Codeconomy

William Huang, Austin Poore, Gary Thung, and Chenyao Yu

Description

We are planning to build an iOS application that serves as a coupon marketplace. Almost everyone receives personal coupons and presale codes through email, mail, or other means that they never end up using. However, others may put these personal coupons and presale codes to good use. On our platform, people can exchange codes for credits, which they can use to exchange for coupons or codes uploaded by other users. Our users can be both “buyers” and “sellers” of these codes. From here on out, we will refer to the personal coupons and personal codes that will be found on our platform simply as “codes” and the currency used to buy these coupons as “credits”.

Users who sign up to our app begin with 10 credits. On the buyer’s side, the users can filter through existing for-sale codes in the app by type (retail, music festival, restaurants, etc.); expiration date; cost; discount type (percentage off, amount off); and potentially others as well. If a user finds a code that they want, they can purchase this code using their credits. Buyers can acquire available codes of their choosing by selling their own codes on the app or by purchasing more credits using real money.

On the seller’s side, the user can post a code for sale in exchange for credits. The user sets the price in credits, category, type, and other details, and either takes a picture of the code or manually types in the discount code. The seller does not receive credits unless the code is actually sold. This incentivizes prices to stay reasonable.

Lastly, we will build in a rating system for sellers. To prevent fraud or fake codes, each time a transaction occurs the buyer has to rate the seller depending on whether the code worked or not. If the code does not work and the seller has a history of providing fake codes, the seller will get kicked off the system. Each time a fake code is reported, that buyer gets is refunded all the credits that he or she spent on that code. If a buyer reports too many fake codes, he or she will be marked for investigation, which our team may choose to do from time to time.

Need

Companies sometimes reward their loyal customers by sending out personal discount codes through emails and performers sometimes support their loyal fans by sending out personal presale codes to concerts. The recipients may not have a need for these codes before they expire, but someone shopping online at JCrew who may not be on the JCrew email list (because he or she does not want to receive regular emails from JCrew) would love a discount code. Thus, we have supply and demand. The person with the personal discount code would not normally upload their code online because there is no incentive. The goal of our platform is to facilitate these market forces and incentivize users to upload personal codes they would not use and reward them with credits that they can redeem in the future for other users’ personal codes that they would use.

Potential Audience

This app can be used by anyone looking to save some money through couponing or obtain early access to events or products (from presale codes). There are websites that aggregate free coupons, such as RetailMeNot, which is a company with a ~$440m market cap, but sometimes companies release personal coupon codes instead of a public coupon and these personal codes cannot be found on websites such as RetailMeNot. People sometimes do share coupons for free out of the goodness of their heart (such as on niche forums), so we feel that if we create a market for trading and selling coupons, then more people will participate because they can get value out of their unused coupons beyond simply giving them out for free.

From the market cap of RetailMeNot, it is clear that there are many coupon users. In fact, a RetailMeNot survey claims that 96% of Americans are coupon users[1]. This is exciting because our user base has the potential to be quite large.

Since the audience is anyone who wants to shop or get access to limited codes, we expect no specific technical abilities from the audience. We plan to design the app to be as easy and seamless to use as possible.

Competing Products

Coupon trading and sharing occurs primarily on forums. There are a variety of different websites out there in the market already:

- http://www.afullcup.com/forums/index.php
- https://www.fatwallet.com/forums/online-coupon-trading
- http://www.weusecoupons.com/upload/
- http://www.coupontradingzone.com/

The site most similar to our approach would be Coupon Trading Zone, as it focuses on facilitating trades between users. The other sites are used mostly to share coupons in ads. Below is a screenshot of the search function from Coupon Trading Zone.

