

Project Deliverable D

Conceptual Design

Group 3

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Project Deliverable D: **Conceptual Design**

GNG 1103 – Engineering Design

Faculty of Engineering – University of Ottawa

Objective:

Develop a set of conceptual designs for your problem statement, based on the previous user benchmarking and technical benchmarking and the list of prioritized design criteria you have developed. Analyze and evaluate these concepts and choose the concepts or combination of concepts that you will continue to develop. Justify your reasoning as you go.

Instructions:

1. Based on your team's problem statement, benchmarking and the list of prioritized design criteria, each team member will generate at least one concept for each subsystem required and the final functional solution should have a minimum of three subsystems. You should clearly define the boundaries between those subsystems, so that conceptual designs for each subsystem are inter-changeable. Identify the specific team member creator for each concept in the deliverable.
2. Team members will then reconvene as a team and discuss these concepts in order to categorize/condense/combine/refine/reconsider each sub-system. As a team, your goal is to produce a completely new or modified concepts for each subsystem.
 1. Each subsystem should be well-documented using clear sketches and descriptions. Give a few lines and notes to show the benefits and drawbacks of the different concepts you considered. It should be understandable by a reader who is unfamiliar with your problem.
3. The subsystems can then be combined into three fully functional solutions, by mixing and matching the subsystem ideas. These global concepts must then be analyzed and evaluated against your design criteria using a selection matrix, similar to the one used in class, for comparing the solutions from the technical benchmarking process.
4. From this analysis and evaluation, choose the best global concept and identify it for further development. Give a few lines and notes to show the benefits and drawbacks of the different concepts you considered. Justify your final selection or any ideas that you did not select with suitable notes in the document.

Your chosen concept will continue to be used in future project deliverables, including your task plan and cost estimates, as well as prototyping. It is possible that you realize along the way that your chosen concept is not ideal or perhaps requires modification. Therefore, it is

critical at this stage of the process that you properly document your ideas in case you need to change or modify your design later. Therefore, you must also record your top three ideas in the submitted deliverable and you should **also** keep a record of the other ideas that you've generated somewhere safe. It is recommended that you include them as appendix material in your submission.

It is OK to document other exciting ideas that you've had (e.g. you will not be penalized for having *more* than three ideas for the subsystems). However, you still need to select the "best" idea, based on what you know right now and based on your analysis and prioritization of requirements and design criteria so far.

Please capture your work in a structured, technical document format (see the template for the details of what constitutes a basic technical document structure).

Submission:

Each team (***only one person from each team***) must submit a PDF copy of this deliverable by uploading the file as an attachment into BrightSpace.

Due Date:

See BrightSpace.

Introduction

Based on our team's previously stated problem statement, design criteria and benchmarking, we can now progress into the ideate stage of design thinking. To make this an effective process that makes sure all ideas are included and we end up with the best overall idea, each team member will create concept sketches based on our brainstormed subsystems.

Subsystems will have to focus on the main topics and pages to ensure we make the most of the clients time in our client meeting the coming Tuesday. We will also give brief guidelines on what each page should somewhat include.

Defining Subsystems

The banks, customers and retail partners will all have different views of the loyalty platform

Subsystems Customer View (Made for mobile app)

Home page

- Includes balance for each separate program and the combined value of these points deemed “Z Points” , and dollar value of “Z points”
- Settings button
- Transaction history button (that can be clicked)
- Question mark with helpful tips (that can be clicked)
- Special offers banner (that can be clicked)

Scan Page

- The qr code customers can use to gain points
- This will be where customers show their individually unique qr code, and get it scanned by the cashier for their purchase
- Proven as effective method in the Tims Rewards App

Settings page (Not worth showing to client as these are generic)

- Account setting
- Logout button
- Reset password
- Email confirmation
- 2 factor authentication
- Date of birth

Transaction History

- Button to filter last 30 days, last 90 days, last year, All transactions etc.
- Special Offers
- What are the latest offers, when are they expiring

Subsystems Banks View (Made for desktop app)

Home page

- See whether or not it's keeping the clients
- See if its profitable
- See how much money its retailers brings in
- Is it profitable for the bank to keep this program running

Subsystems Retailer View (Made for desktop app)

