GauchoShare Team Final Documentation

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Github: git@github.com:ucsb-cs48-w20/gauchoshare.git

Catalogue

Project Summary:

One Sentence Description of Our Project:

An Android app that connects buyers and sellers of second-handed resources in UCSB communities and fosters transactions between them.

Additional Information:

It's extremely hard for students and residents living in UCSB community to buy cheap and good products through usual measures. Large online shopping companies like Amazon and Ebay extracts huge revenues from being the middleman, which makes the already expensive products even more unbearably expensive. Moreover, since Santa Barbara is far away from large cities, shipping and pickup are very time-consuming or even impractical for local residents. On the other side, tenants, mostly students, also find themselves unable to sell their unused items, because of the lack of appropriate platforms. Meanwhile, they move-in/out of dorms/apartments and buy studying materials frequently, which produce huge amount of unused goods perfect for second-handed. Consequently, there's the huge necessity to connect buyers and sellers in UCSB communities, build trust between them, and finally foster transactions. That's the motivation and purpose of our GauchoShare project.

Design Decisions

We decide the app to be of same version for both buyers and sellers, based on the fact that a large portion of second-handed goods buyers in UCSB communities are also potential sellers. That's because students always have to buy something that will only be used for a short period of time, like study materials (textbooks, iclikers, lab equipments…), appliances in dorm/apartments (lamp, desk, cookers…), recreational tools (consumables and costumes in parties, exercise equipments…). After they finished using them, they suddenly become proactive sellers of those things, as there's little chance for them to use those things anymore. So buyers and sellers of second-handed goods in UCSB communities are the same group of people, thus we decide to let them use the same version of app.

We decide that the app will only be an information sharing platform, but not an actual online-shopping platform, which means we only help to connect buyers and sellers, but don't buy and resell second-handed goods. This is because the huge necessity of buying and selling is based on reasonable pricing for both buyers and sellers. If we choose to be the middleman like Amazon and Ebay, we'll have to make profit by adding transaction fees and shipping fees, which lowers the revenue of sellers and elevates the price for buyers. This will discourage the transactions between UCSB students, which contradicts our primary purpose. Moreover, since the user of this app (UCSB students and other tenants) lives in the same community, it's much easier for them to check seller's credibility and pick up their items by themselves, which means p2p model is a better choice for our app. And finally this decision leaves spaces for buyers and sellers to negotiate pricing. For profitting, we can easily add ad-slots to earn promotion fees.

Documents of Different Stages of Design
Beginning Stage:

Team Norms:

Arrive to lectures and sections on time.

Stay in chat with each other through slack.

Decisions are made by collaborative discussions and negotiations.

Follow DDLs.

Problem Scenarios:

John Doe recently graduated from UCSB, and while he is moving out ofhis apartment, he is left with an insurmountable amount of old textbooks, furniture, notes, etc. He would like to sell some of this stuff in order to get some money back, but current resources like Facebook Marketplace make it difficult to find buyers who are looking for these types of items, due to the fact that Facebook users don't primarily use Facebook to buy/sell items and other consumer-to-consumer e-commerce websites like eBay or Craigslist are not used by UCSB students. Hence, John Doe wants a product like GauchoShare that will allow him to buy/sell items exclusively to other UCSB students who have the same desires. John Doe will ultimately want GauchoShare to make it easier to buy/sell items with other UCSB students compared to the current available options.

User Journey:

- User can post a listing of an item (textbook, furniture, notes, etc.) that he/she wants to sell to other GauchoShare users
- User can view listings posted by other Users
- User can filter listings based on desired categories

- User can communicate directly with buyer/seller through the app

Sprint 01:

- backend team is not sure how to divide up the tasks
- backend team needs to implement user authentication but this task is difficult to do without having the frontend done yet
- backend team is also largely unfamiliar with using Firebase, so one of our goals for this upcoming week is to familiarize ourselves with using Firebase, as well as Android Studio
- frontend team has a good idea as to what the UI will look like for the login page, which will make it easier for the backend team when dealing with the backend for user authentication
- frontend team is still debating whether to use vanilla javascript or React Native

Frontend Flow Sketch:
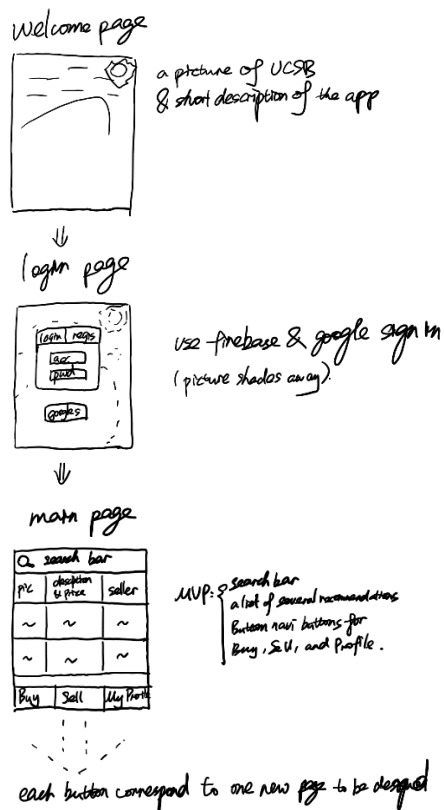
Project Initiation Doc:

https://docs.google.com/document/d/1zBLh_9LPZF5MVYab1pfapYW2rnNBygNDoshelF_yY4g/edit?usp=sharing

