrieved from the account module 502b. Thereafter, the transaction module 502a is configured to: (i) transfer the funds out from one or more of the plurality of child accounts to the master account based on the debit data of one or more of the multiple accounts; and (ii) transfer the funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the debit data of one or more of the multiple accounts.

[0092] The re-allocation module 502c may be configured to: determine a surplus amount in each of the multiple accounts based on (i) the current balance data and minimum balance data of each of the multiple accounts and (ii) the debit data of one or more of the multiple accounts; and an initial total surplus amount based on a sum of the surplus amount in each of the multiple accounts. Thereafter, the transaction module 502a may be configured to transfer the funds out from the child account having the lowest priority to the master account based on the initial total surplus amount.

[0093] The transaction module 502a may also be configured to: transfer all funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is negative and (ii) the surplus amount in the child

account having the lowest priority is less than or equal to the initial total surplus amount.

[0094] The re-allocation module 502c may also be configured to determine a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority. Thereafter, the transaction module may be configured to transfer all funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is negative and (ii) the surplus amount in the child account having the second lowest priority is less than or equal to the revised total surplus amount.

[0095] The transaction module 502a may also be configured to: transfer funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is positive and (ii) the surplus amount in the child account having the lowest priority is positive. The amount of funds transferred out is based on the surplus amount in the child account having the lowest priority.

[0096] The re-allocation module 502c may also be configured to determine a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority. Thereafter, the transaction module 502b may be configured to transfer funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is positive and (ii) the surplus amount in the child account having the second lowest priority is positive. The amount of funds transferred out is based on the surplus amount in the child account having the second lowest priority.

[0097] It will be appreciated by a person skilled in the art that numerous variations and/or modifications may be made to the present invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects to be illustrative and not restrictive.

CLAIMS

1. A method for re-allocating funds across multiple accounts, the multiple accounts comprising a master account and a plurality of child accounts, the method comprising:

receiving, from a mobile application server in communication with a core banking system, priority data corresponding to a priority of each of the multiple accounts, the master account having a highest priority;

receiving, from the mobile application server, minimum balance data corresponding to a preferred minimum balance amount to be maintained in each of the multiple accounts;

receiving, from an account module of the core banking system, current balance data corresponding to a current balance amount in each of the multiple accounts;

transferring, using a transaction module of the core banking system, funds out from one or more of the plurality of child accounts to the master account based on the priority data, minimum balance data and current balance data of each of the multiple accounts; and

transferring, using the transaction module, funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the minimum balance data and current balance data of the multiple accounts.

2. The method as claimed in claim 1, further comprising:

receiving, from the account module, debit data corresponding to an amount to be debited from one or more of the multiple accounts;

transferring, using the transaction module, the funds out from one or more of the plurality of child accounts to the master account based on the debit data of one or more of the multiple accounts; and

transferring, using the transaction module, the funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the debit data of one or more of the multiple accounts.

3. The method as claimed in claim 2, further comprising:

determining, using a re-allocation module of the core banking system, a surplus amount in each of the multiple accounts based on (i) the current balance data and minimum balance data of each of the multiple accounts and (ii) the debit data of one or more of the multiple accounts;

determining, using the re-allocation module, an initial total surplus amount based on a sum of the surplus amount in each of the multiple accounts; and

transferring, using the transaction module, the funds out from the child account having the lowest priority to the master account based on the initial total surplus amount.

4. The method as claimed in claim 3, further comprising:

transferring, using the transaction module, all funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is negative and (ii) the surplus amount in the child account having the lowest priority is less than or equal to the initial total surplus amount.

5. The method as claimed in claim 3 or 4, further comprising:

determining, using the re-allocation module, a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority; and

transferring, using the transaction module, all funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is negative and (ii) the surplus amount in the child account having the second lowest priority is less than or equal to the revised total surplus amount.

6. The method as claimed in claim 4 or 5, wherein the negative initial total surplus amount or negative revised total surplus amount indicates that there is insufficient current balance across the multiple accounts to maintain the minimum balance in each of the multiple accounts and to settle the amount to be debited from one or more of the multiple accounts.

7. The method as claimed in claim 3 or 4, further comprising:

transferring, using the transaction module, funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is positive and (ii) the surplus amount in the child account having the lowest priority is positive, wherein the amount of funds transferred out is based on the surplus amount in the child account having the lowest priority.