Home page

See whether or not it's keeping the clients

Graphs of this data

See how much money its customers brings in

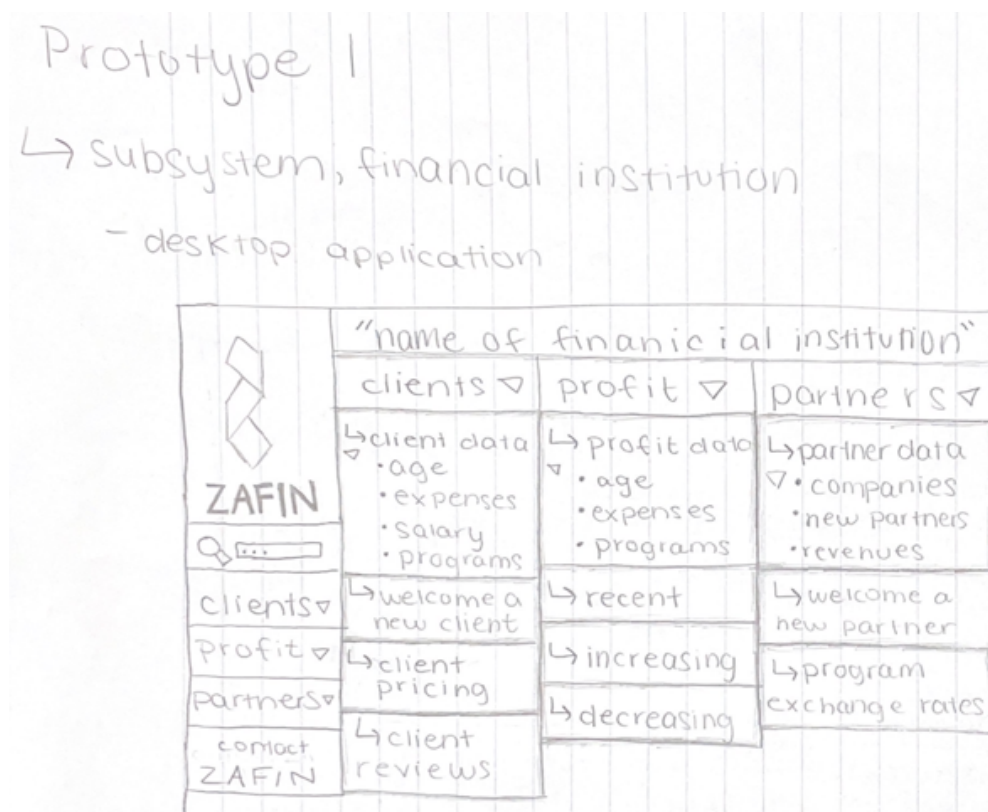
How much money was made per transaction of points program

How often each customer is shopping there and how many of those times have they used the points program

Concepts

Below is each team member's concept sketch for some ideas on what the application could look like. With each team member's sketch, there is an explanation and a list of pros and cons to the design.

Amy's Concept



Amy's Financial Institution UI Feedback

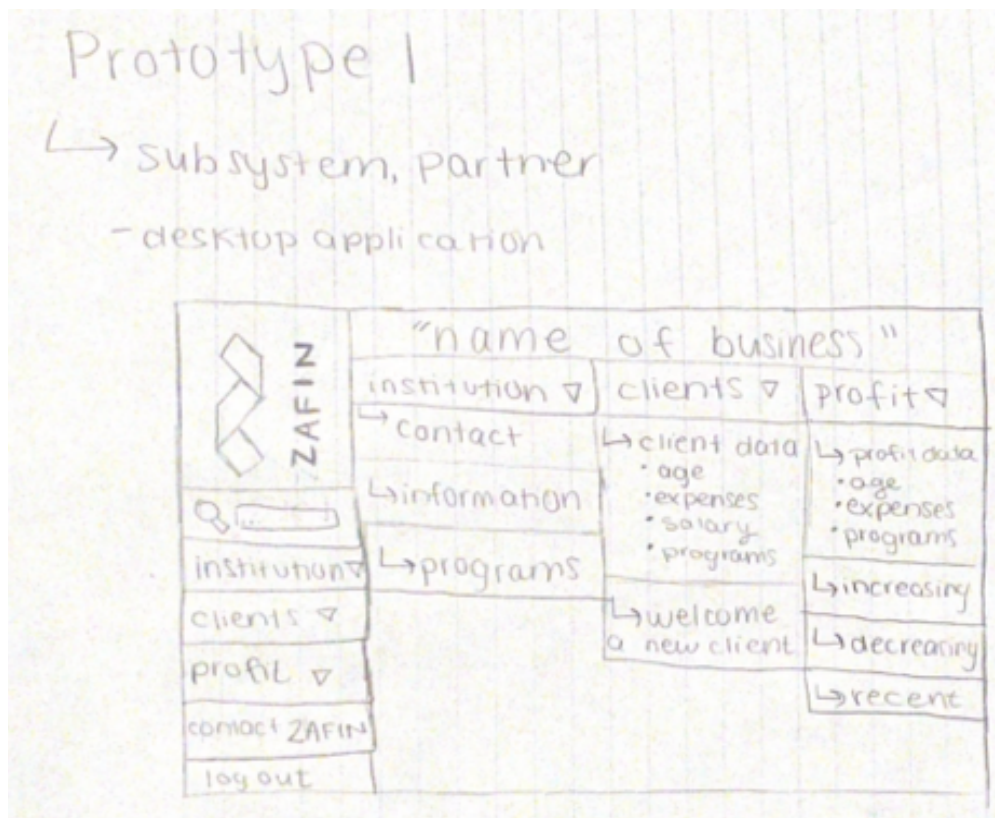
Pros

- -Client, profit, and partners information and metrics
 - Has a lot of information that is displayed for the banks to see and is also organized well.
- Search Bar