Retrospective:

https://github.com/ucsb-cs48-w20/6pm-gauchoshare_RETROS/blob/master/retro1.md

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Intermediate Stage:

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Weekly Sprint (After 1st Sprint, Before MVP):

https://github.com/ucsb-cs48-w20/gauchoshare/tree/master/team/sprint02

Pre-MVP Sprint Planning:

2/20/20 Sprint Planning Meeting

Created and assigned new issues to team member to work on

- https://github.com/ucsb-cs48-w20/gauchoshare/issues/48
- https://github.com/ucsb-cs48-w20/gauchoshare/issues/50
- https://github.com/ucsb-cs48-w20/gauchoshare/issues/54
- https://github.com/ucsb-cs48-w20/gauchoshare/issues/55
- https://github.com/ucsb-cs48-w20/gauchoshare/issues/56
- https://github.com/ucsb-cs48-w20/gauchoshare/issues/57

We want to finish most, if not all, of these issues by next week's lab, and if anyone isn't done, then the people who have finished their issues will help them complete their part. By then, we will have finished most of the app's core features and start thinking about bettering the UI design and possibly adding more features if time allows.
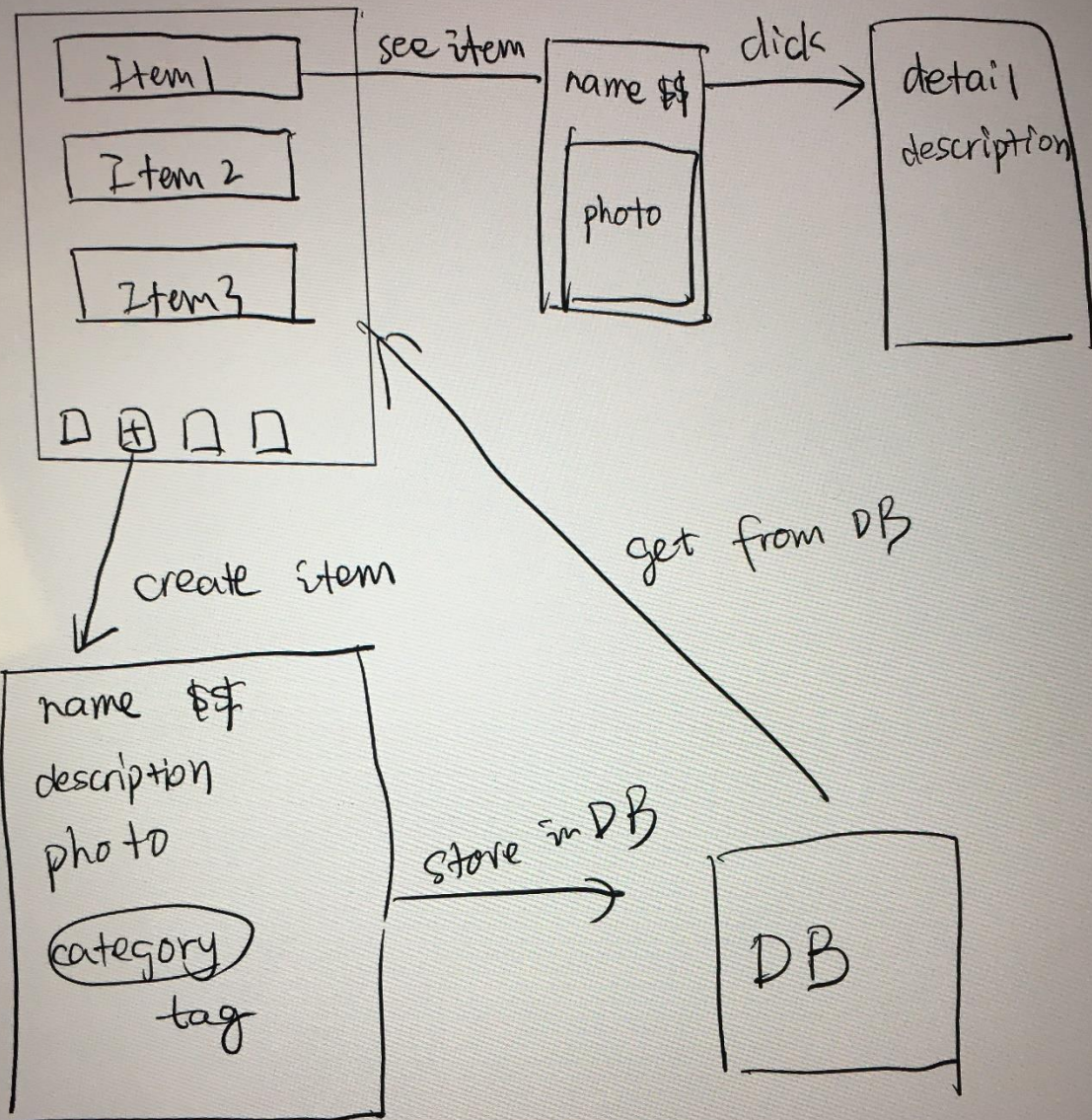
Pre-MVP Sprint:

