

- point redemption data, the point redemption data includes currency value data indicative of a currency value of the point variable, out of the total currency value available to the user, to offset against at least part of ~~the a~~ cost of the service, the currency value being determined in accordance with the defined lowest
- 5 denomination value and further being associated with a point value of the point variable to be redeemed, and communicate the plurality of point redemption options to the at least one user communications device for presentation of the plurality of point redemption options to the user for the booking.
- 10 Various embodiments or techniques will now be further described in detail, using the non-limiting example of a user booking a transport-related service (e.g., ride-hailing services, ride-sharing services, etc.). Nevertheless, it should be appreciated that the techniques disclosed herein may be employed for other applications or services, including but not limited to logistics (e.g., delivery of documents, packages,
- 15 parcels, goods, etc.), finance (e.g., payment, banking, insurance, etc.), food (e.g., food ordering, food delivery, etc.), goods services (e.g., purchase and/or delivery of groceries, packaged goods/foods, household products, etc.), trade or handyman-related services, etc.
- 20 FIG. 3A shows a diagram illustrating a flow chart for the present techniques, showing non-limiting examples of services (Grab-fare 371b, Offers 371c, Rewards 371d, Abacus 371e) that may be involved, and how the different services 371b, 371c, 371d, 371e may interact with each other and with the users 371a.
- 25 The services involved may include:
- Grab-fare 371b: responsible for calculating and signing the fare for a booking;
 - Offers 371c: orchestration service that proxies calls to Rewards 371d;
 - Rewards 371d: responsible for calculating the options and redeeming a reward of the user's choice;

proceed with one of the redemption options presented to the user, the user selects, at 379, a particular option to redeem a certain point value associated with the cost offset or discount corresponding to the selected option. This leads to the Rewards service 371d being called at 383 for the redemption. Correspondingly, the Abacus service 371e is called at 384 to burn the points corresponding to the user's selected option. The redemption and the related data are stored or saved at 385, where a discount token is generated for the redemption and communicated to the user side 371a.

10 In the context of various embodiments, a "Discount Token" refers to a string to identify the discount. Generally, there may be several types of offers, e.g., promos, redemptions, unique code promotions and so on, which may be in the format of "DiscountType:param1:param2" and so on. For Flexible redemptions that (only) work with redemption types, the discount token for this feature may be, for example, of the following format "1:{{redemptionID}}". A non-limiting example may be "1:3182190423", where "3182190423" may refer to the redemptionID.

The discount token is sent to the Grab-fare service 371b to obtain the updated fare, taking into consideration the cost offset corresponding to the user selected option.

20 The Offers service 371c may be called to validate the updated fare at 387 by validating with the Rewards service 371d at 388. When validated, the Offers service 371c returns the corresponding discount or cost offset to the Grab-fare service 371b which may then, at 389, validate or sign the fare and return it to the user side 371a for further action.

25 At 390, the user 371a may decide whether to book the service using the discount or not. If the user 371a decides not to proceed with the selected option with the corresponding discount, the user 371a is taken through paths 381b, 382 to proceed with booking of the service without using points. If the user 371a decides, at 390, to

30 proceed with the selected option with the corresponding discount, the discount is

is lower than the fare of S\$ 13.5. So, *Option2* would be determined to be S\$ 8.4 (i.e., 0.7×12), rounded up to the nearest multiple of lowest denomination, i.e., S\$ 12. But as *Option1* is S\$ 12 as well, *Option2* as determined above and rounded up to S\$ 12 is skipped. Then, at 40%, calculation results in S\$ 4.8 (i.e., 0.4×12), rounded up to S\$ 8 which becomes the appropriate *Option2*. Where three options are to be provided, since there is one more slot/option left, it may return an aspirational option, *Option3*, determined to be S\$ 16, which is the next multiple of the lowest denomination that is higher than and closest to S\$ 12 of *Option1*. The aspirational option, *Option3*, is affordable by the user based on the user's available points although the determined amount of S\$ 16 is higher than the fare of S\$ 13.5. Such *Option3* may be selectable by the user when booking the corresponding service.