- Makes it easier to find certain pages without having to search through the U.I
- Drop-down pages on the side
 - Makes finding specific groups of pages easier

Cons/Feedback

- Too much information on one page could overwhelm the user.
 - Each section could be divided into its own menus (Clients, profit, and partners) to reduce the amount of information being thrown at the user at once.
- Could seem more visually appealing
 - Try not to have a lot of text condensed, think of popular webpages and how the main sections are all organized into different pages



Amy's Retailer UI Feedback

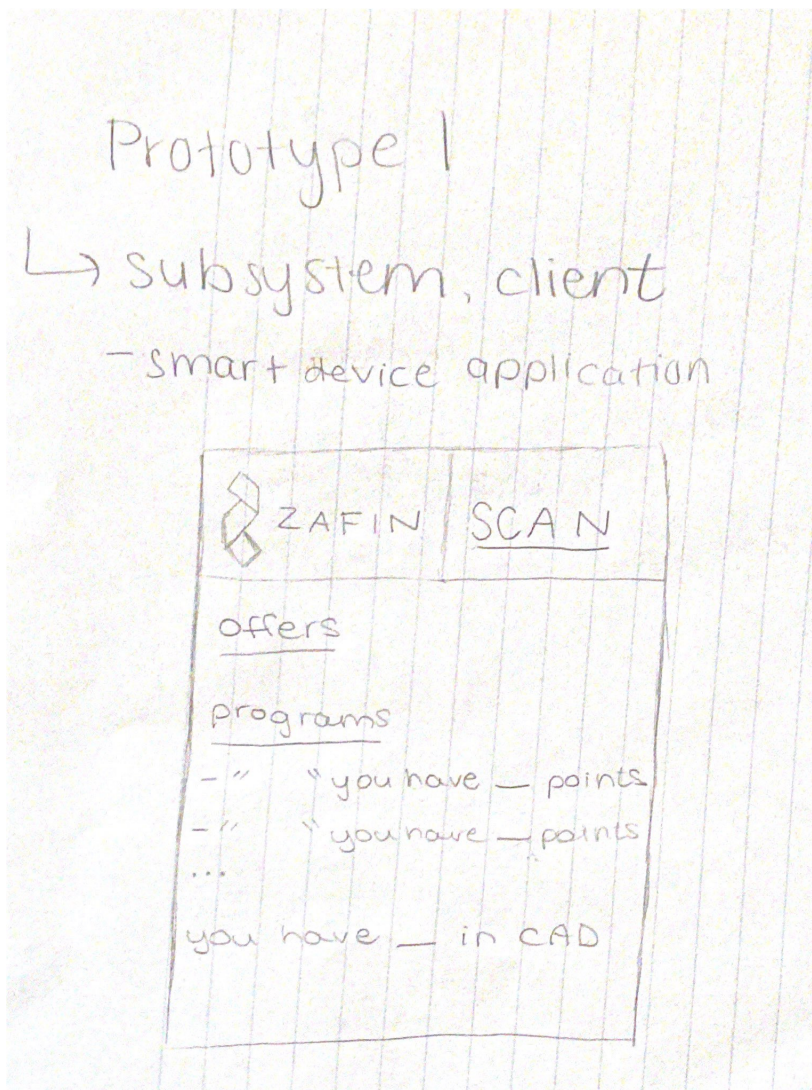
Pros

- Grouped information
 - Institution, clients, and profit are good divisions to have and the subdivisions are well thought out
- Search bar

- Makes it easier to find certain pages without having to search through the U.I

Cons/Feedback

- Could seem more visually appealing.
 - Try not to have a lot of text condensed, think of popular webpages and how the main sections are all organized into different pages. Could add graphs for profit



