Functional & detailed design for "Offer & Request Support"

Draft 10 Feb 2021, 17 Feb 2021, 26 Feb 2021, 15 March 2021

Introduction

The intent of the "offer and receive support" features are to let anyone who is willing to submit money for the purchase of grocery gift cards (and in future releases, payment of basic utility bills such as water, gas, and electric) with the intent of giving it to people in need. The concept is simple and, hopefully, very effective, useful, and enhances the greater good of humanity.

Can we consider offering/transferring "existing" gift card(s)? Lindsay to investigate this option.

High-level "Offer support" workflow
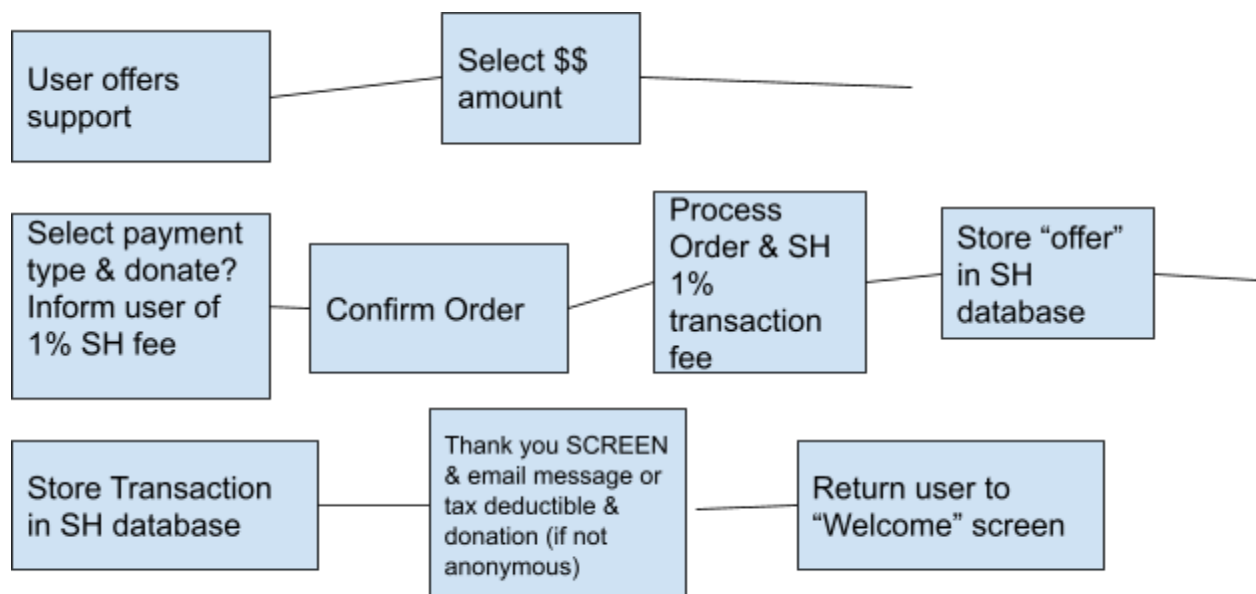
Levels of support

It is desirable to have unrestricted levels of support, however, we may be restricted by the card providers to discrete levels of support denominations such as $10, $25, $50, and $100 USD. The actual amount could be selected using a control to increment and decrement the donation amount. In addition, It would be prudent to provide an option for the aquantity of cards. Initially we will support USD currency but will need to support other currencies in the future.
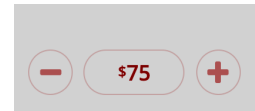
In addition, we can have an "other amount" field for users to "offer" a custom amount.

Supported methods of payment and fees

It is desirable to support several methods of payment including,
● Paypal
● Credit Cards
  ○ Visa, MasterCharge, Apple Pay, Diners Club, American Express and many others
● Paystack directly to a SH bank account? (Lindsay to investigate 26 Feb 2021 - manual step may be required).
● Bitcoin (Future)
This can be accomplished by using a payment gateway of some type. The list below gives us plenty of options.