In the example of S.No 2 in TABLE 4, as the currency is SGD (for the Singapore market) similar to that of the example of S.No 1, the intervals are similarly configured at 100%, 70% and 40% while the lowest denomination is set to S\$ 6. *Option1* is determined to be S\$ 18, which is lower than the fare of S\$ 21.4. So, *Option2* would be determined to be S\$ 12.6 (i.e., 0.7×18), rounded up to the nearest multiple of lowest denomination, i.e., S\$ 18. But as *Option1* is also S\$ 18 as well, *Option2* as determined above and rounded up to S\$ 18 is skipped. Then, at 40%, calculation results in S\$ 7.2 (i.e., 0.4×18), rounded up to S\$ 12 which becomes the appropriate *Option2*. Where three options are to be provided, since there is one more slot/option left, it may return an aspirational option, *Option3*, determined to be S\$ 24, which is the next multiple of the lowest denomination that is higher than and closest to S\$ 18 of *Option1*. However, based on the user's available points, the user cannot afford the amount of S\$ ~~18-24~~ corresponding to the aspirational option, *Option3*. Such *Option3*, while may be presented to the user, may not be selectable by the user when booking a service.

In the example of S.No 4 in TABLE 4, the intervals are configured at 100%, 70% and 50% while the lowest denomination is VND 25. *Option1* is determined to be VND 50,

Claims

1. A communications server apparatus for managing a service booking, comprising a processor and a memory, the communications server apparatus being
5 configured, under control of the processor to execute instructions in the memory to:
in response to receiving booking request data comprising at least one data field indicative of a user attempting a booking of a service,
generate, based on point data indicative of a point variable associated with the user and denomination data indicative of a defined lowest denomination value,
10 and if a total currency value of the point variable available to the user and corresponding to a total point value of the point variable is equal to or greater than the defined lowest denomination value, in one or more data records, a plurality of point redemption data for a corresponding plurality of point redemption options, wherein, for each point redemption data, the point redemption data comprises
15 currency value data indicative of a currency value of the point variable, out of the total currency value available to the user, to offset against at least part of a cost of the service, the currency value being determined in accordance with the defined lowest denomination value and further being associated with a point value of the point variable to be redeemed, wherein the cost of the service is same for the
20 corresponding plurality of point redemption options; and
communicate the plurality of point redemption options to a communications device of the user for presentation of the plurality of point redemption options to the user for the booking.
- 25 2. The communications server apparatus as claimed in claim 1, wherein, for generating the plurality of point redemption data, the communications server apparatus is configured to:
generate first point redemption data of the plurality of point redemption data, the first point redemption data comprising the currency value data indicative
30 of a first currency value of the point variable, out of the total currency value

available to the user, that is closest to and less than the cost, the first currency value being a multiple of the defined lowest denomination value.

3. The communications server apparatus as claimed in claim 2, wherein, for
5 generating the first point redemption data, the communications server apparatus is configured to:

determine a minimum value of the cost or the total currency value; and
round down the minimum value to a first integer that is the multiple of the
defined lowest denomination value that is closest to the minimum value, wherein
10 the first integer defines the first currency value.

4. The communications server apparatus as claimed in claim 2 or 3, wherein, for
generating the plurality of point redemption data, the communications server
apparatus is further configured to:

15 generate second point redemption data of the plurality of point redemption
data, the second point redemption data comprising the currency value data
indicative of a second currency value of the point variable, out of the total currency
value available to the user, the second currency value being a multiple of the defined
lowest denomination value.

20

5. The communications server apparatus as claimed in claim 4, wherein, for
generating the second point redemption data, the communications server apparatus
is configured to:

calculate a first percentage of the first currency value to define a first
25 proportion value; and

round up the first proportion value to a second integer to define the second
currency value, the second integer being the multiple of the defined lowest
denomination value that is closest to the first proportion value.