Amy's Customer UI Feedback

Pros

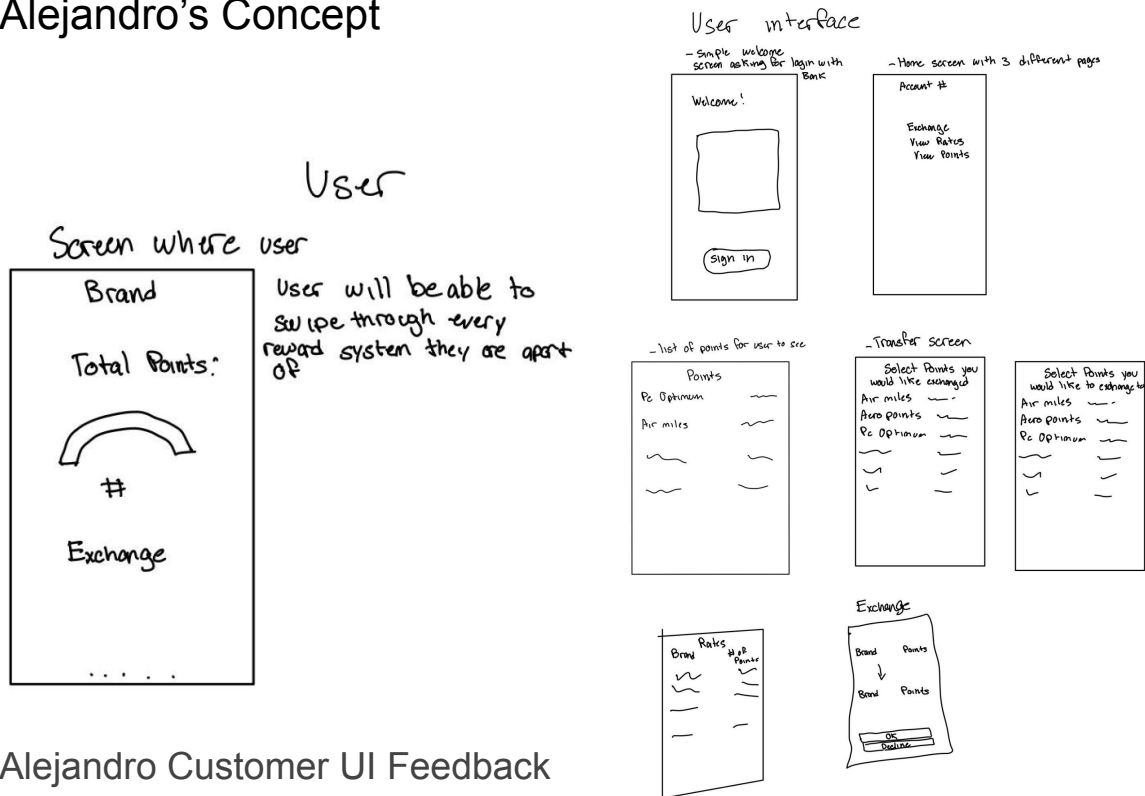
- Shows amount of points in CAD
 - This puts the values of points into something the user can better understand instead of a somewhat arbitrary value of points

- Zafin branding seems visually appealing
- Having the scan button in an easy to reach place is well thought out in the shoes of the customer

Cons/Feedback

- Could have a menu bar to allow navigation to other pages
- A bit limited in terms of promoting loyalty

Alejandro's Concept



Alejandro Customer UI Feedback

Pros

- Looks very clean and organized
- Easy accessibility to all point systems, if the user is a part of more than one
- The swiping feature for all points systems is very clever
- Makes transferring points easy
- All info is grouped in the right sections

Cons/Feedback

- Seems empty
 - Could use more effort
- Welcome page doesn't look great
- If user is apart of many rewards programs, then transfer screen could look very overwhelming
- Exchange rate page has potential of easily confusing user
- Transferring points between institutions might not be preferable

Banking Interface

Change Rates
View Accounts

- Too empty?

Change rates

- Rates will be easily visible per brand

Brand	Points/\$
~	~
~	~
~	~
~	~

View accounts

Users
~
~
~
~

User Screen

User	Points	Bank #
~	~	~

User Screen will hold user info that the bank already has

Alejandro's Financial Institution UI Feedback

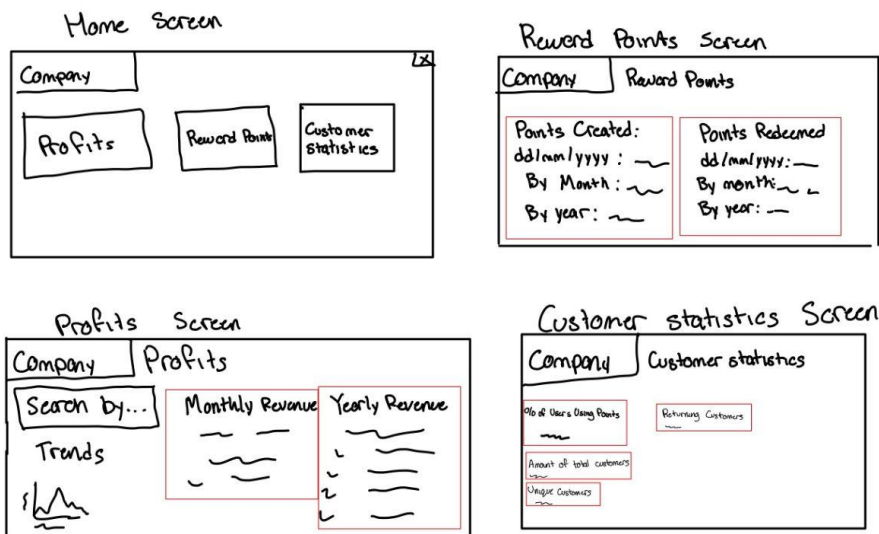
Pros

- Included the changeable rates feature which is nice
- Giving banks data on customer uses is a good idea

Cons/Feedback

- Seems empty
- Could include a page that gives bank information about profitability
- User screen could be overwhelming if there are many users, would there be a way to organize the users??