[1] http://retailmenot.mediaroom.com/2014-09-08-We-Are-a-Coupon-Nation

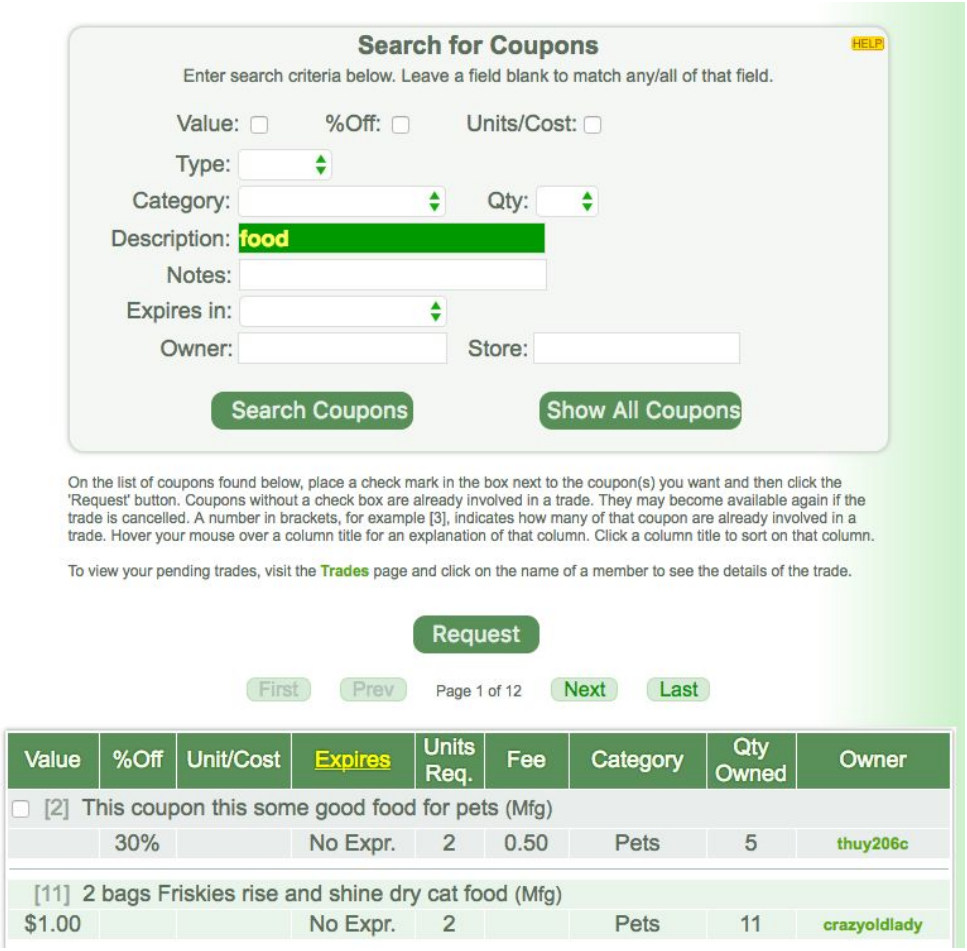

Figure 1

The search functionality as seen in Figure 1 provides many options for search, but the site does not look aesthetically pleasing with its green and white gradient color scheme combined with gray. The margins are also not symmetrical on buttons like “Search Coupons” and “Show all Coupons”. The style of the checkboxes and the table also are outdated and makes the user feel that this website was definitely designed a decade ago. The website has very few users, and appears that it is no longer maintained. We plan on making a much more modern design with primary and secondary colors that complement each other better.

There is also a coupon trading app called TradeCoupon that looks like what we are trying to make: https://itunes.apple.com/us/app/tradecoupon/id1080687285?mt=8

Nobody seems to use the app, as there are no valid coupons listed, and much of the functionality has not been implemented. The app is also confusing to use, as there is no information explaining how purchasing and listing works. It does have some functionality and features that we are planning on implementing: users, profiles, authentication via third party accounts, search, advanced search, reviews, and more.

Technical Design
At a high level, our app will support the following functions:

- Buyers: search with filters (name, expiration date, value, etc.), a review system, ability to purchase codes, purchase history
- Sellers: creating a new item for sale, selling history

To store user accounts and data, we will use a Firebase database with NodeJS + Express on the server-side. This will be hosted on Amazon AWS and will communicate to the iOS app via network calls on the iOS end. To create user accounts, we will use the Facebook API for linking Facebook user accounts and accounts of the users of our app. We also considered using CoreData as a native database, but it does not work for our use case because the data needs to be consistent across all users and CoreData only stores locally on the iPhone. Another advantage to using a hosted NodeJS + Express server as part of our stack is that, given time, we can build this product as a cross-platform application. It makes sense to have this code marketplace also available on Android and potentially the Web as well.

On the iOS side, we will be writing this app in Objective-C using many of the libraries provided by Apple. We will be using UIKit, CoreAnimation, and CoreGraphics for the front-end and writing the scenes using code without storyboard since this allows for more flexibility when placing views onto the screen. We will potentially need to use the Photos iOS framework for uploading photos of codes on the seller side. As an extension, we may use the NotificationCenter framework to create notification center widgets for the app. Finally, we will use the AFNetworking library to send HTML requests and receive HTML responses.

Given time, we will also build an accompanying website that uses the same server-side NodeJS + Express code, with javascript, ReactJS, HTML, and CSS on the front-end. Our architecture is illustrated in figure 2.