6. The communications server apparatus as claimed in claim 5, wherein, if the second integer is same as the first currency value, the communications server apparatus is configured to discard the second integer.
- 5 7. The communications server apparatus as claimed in claim any one of claims 4 to 6, wherein, for generating the plurality of point redemption data, the communications server apparatus is further configured to:
- generate third point redemption data of the plurality of point redemption data, the third point redemption data comprising the currency value data indicative
10 of a third currency value of the point variable, out of the total currency value available to the user, the third currency value being lower than the second currency value and, further, being a multiple of the defined lowest denomination value.
8. The communications server apparatus as claimed in claim 7, wherein, for
15 generating the third point redemption data, the communications server apparatus is configured to:
- calculate a second percentage of the first currency value to define a second proportion value; and
- round up the second proportion value to a third integer to define the third
20 currency value, the third integer being the multiple of the defined lowest denomination value that is closest to the second proportion value.
9. The communications server apparatus as claimed in any one of claims 2 to 8,
25 wherein, for a point redemption option of the plurality of point redemption options after the first redemption option where the point value of the point redemption option is less than the defined lowest denomination value,
- for generating the plurality of point redemption data, the communications server apparatus is configured to generate aspirational point redemption data of the plurality of point redemption data for an aspirational point redemption option, the
30 aspirational point redemption data comprising the currency value data indicative of

an aspirational currency value that is more than the first currency value, the aspirational currency value being a multiple of the defined lowest denomination value that is closest to the first currency value; and

for communicating the plurality of point redemption options, the communications server apparatus is configured to communicate the aspirational point redemption option to the communications device for presentation of the aspirational point redemption option to the user.

10. The communications server apparatus as claimed in any one of claims 1 to 9,
10 further configured to:~~wherein,~~
_____ in response to receiving selection data comprising at least one data field indicative of selection of a point redemption option of the plurality of point redemption options by the user, ~~the communications server apparatus is configured to:~~

15 query a data template; and
determine an amount to offset against the cost in accordance with the data template and a point value to be redeemed for the point redemption option selected by the user.

20 11. The communications server apparatus as claimed in any one of claims 1 to 10, further configured to:

in response to receiving the booking request data,
generate, based on the point data and the denomination data, and if the total currency value available to the user is less than the defined lowest denomination value, in the one or more data records, goal redemption data for a
25 goal redemption notification, the goal redemption data being indicative of the defined lowest denomination value; and

communicate the goal redemption notification to the communications device for presentation of the defined lowest denomination value to the user for offsetting
30 against at least part of the cost.

12. The communications server apparatus as claimed in claim 11, wherein the goal redemption data further comprises goal point value data indicative of a remaining point value that is required by the user to reach a defined point value that corresponds to a defined currency value that is same as the defined lowest denomination value.

13. A method for managing a service booking, the method comprising:
in response to receiving booking request data comprising at least one data field indicative of a user attempting a booking,
generating, based on point data indicative of a point variable associated with the user and denomination data indicative of a defined lowest denomination value, and if a total currency value of the point variable available to the user and corresponding to a total point value of the point variable is equal to or greater than the defined lowest denomination value, in one or more data records, a plurality of point redemption data for a corresponding plurality of point redemption options, wherein, for each point redemption data, the point redemption data comprises currency value data indicative of a currency value of the point variable, out of the total currency value available to the user, to offset against at least part of a cost of the service, the currency value being determined in accordance with the defined lowest denomination value and further being associated with a point value of the point variable to be redeemed, wherein the cost of the service is same for the corresponding plurality of point redemption options; and
communicating the plurality of point redemption options to a communications device of the user for presentation of the plurality of point redemption options to the user for the booking.

14. The method as claimed in claim 13, wherein, generating the plurality of point redemption data comprises:

generating first point redemption data of the plurality of point redemption data, the first point redemption data comprising the currency value data indicative of a first currency value of the point variable, out of the total currency value available to the user, that is closest to and less than the cost, the first currency value
5 being a multiple of the defined lowest denomination value.

15. The method as claimed in claim 14, wherein generating the first point redemption data comprises:

determining a minimum value of the cost or the total currency value; and
10 rounding down the minimum value to a first integer that is the multiple of the defined lowest denomination value that is closest to the minimum value, wherein the first integer defines the first currency value.

16. The method as claimed in claim 14 or 15, wherein generating the plurality of
15 point redemption data further comprises:

generating second point redemption data of the plurality of point redemption data, the second point redemption data comprising the currency value data indicative of a second currency value of the point variable, out of the total currency value available to the user, the second currency value being a multiple of
20 the defined lowest denomination value.

17. The method as claimed in claim 16, wherein generating the second point redemption data comprises:

calculating a first percentage of the first currency value to define a first
25 proportion value; and

rounding up the first proportion value to a second integer to define the second currency value, the second integer being the multiple of the defined lowest denomination value that is closest to the first proportion value.