Partner /retailer interface



Alejandro's Retailer UI Feedback

Pros

- Customer statistics that relate to the different loyalty programs
- Good idea to be able to track business unrelated to loyalty programs in the application, that way the business will have all their info in the same place
- Option to see trends
- Search by option for profits screen is good

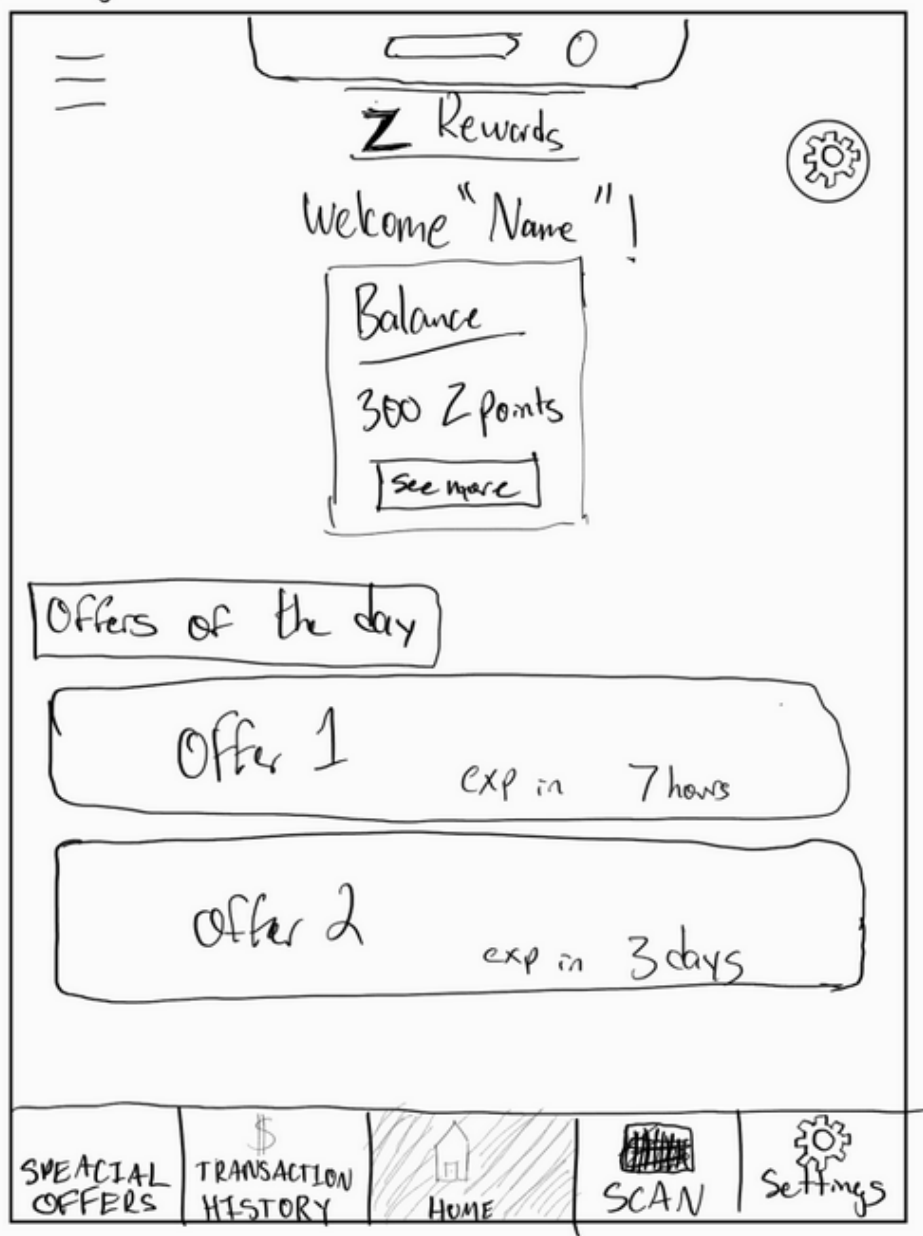
Cons/Feedback

- No customer service section/FAQ page
- Would be good to have a section dedicated to the bank that sold the business the application, so that in the case that they needed to be contacted, it could be done through the app.