- Chris:
    - Fix the problems in the user profile page
- Yuehan:
    - Fix the problems in the login page
- Huiyu:
    - Integrate everything in one app;
    - Fix the problem in the message
- Kyle Stubbs:
    - Build and fix the problems in message
- Peizhen:
    - Fix the history, share feature in the app
- Boru:
    - Fix the search feature in the app
    - Start to build up the find feature

Retrospective:

https://github.com/ucsb-cs48-w20/6pm-gauchoshare_RETROS/blob/master/retro2.md

Find-Share Core Feature Sketch:

Item 1

Item 2

Item 3

see item → name $$ / photo → click → detail description

create item

name $$
description
photo
(category)
tag

store in DB →

DB

get from DB

Role Decision Chart:

Role	Name
Initial product owner	Huiyu Zhang
First Retro Leader (lab03)	Chris Yang
Lead Reviewer (lab05)	Kyle Stubbs
Lead Reviewee (lab05)	Huiyu Zhang
Mid-Course Retro Leader (lab06)	Kyle Stubbs
Testing Coordinator (lab06)	Kyle Stubbs
Product Owner (lab06)	Huiyu Zhang
Scrum Master (lab06)	~~Peizhen Tong~~ Chris Yang
UX Coordinator (lab06)	Huiyu Zhang
Documentation Coordinator (lab06)	Chris Yang
Final presentation lead (wk 9/10)	~~Boru Ai~~ Huiyu Zhang
Retro Leader (lab09)	Yuehan Li

Ending Stage:

Weekly Sprint:

https://github.com/ucsb-cs48-w20/gauchoshare/tree/master/team/sprint03

Final Presentation PPT:

https://docs.google.com/presentation/d/1M70eJSFnvizYiM_B1XCyuUtcPTcjbhWV1dRelXOPSSY/edit?usp=sharing

User Manual:

https://docs.google.com/document/d/1PZMaZ_mXKCcDQSpxNudYxnPqmu_KCJ50msjz3te9uUk/edit?usp=sharing

Retrospective:

https://github.com/ucsb-cs48-w20/6pm-gauchoshare_RETROS/blob/master/retro3.md

Testing Process and Results:

The types of tests that were used for this project were unit and instrumentation tests. In the unit tests, JUnit was used to test all of the methods of each object class. In the instrumentation tests, Espresso was used to be able to simulate the actions of the emulator. In doing this, tests were written to simulate each function of the app in order to make sure that they work properly. The following tests that were included in the final product are listed below:

- Unit Tests
    - ChatUnitTest.java
        - Tests all of the functions of the Chat class.
    - ProductUnitTest.java
        - Tests all of the functions of the Product class.
    - UserInformationUnitTest.java
        - Tests all of the functions of the UserInformation class.
    - https://github.com/ucsb-cs48-w20/gauchoshare/tree/master/app/src/test/java/com/ucsb/integration
- Instrumentation Tests
    - FindActivityTest.java
        - Tests the section of the app responsible for finding the listed items.
    - MessageActivityTest.java
        - Tests the section of the app responsible for messaging other users.
    - ProfileActivityTest.java
        - Tests the section of the app responsible for creating and editing a user's profile.
    - ShareActivityTest.java
        - Tests the section of the app responsible for sharing an item on the app.

- https://github.com/ucsb-cs48-w20/gauchoshare/tree/master/app/src/androidTest/java/com/ucsb/integration

Implementation Difficulties and Solutions:

1. Huge amount of states and corresponding ways of redirections.

Solution: Applying the methodology of Mock and Feature Toggle, so that related features can be developed seperately and independently.

2. The app is very difficult to be developed iteratively according to the Agile philosophy, since so many features need to work together in the first place.

Solution: We held multiple meetings per development cycle, both online and face-to-face, to keep track of each teammate's progression in detail. Also build the project incrementally at the beginning stage for a fully functional MVP.

3. Database schema was changed and improved multiple times, which nullified old data and corresponding tests, and caused multiple bugs including npe.

Solution: Person who changed schema will update the database situation to other members and figue out fixes and paddings as soon as possible.

4. UI inconsistency for different features.

Solution: Continuously integrating our project together and make the UI consistent at each time of CI.

5. We have to use multiple unstable APIs from Google, including login and picture upload.

Solution: dig into documentations of APIs and understand their functionalities and limitations in detail. Use thorough testings to assure feature functionality and specific API limitations.

External References

- https://developer.android.com/studio/test/espresso-test-recorder
  - Used to help create the instrumentation tests.
- https://www.youtube.com/playlist?list=PLzLFqCABnRQftQQETzoVMuteXzNiXmnj8
  - YouTube series to help create the messages section of the app