18. The method as claimed in claim 17, wherein, if the second integer is same as the first currency value, the method comprises discarding the second integer.
19. The method as claimed in claim any one of claims 16 to 18, wherein
5 generating the plurality of point redemption data further comprises:
generating third point redemption data of the plurality of point redemption data, the third point redemption data comprising the currency value data indicative of a third currency value of the point variable, out of the total currency value available to the user, the third currency value being lower than the second currency
10 value and, further, being a multiple of the defined lowest denomination value.
20. The method as claimed in claim 19, wherein generating the third point redemption data comprises:
calculating a second percentage of the first currency value to define a second
15 proportion value; and
rounding up the second proportion value to a third integer to define the third currency value, the third integer being the multiple of the defined lowest denomination value that is closest to the second proportion value.
21. The method as claimed in any one of claims 14 to 20, wherein, for a point redemption option of the plurality of point redemption options after the first redemption option where the point value of the point redemption option is less than the defined lowest denomination value,
generating the plurality of point redemption data comprises generating
25 aspirational point redemption data of the plurality of point redemption data for an aspirational point redemption option, the aspirational point redemption data comprising the currency value data indicative of an aspirational currency value that is more than the first currency value, the aspirational currency value being a multiple of the defined lowest denomination value that is closest to the first currency value;
30 and

communicating the plurality of point redemption options comprises communicating the aspirational point redemption option to the communications device for presentation of the aspirational point redemption option to the user.

5 22. The method as claimed in any one of claims 13 to 21, ~~wherein~~further comprising:-

 in response to receiving selection data comprising at least one data field indicative of selection of a point redemption option of the plurality of point redemption options by the user, ~~the method comprises:~~

10 querying a data template; and

 determining an amount to offset against the cost in accordance with the data template and a point value to be redeemed for the point redemption option selected by the user.

15 23. The method as claimed in any one of claims 13 to 22, further comprising:
 in response to receiving the booking request data,

 generating, based on the point data and the denomination data, and if the total currency value available to the user is less than the defined lowest denomination value, in the one or more data records, goal redemption data for a
20 goal redemption notification, the goal redemption data being indicative of the defined lowest denomination value; and

 communicating the goal redemption notification to the communications device for presentation of the defined lowest denomination value to the user for offsetting against at least part of the cost.

25

24. The method as claimed in claim 23, wherein the goal redemption data further comprises goal point value data indicative of a remaining point value that is required by the user to reach a defined point value that corresponds to a defined currency value that is same as the defined lowest denomination value.

30

25. A computer program or a computer program product comprising instructions for implementing the method as claimed in any one of claims 13 to 24.
26. A non-transitory storage medium storing instructions, which when executed
5 by a processor cause the processor to perform the method as claimed in any one of claims 13 to 24.
27. A communications system for managing a service booking, comprising a communications server apparatus, at least one user communications device and
10 communications network equipment operable for the communications server apparatus and the at least one user communications device to establish communication with each other therethrough,
- wherein the at least one user communications device comprises a first processor and a first memory, the at least one user communications device being
15 configured, under control of the first processor, to execute first instructions stored in the first memory to transmit, for receipt by the communications server apparatus for processing, booking request data comprising at least one data field indicative of a user attempting a booking of a service; and
- wherein the communications server apparatus comprises a second processor
20 and a second memory, the communications server apparatus being configured, under control of the second processor, to execute second instructions stored in the second memory to:
- in response to receiving data indicative of the booking request data,
generate, based on point data indicative of a point variable associated with
25 the user and denomination data indicative of a defined lowest denomination value, and if a total currency value of the point variable available to the user and corresponding to a total point value of the point variable is equal to or greater than the defined lowest denomination value, in one or more data records, a plurality of point redemption data for a corresponding plurality of point redemption options,
30 wherein, for each point redemption data, the point redemption data comprises

currency value data indicative of a currency value of the point variable, out of the total currency value available to the user, to offset against at least part of ~~the a~~ cost of the service, the currency value being determined in accordance with the defined lowest denomination value and further being associated with a point value of the point variable to be redeemed, wherein the cost of the service is same for the corresponding plurality of point redemption options; and

communicate the plurality of point redemption options to the at least one user communications device for presentation of the plurality of point redemption options to the user for the booking.