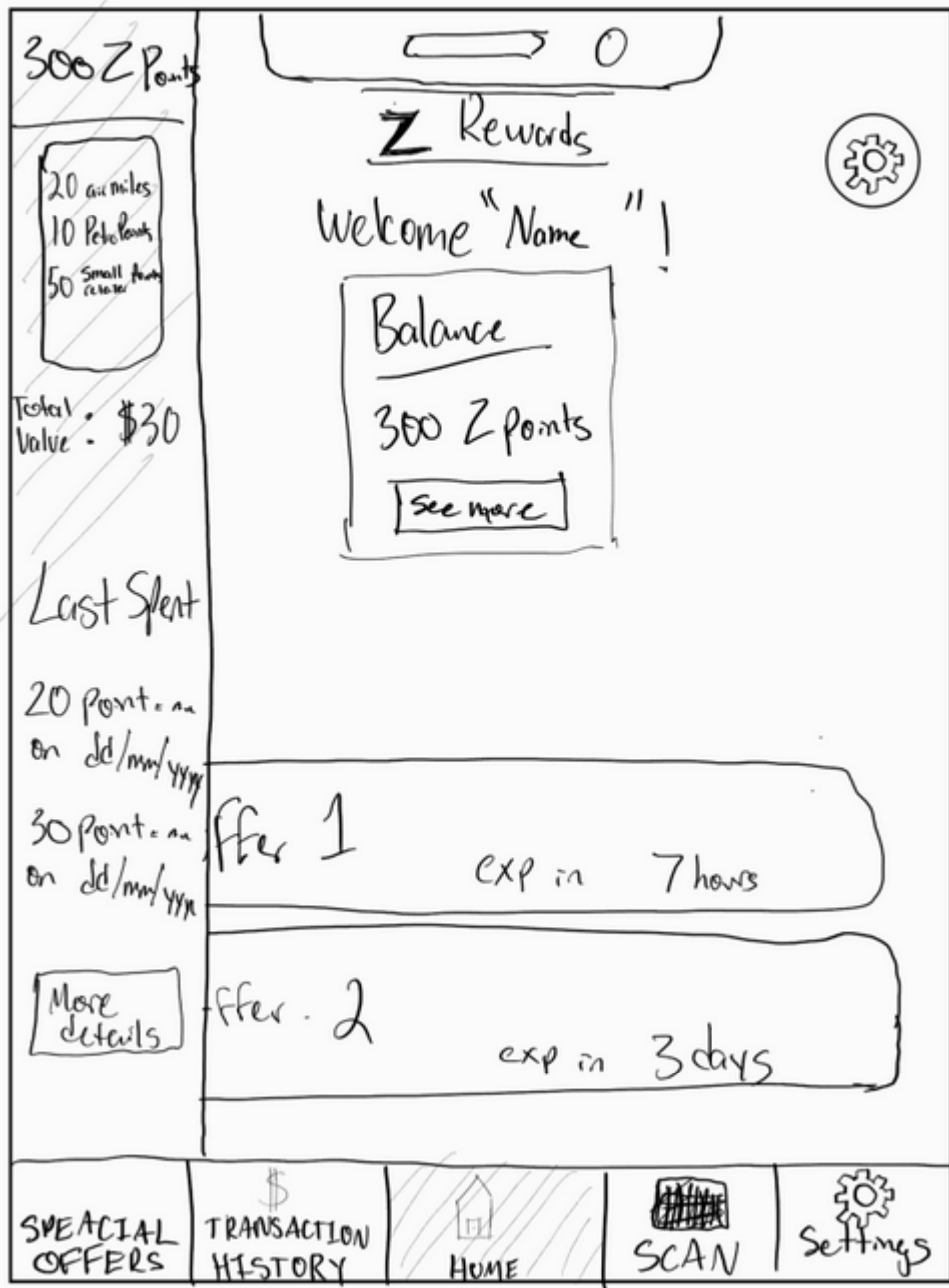
Yendra's Concept

Customer View

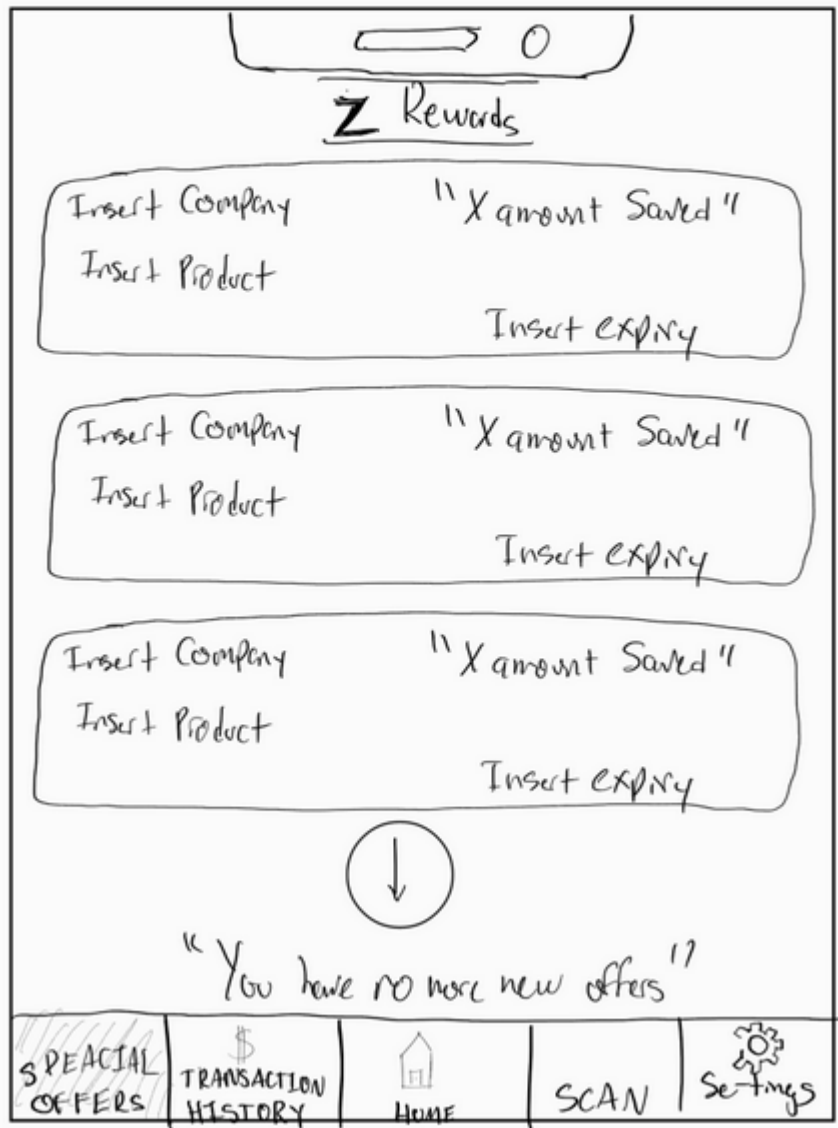
Home Page



Home page Expanded



Transaction History