Payment Gateways	No. of Countries
Paypal	203
Stripe	25
2checkout	87

Authorize	33
Skrill	40
Google Checkout	24
Apple Pay	24
WePay	US nob only

More details are listed here.
https://www.cloudways.com/blog/best-payment-gateways/
https://www.merchantmaverick.com/payment-api-credit-card-processing/

The fees to use these gateways are significant. The PayPall fees, for example, for each payment received through PayPal is 2.9% plus US **$0.30** for sales within the US. If working with an international client, you will pay a PayPal fee of 4.4% plus a fixed fee based on the country. Qualified 501(c)(3) organizations can receive a discounted charity rate of 2.2% + **$0.30** per domestic transaction. Until SH becomes a certified 501c organization, the fees won't be discounted.

The Sponsor Humanity fee is 1% then someone offering support will be charged 5.4% for international transactions and approximately 3.9% and 3.2% for domestic transactions using PayPal. Skrill, a payment gateway available in over 40 countries charges the lowest transaction fee at a 1.9% fee or a 2.9% fee if adding a SH fee.

A flat 1% SH fee will be added to offer support and to the optional donation from donors. No fee is charged for the purchase of the gift card.

High-level "Request support" workflow

Requests for support are available to users that are in good standing with SH which means they are eligible for a gift card **_iff_** they comply with the established rules for a gift which should appear in the terms & conditions screen. Presently, a user is eligible if they have been awarded a gift in the past AND they have uploaded their proof of purchase in the form of a receipt and are approved by a SH administrator.

After the request for support has been registered, the system will attempt to match the request with the available gift cards using the total amount of money in the "offer" database. The requests are stored in chronological order so there will be no real time matches for people wanting support. All requests, after they have been entered, will be handled in "batch mode".

The amount of support requested will come in preconfigured amounts starting from $5 to **$500 (???)** in discrete increments. Specifically, we will support the following amounts based on per person per week limit: $5, $10, $15, $20, $25, $30, $35, $40, $45, $50, $75, $100, and $150.
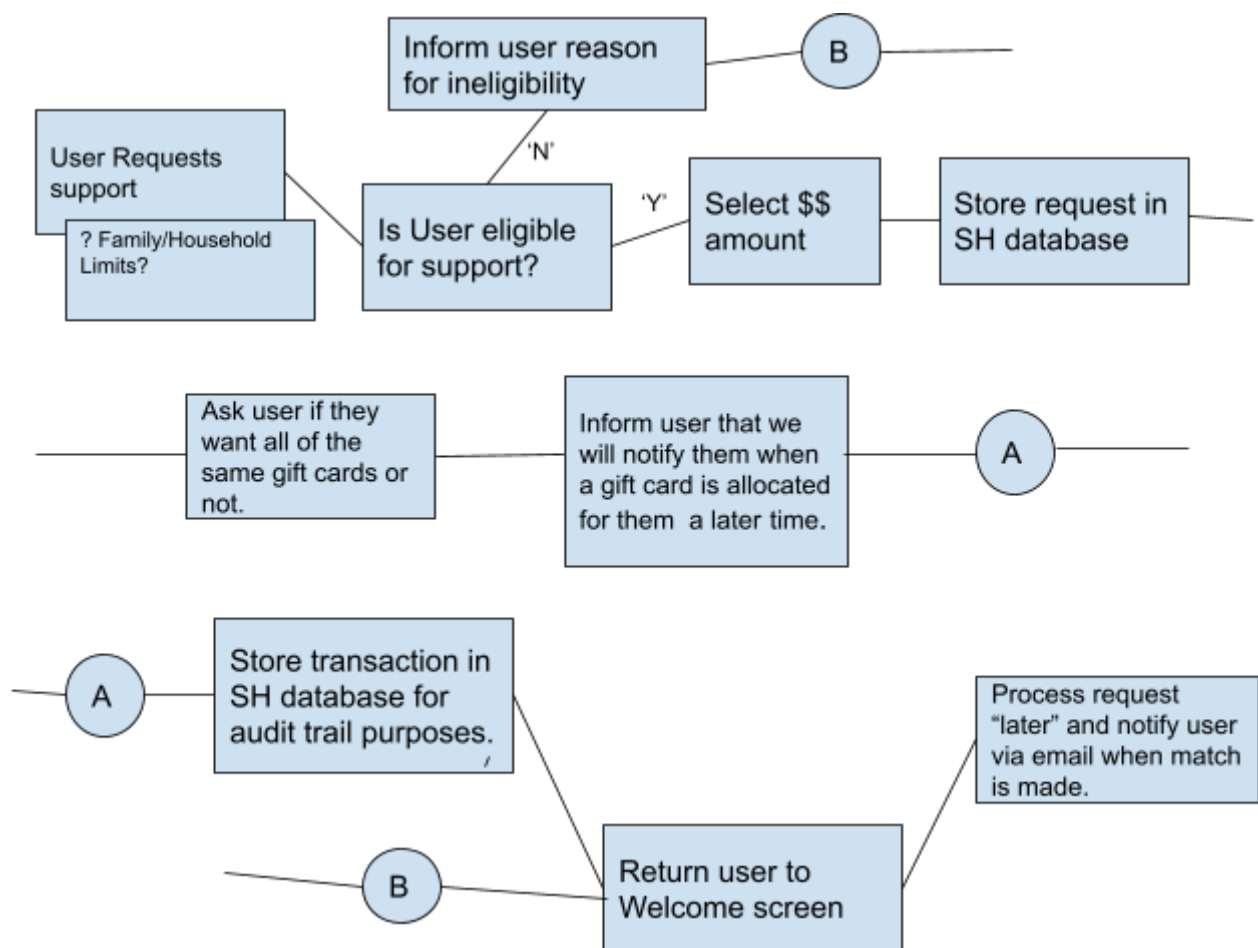
Grocery store selection