8. The method as claimed in claim 3 or 4, further comprising:

determining, using the re-allocation module, a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority;

transferring, using the transaction module, funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is positive and (ii) the surplus amount in the child account having the second lowest priority is positive, wherein the amount of funds transferred out is based on the surplus amount in the child account having the second lowest priority.

9. The method as claimed in claim 3 or 4, wherein:

funds are transferred from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account on a condition that the surplus amount in the one or more child accounts that did not have funds transferred out is negative, wherein the amount of funds transferred from the master account is based on the surplus amount in the respective child account that did not have funds transferred out.

10. The method as claimed in any one of the preceding claims, wherein the current balance data comprises funds credited into each of the multiple accounts.

11. A system for re-allocating funds across multiple accounts, the multiple accounts comprising a master account and a plurality of child accounts, the system comprising:

a mobile application server; and

a core banking system comprising an account module and a transaction module, the core banking system in communication with the mobile application server, and wherein the core banking system is configured to:

receive, from the mobile application server, priority data corresponding to a priority of each of the multiple accounts, the master account having a highest priority;

receive, from the mobile application server, minimum balance data corresponding to a preferred minimum balance amount to be maintained in each of the multiple accounts;

receive, from the account module, current balance data corresponding to a current balance amount in each of the multiple accounts;

transfer, using the transaction module, funds out from one or more of the plurality of child accounts to the master account based on the priority data, minimum balance data and current balance data of each of the multiple accounts; and

transfer, using the transaction module, funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the minimum balance data and current balance data of the multiple accounts.

12. The system as claimed in claim 11, wherein the core banking system is further configured to:

receive, from the account module, debit data corresponding to an amount to be debited from one or more of the multiple accounts;

transfer, using the transaction module, the funds out from one or more of the plurality of child accounts to the master account based on the debit data of one or more of the multiple accounts; and

transfer, using the transaction module, the funds from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account, based on the debit data of one or more of the multiple accounts.

13. The system as claimed in claim 12, wherein the core banking system further comprises a re-allocation module, and wherein the core banking system is further configured to:

determine, using the re-allocation module, a surplus amount in each of the multiple accounts based on (i) the current balance data and minimum balance data of each of the multiple accounts and (ii) the debit data of one or more of the multiple accounts;

determine, using the re-allocation module, an initial total surplus amount based on a sum of the surplus amount in each of the multiple accounts; and

transfer, using the transaction module, the funds out from the child account having the lowest priority to the master account based on the initial total surplus amount.

14. The system as claimed in claim 13, wherein the core banking system is further configured to:

transfer, using the transaction module, all funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is negative and (ii) the surplus amount in the child account having the lowest priority is less than or equal to the initial total surplus amount.

15. The system as claimed in claim 13 or 14, wherein the core banking system is further configured to:

determine, using the re-allocation module, a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority; and

transfer, using the transaction module, all funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is negative and (ii) the surplus amount in the child account having the second lowest priority is less than or equal to the revised total surplus amount.

16. The system as claimed in claim 14 or 15, wherein the negative initial total surplus amount or negative revised total surplus amount indicates that there is insufficient current balance across the multiple accounts to maintain the minimum balance in each of the multiple accounts and to settle the amount to be debited from one or more of the multiple accounts.

17. The system as claimed in claim 13 or 14, wherein the core banking system is further configured to:

transfer, using the transaction module, funds out from the child account having the lowest priority to the master account on a condition that (i) the initial total surplus amount is positive and (ii) the surplus amount in the child account having the lowest priority is positive, wherein the amount of funds transferred out is based on the surplus amount in the child account having the lowest priority.

18. The system as claimed in claim 13 or 14, wherein the core banking system is further configured to:

determine, using the re-allocation module, a revised total surplus amount based on a sum of the initial total surplus amount and the amount of funds transferred out from the child account having the lowest priority;

transfer, using the transaction module, funds out from the child account having the second lowest priority to the master account on a condition that (i) the revised total surplus amount is positive and (ii) the surplus amount in the child account having the second lowest priority is positive, wherein the amount of funds transferred out is based on the surplus amount in the child account having the second lowest priority.

19. The system as claimed in claim 13 or 14, wherein:

funds are transferred from the master account to one or more of the plurality of child accounts that did not have funds transferred out to the master account on a condition that the surplus amount in the one or more child accounts that did not have funds transferred out is negative, wherein the amount of funds transferred from the master account is based on the surplus amount in the respective child account that did not have funds transferred out.

20. The system as claimed in any one of claims 11 to 19, wherein the current balance data comprises funds credited into each of the multiple accounts.