Yendra's Customer UI Feedback

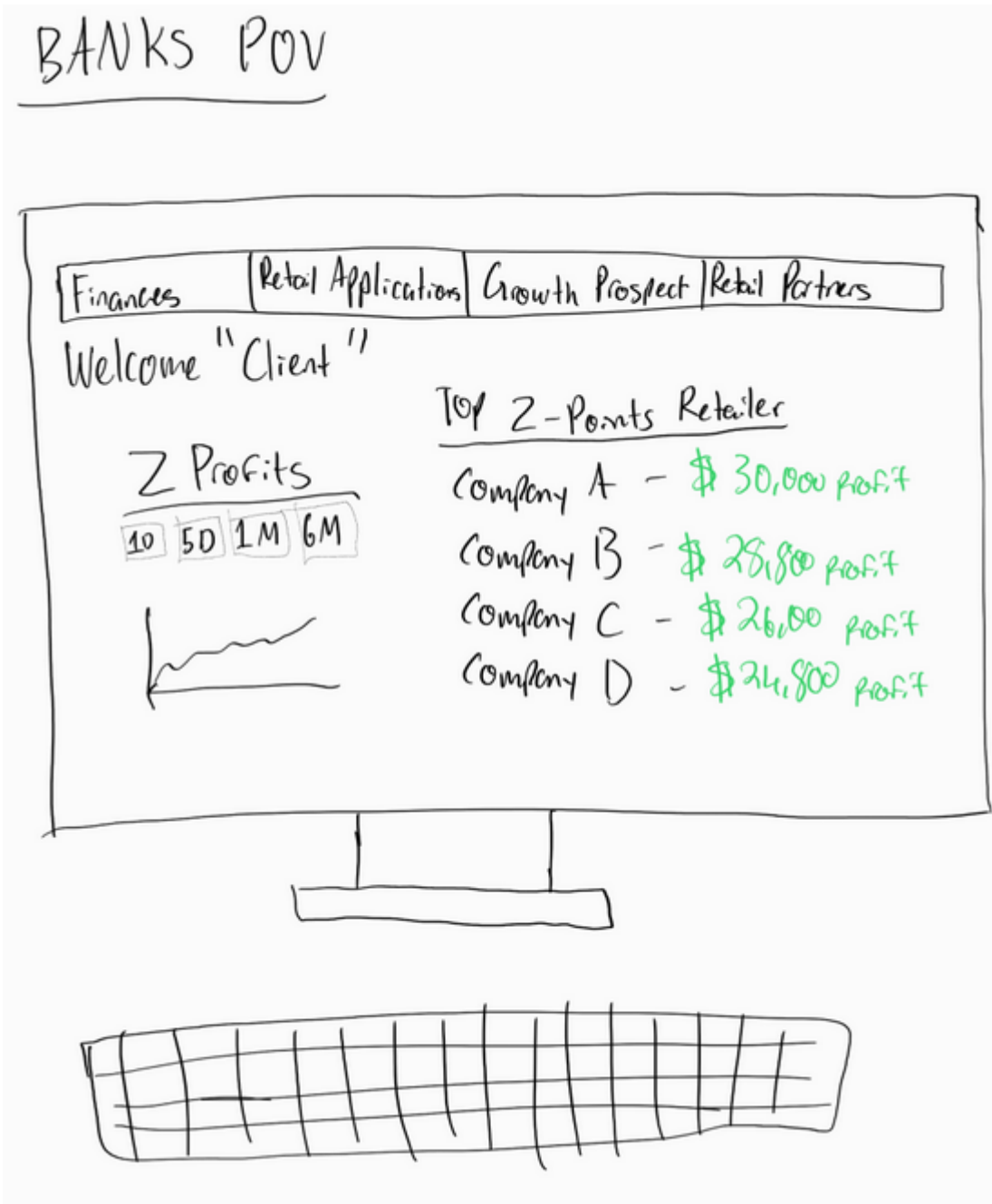
Pros

- Very organized
- Access to transaction history
- Shows how much money was saved with each offer used