There are many companies that sell "just groceries" (e.g. Krogers, Publix, etc.) and a large number of wholesalers that sell groceries and loads of other items (e.g. Target,

Walmart). In order to maximize the ability for SH users to offer grocery cards, we should begin with companies with the largest number of retail or wholesale grocery stores. There is the risk that recipients of gift cards can use them at wholesale companies to purchase non-grocery items. However, it may be safe to assume that this is largely an exception and even if the gift cards are used for other necessary items, then SH will have fulfilled the spirit of giving to those in need.

This list of these companies is listed below based on the size of the company in the US, in the world, and regionally in the US. The largest 10 US grocery store companies are listed below.

1. WALMART INC.

2. THE KROGER CO.

3. ALBERTSONS COS. INC.

4. AHOLD DELHAIZE USA

5. PUBLIX SUPER MARKETS INC.

6. H.E. BUTT GROCERY CO.

7. MEIJER INC.

8. WAKEFERN FOOD CORP.

9. ALDI INC.

10. WHOLE FOODS MARKET

A more detailed description of each of these companies is listed here
https://www.foodindustry.com/articles/top-10-grocers-in-the-united-states-2019/.

For the initial release, Walmart, Kroger, Albertsons, Publix, and Whole Foods will be supported as per Lindsay Samuels. In addition, Piggly Wiggly and Food Lion as Davonna Thomas.

Note that it is desirable to include local grocery stores and farmer's markets in the long term but in the short term we can simply list these stores & locations on the web site.

The largest grocery store companies in the world are listed below

1. Kroger Co., 3, U.S., $119.0
2. Ahold Delhaize, 11, Netherlands, $72.3[1]
3. Albertsons Companies, Inc., 15, U.S., $59.9
4. Edeka Group, 17, Germany, $57.5[1]
5. REWE Combine, 19, Germany, $49.7[1]
6. Wesfarmers Ltd., 21, Australia, $48.8
7. Woolsworth Ltd., 22, Australia, $42.9
8. Publix Super Markets, Inc., 31, U.S., $34.8
9. Intermarché, 33, France, $31.9[1,2]
10. H.E. Butt Grocery Co., 38, U.S., $24.6[2][1]

A more detailed description is found here
https://www.thebalancesmb.com/largest-us-based-grocery-chains-3862932.

The list of regional US grocery stores are listed in this article
https://www.usatoday.com/story/money/2019/12/16/costco-kroger-the-best-grocery-store-chain-in-every-state/40802197/

Initially, we will need to parse this list to a select few companies (and their subsidiaries) and it's certainly clear that Walmart, Krogers, and Albertsons must be supported in the initial list that is presented to the user offering support.

