CollegeThrift
Computer Science Senior Project Proposal

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1   Introduction

TC Used Goods Portal is an android application portal in which members of an academic community like Trinity College can list their used goods for giveaway, trade or sale. Users will also be able to make posts as requests for some goods which they might be in need of. The users will be able to message each other on the app for inquiries and negotiations regarding the sale of devices. This app differs from other used goods selling portal available now like Craigslist, Letgo, ebay, etc. because the users and interactions in this app will be local and limited to a certain particular institution the users are part of, rather than being world-wide or location wide.

2   Background

Every year millions of new students come into colleges and buy goods for their dorms. These goods are thrown away at certain part of their college stay or at the end of it. This is not a sustainable model. This app aims to make it easier to connect the people who need those goods and the people those who need to get rid of it. Since people in an academic settings are likely to buy and use similar goods, this app aims at promoting reuse of goods by facilitating such transactions.

In similar vein, this app aims to combat the endemic of ever-rising book costs by facilitating the transaction of used books among students. The fact that at a certain school, people take the same courses and thus require the same text books but in different semesters is the motivation towards making the app. By making it localized, the app will make transactions easy and fast while delivering high value and saving a lot of money.

3   Significance

The locality of the app is very significant to the success of it where we have multitude of other similar apps. Since students are often with limited means of transport and/or time, this app

will make it easier to obtain things they need without buying a new one. As mentioned above, the fact that these people used almost the same kind of goods helps as the good might be easily available very nearby for cheap. Additionally, by limiting the users by the campus and use of '.edu' email addresses to verify the users, this app can provide a very secure environment for transactions. The added authenticity makes the app, users and the listed goods trustworthy as well.

Lastly, this app promotes reuse of goods by helping reduce the amount of goods thrown away once people leave campus after graduation or for breaks.

4   Features

The following are the features of the app. These features are tentatively placed in this list by their priority. The lower items in this list have a lesser priority.

- User Registration: At the first use of the app, the users will be greeted by registration page. Users can put in their name, organization email and desired password. Upon hitting sign up, they will be taken to a screen that asks for a pin code. The pin code will be sent to the user's email address, provided it is a valid '.edu' address. After the pin is inserted and accepted, the user can log in using the credentials.

- Viewing: Once logged in, the user will be taken to the viewing page. The user see the all posted items immediately in the listings tab, be it for sale, trade or giveaways. There will be checkboxes with label SALE, TRADE, GIVEAWAYS and ALL, which can be clicked to filter out the listings. These listing will have picture of the item, title and type along with the price, if applicable. There will be another tab which will feature requests for goods. This tab will have the similar filter feature. Both these tabs will also have search feature.

  There will also be a pen icon on the bottom right corner which will take users to 'create listing' page where the users can create their own listing or request.

- Listing: Once the listed item is clicked, the user will be taken to the listing page. Additional pictures and details will be shown. The name, username or email address will not be shown. It will have a contact button which will take the user to the messaging page.

- Create Listing: In this page, there will be field for Title of the listing, button to upload photos, dropdown to select whether it is for sale, trade or giveaway, field for the price and field for the description. It will also have feature to mention the type of the item and tag it.

- Messaging: This will have all the history of messages to listers with regard to the item. There will be different chats between two same users if they are discussing two different listings. It will have a 'Stop Messages' or 'Sold' feature, after which the user cannot message another user anymore. It will also have a button for the users to pay the seller which will take them to the payment API.

- Dashboard: This page will contain user's information. Some of these informations will be editable. It will also contain all the listings, requests and approaches the user has made. It will also have buttons to connect user's Venmo/Paypal to the app.

- Payment: The payment page will indicate the amount/price of the item and link it to the payment API.

5   Development Tools and Requirements

This will be an android OS application, hence will be developed using Android Studio IDE and Java. It will feature an online database for the storage of the user information, posts, messages and transactions. This will be done using Amazon DynamoDB services. As mentioned above, it will use '.edu' address and emails for verification - thus this app will also require a Transactional Email API Service. I will be using Mailgun Email Api for this feature. Additionally, it will also have a secure payment API, so users can pay with ease without cash. Venmo API will be used. I will also consider using Paypal API as well.

Git and Trello will be used for version control and task management respectively.

This app will require camera and storage privilege on the mobile device.

6   Timeline

The project will be divided into two halves for two semesters and will tentatively follow the timeline, tasks and goals mentioned below.

MFE = Minimalistic Frond End (i.e. no effort to make it look better than required for the functionality to work)

	FALL 2017 SEMESTER
Sep 24 - Oct 08	Android Development Crash Course
Oct 09 - Oct 16	Create Listings Page w/ MFE
Oct 17 - Oct 23	Show Item Posting and Listings w/ MFE
Oct 24 - Oct 30	Show Item Requests w/ MFE
Oct 31 - Nov 6	Search Functionality for Listing and Requests w/ MFE
Nov 7 - Nov 13	User Sign-In and Binding User with Listings w/ MFE
Nov 14 - Nov 20	User Registration and Verification w/ MFE
Nov 21 - Nov 27	User Profiles and Editing w/ MFE
Nov 27 - Dec 11	User Dashboard & Linking with user activity in the App w/ MFE

By the end of the semester, the progress might be 2-3 weeks behind schedule if there are some significant hiccups on the way.

	SPRING 2018 SEMESTER
Jan 22 - Jan 29	Front End Layout & Color Scheme Design (On Paper/Photoshop)
Jan 30 - Feb 5	Front End Implementation to Listing Pages
Feb 6 - Feb 12	Front End Implementation to User Dashboard Pages
Feb 13 - Feb 19	Messaging Infrastructure Setup
Feb 20 - Feb 26	Basic Messaging Functionality between Users
Feb 27 - Mar 5	Binding Messaging by Items and Users
Mar 6 - Mar 12	Making Messaging Secure w/ encryption
Mar 13 - Mar 19	Filter and Favourite Functionality Implementation
Mar 20 - Mar 26	Tags Functionality Implementation
Mar 27 - Apr 2	Payment API Integration
Apr 3 - Apr 16	Re-factor, Testing and Debugging
Apr 17 - Apr 30	Deployment and Further Testing

This schedule and the milestones might be subject to change slightly depending on the progress and hurdles in the development of this app.

7   Expected Outcomes

At the end of this project, I hope to have a fully functional and industry-grade android app. The app will be ready to use by people in Trinity College including faculty and staff. Hopefully, with this app and necessary infrastructure in place, people will use the app to trade books and goods within the coming academic year and benefit from it.

Personally, I wish to gain some android development experience. I also wish to make security of stored information and that of transactions and communications between parties a very high priority for this project, thus gaining considerable insight and experience at handling and storing huge user data securely.

8   Special Considerations

As mentioned above, this app will require hosting space for the database which will be provided by Amazon DynamoDB service. Additionally, it will also require the use of Mailgun email API service. While it is expected that the free-tier subscriptions of both the services will suffice during the development phase of the app, it might incur some cost if the free-tier limits are surpassed.

9   Areas of Expansion

Should the android app project be completed in advance of the scheduled completion time, I wish to start development of iOS application for the app. Additionally, the app will be made to support other different large institutions and organizations.

10   References

Craigslist App - *https://craiglist.com*
YikYak Mobile App - *Unavailable Now*
LetGo App - *https://us.letgo.com/en*