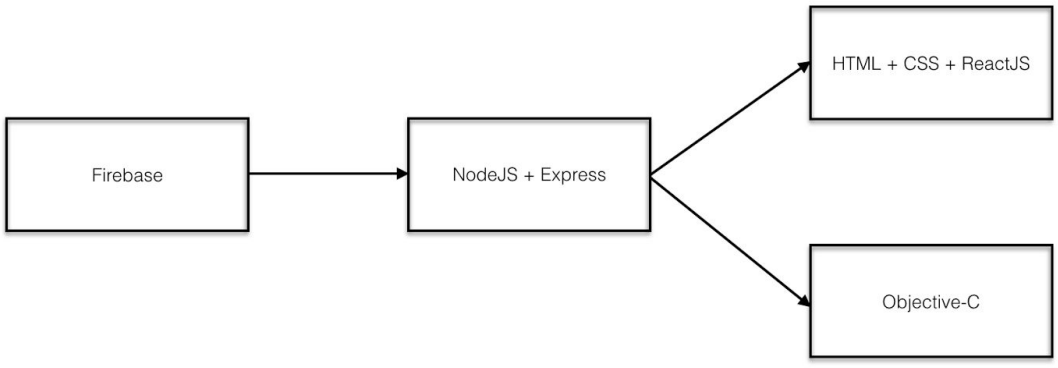

Figure 2

Resource Requirements

Our main required resource is web server hosting, and we plan to use Amazon AWS, which is a paid service. We would use the free credits from the Github Student Developer Pack and pay if we need more resources. We would like to use Firebase for our database, which is also a paid service, but with a free tier. We chose this combination because it would scale well for the ideal amount of users we would want to support. However, we are open to using a completely free alternative, such as Heroku + Postgres, if we decide on a more economical approach.

Some team members will also be ramping up on some new technologies such using Parse Server and learning nodeJS, so we may look for some tutorials or books to help speed up that process. It will take some time for everyone to get up to speed.

Potential Approaches

We brainstormed three ways (including the approach detailed here) of solving the problem of getting coupon and personal presale codes from the hands of people who derive no value from them to people who will find them valuable.

For our first alternative approach, we proposed an app that facilitated swapping codes directly from peer to peer. There currently exists communities that engage in swaps with niche items such as fragrances and coupons. The technology that supports these communities are arguably outdated. Most of the interactions are on forums, which have poor readability and are in formats difficult to search through. Consequently, we considered making a platform that revamped the swapping process by making a more aesthetically pleasing website with more a more intuitive user experience and helping people easily find good matches to swap with. However, we concluded that swapping is inherently difficult. It is really hard to find two people who are looking to swap what the other person wants. This is a big reason why currency exists. Thus, we decided not to go with this approach.

Our second alternative approach is an auction system involving fiat money instead of our discretized credits, much like eBay but for personal coupon and presale codes. One drawback to this method is that it does not incentivize people to let go of codes they would not use anyway. By establishing a norm that all codes have a price, we introduce market forces to discount codes. We believed that people would not feel comfortable with the idea of paying for coupons, as there is some inherent discomfort with the idea of paying to save money. In our proposed approach, we solve this issue by abstracting away money. We give out credits for people who share their codes and people can claim codes with their credits. We allow the option of people buying credits, but we do not require this. Consequently, people would not feel like they are paying for discount codes and we incentivize users to share their unused codes.

Assessment of Risks

We are primarily concerned about three main risks: security, fraud, and establishing a user base.

From a security perspective, there are a few different concerns. The first is that credit balances will be tied to accounts. Anyone with access to a certain account will thus be able to spend all of the credits currently stored in that account. We will require users to register and log in with their Facebook accounts using Facebook's API in order to protect against attackers gaining unauthorized access to account balances. We could also consider requiring re-authentication before the completion of certain high-risk actions, like making a purchase. Separately, we also plan to provide an option for users to purchase additional credits. Credit card information, along with any other information that allows users to make online purchases, is obviously very sensitive. The safest option for us would likely be to utilize a secure external service, like Stripe, to handle the payment processing for these transactions and avoid having to build tons of payment infrastructure ourselves, which would likely be less secure.

A large threat to our product itself is fraud. We will not be performing any sort of external validation of the codes being posted by users ourselves, so we need to make sure there is some mechanism that incentivizes users to post only legitimate codes and to not attempt to spend codes they have "sold" on our site once they have been disclosed to the buyer. We plan to accomplish our goal by implementing a user rating system. Namely, after each successful transaction, the purchaser of the code will have a chance to confirm that they used the code successfully. Each seller's feedback percentage will be public (and show up on the codes they post), so buyers will be able to avoid sellers with bad feedback. If a seller acquires too much negative feedback, he or she will be banned from the platform. We also need to make sure buyers are giving honest feedback, and we could motivate them to leave feedback. Thus, we will provide some reward (in credits) for buyers who leave feedback. Additionally, we will flag users who leave a suspicious amount of negative feedback (relative to the site as a whole) for follow-up investigation, because they could also be potential fraudsters. Users who have used credits to purchase codes that did not work will get their credits back.

Our biggest risk will be user acquisition, activity, and retention. We mentioned several competing products earlier and for each of them, their main failing point was the lack of users. Our biggest challenge will be to incentivize people to use our platform and to convince people that Codeconomy can be useful. Because a large part of our success depends on having a lot of available codes available to browse and purchase, the hardest part will be building up the initial user base and repository of codes. As a new user, it will be very unappealing to use Codeconomy if I see very few codes for sale after I sign up. Our success wholly depends on users consistently uploading new codes for others to use.

Next Steps

To proceed with our project, we need to build a backend API server that connects with a database. The database would store the codes data and user data.