SH Data Storage

The SH data storage is illustrated below and will store the essential data needed to fulfill gift card processing. Each storage construct is described in more detail here.

1. Each user will have a user profile stored in the SH database except for anonymous users. We will store and update user profile information each time a user donates or requests support. The exact structure of the data is TBD but needs to include time stamps login credentials but not passwords.
2. Each gift card order will be stored in the SH database so that it can be accessed when someone requests support.

Data Security. There are a variety of security techniques that can be employed on a gift card basis via Firebase Security Rules
https://firebase.google.com/docs/rules#:~:text=Firebase%20Security%20Rules%20work%20by,allowing%20read%20or%20write%20access.

Clay,et al will compile a list of ?'s for answer.

We will use Firebase's capability to manage our data because it uses JSON data structures, has ample security rules, provides a testing capability and concurrency/synchronization controls embedded within the database and applied on the client side (mobile app). More information is available at https://firebase.google.com/docs/database.
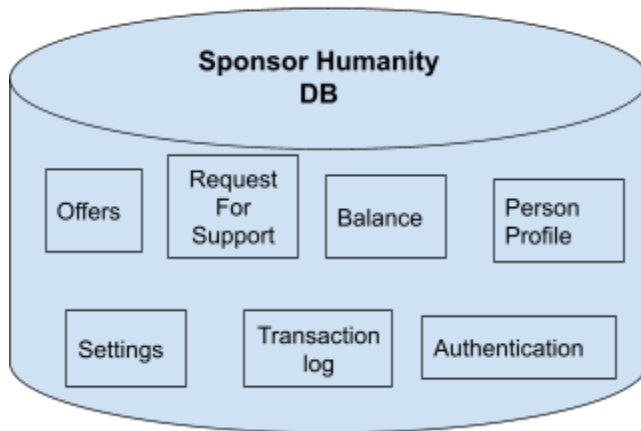
Offers

Each offer that is stored in the SH database, will have the following information.

1. email address,
2. Phone number (or IP address),
3. device type (ios, android, browser),
4. serial number,
5. amount offered ,
6. timestamp when the donation was made (HTTP compatible.

In addition, a cumulative total amount offered (and total count?) will be stored in a different collection.

Balance

The balance collection is a running total of the amount offeredhat is stored in the SH database. It's the equivalent of the balance in a checking account.

1. total,
2. last_updated

Requests for Support (RFS)

Each RFS that is stored in the SH database, will have the following information.

1. email address,

2. Phone number (or IP address),
3. device type (ios, android, browser),
4. serial number,
5. the amount of support requested,
6. timestamp when the request was made (HTTP compatible),
7. Status: active, allocated, marked for removal?

Person

Each person's profile is stored in the SH database, will have the following information.
1. email address (no duplicates)
2. Household size,
3. Phone number,
4. Vendor card preference,
5. Number of vendors per request,
6. Geographic location,
7. Vendor card preference,
8. Mobile phone type (iphone, droid),
9. Uploaded receipt,
10. Status: approved, pending

The device type and serial number which can be obtained from the device itself using a flutter package. For example, https://pub.flutter-io.cn/packages/international_phone_input, and https://stackoverflow.com/questions/4644145/get-the-devices-phone-number-programmatically.

Settings

These are the default settings for the entire application and do not override a particular user's individual settings in the "user profile collection".

1. Max number of vendors per request,
2. Max household size,
3. Max amount per person ($100 per person per week)

Transaction log

These are text messages that are used for audit trail purposes. For example, "Lindsay Samuels offered $100 on April 15 2021 at 15:00".

1. Description

Matching Process

The "matching" process is used to match requests with offers given the constraints listed above for submitting requests. The deamon in the below diagram selects a request in the order they were received and checks the offers database to see if there is enough money to fulfill that request. If enough money is available, a grocery card is purchased and emailed to the requestor. This is a "batch" processing of the requests.
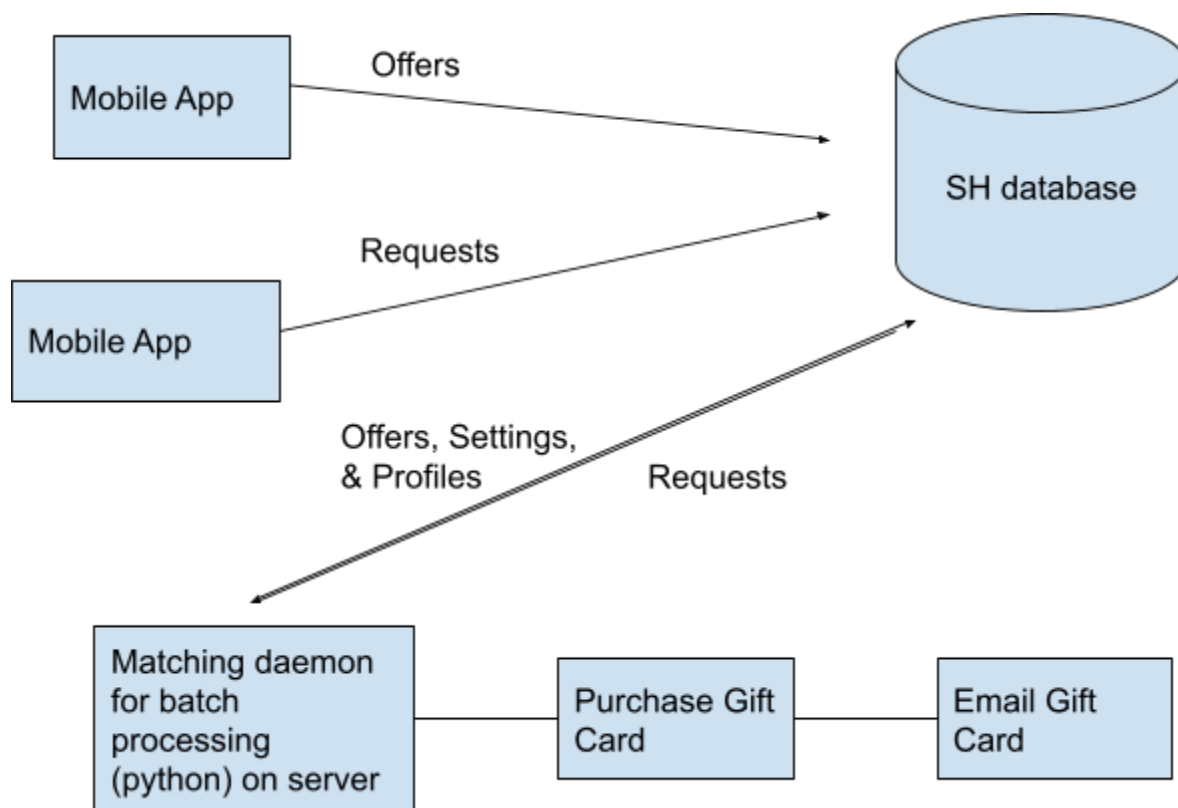
"Matching" Overview

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Sponsor Humanity "Matching" deamon
17 March 2021
Steps:

read from the 'settings' collection
read the oldest requests for support (sorted by timestamp - oldest on top) where they are 'active'
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for each request,
   read the current balance from all of the offers
   if requested amount <= current balance
       * read the email address of the requestor and read corresponding person using email address
       * check if person is eligible for support,
            if not log a message to the transaction log and continue to next request
       * start transaction
            check person's prefered gift card
            check person's # of family members (multiply $$ requested by # family members???)
            purchase gift card
            email gift card
            decrement balance
            update request status to "pending approval"
            increment # of requests processed
            log a message to the transaction log
       * end transaction
       * if transaction fails
            log message to transaction log
            rollback transaction
log transaction with stats
exit
```

Generally speaking…

1. Match first based on real-time requests for support.
2. Search for oldest requests first
3. Match based on first requested.
4. Match based on exact amounts (e.g. $25, $100). Specifically one CG for the requested amount based on selection during request.
5. Integer matches only
6. If family limits are required, then the request will be reduced by that limit before a CG is sent to the requestor.

Other items

1. Cost of storage
2. 'Clean up' utility
   a. Unused Gift cards (can we take them back & redistribute??)
   b. Unfulfilled request for support
3. Administrative console for managing users, receipts, and requests

4. Can we find out the cost of storage so I can include this in the updated Gofundme proposal I'm drafting?