- Easy access to all offers
- Shows expiration dates of offers
- Scan button easily accessible
- Settings easily accessible
- Shows monetary value of all points combined

Cons

- Would be good if there was a section just dedicated to points
- No functions that allow user to exchange points with someone



Yendra's Financial Institution UI Feedback

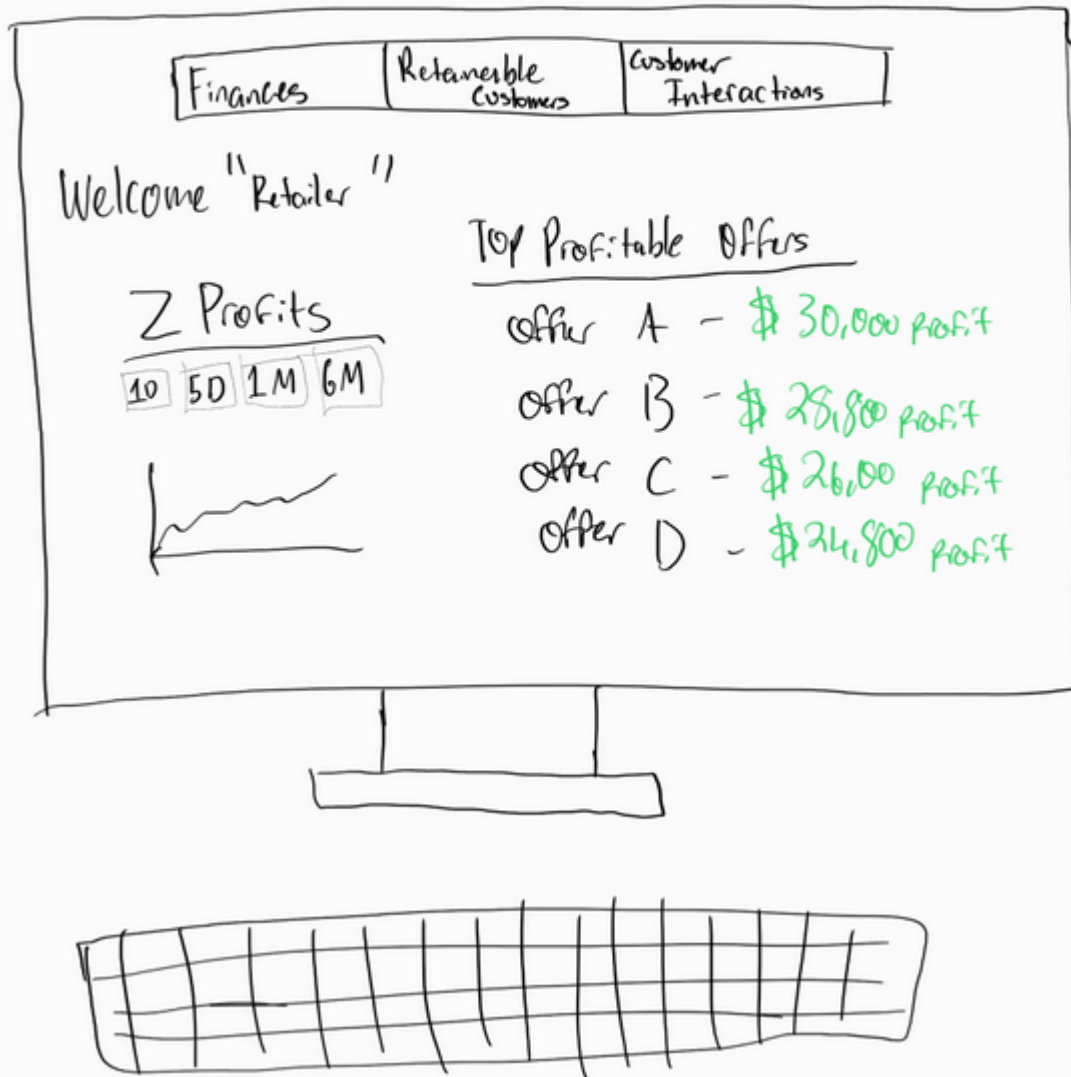
Pros

- Easy to navigate
- Different sections for each component
- Shows companies directly related to data

Cons/Feedback

- Could incorporate some type of branding
- Does not indicate democratization exchange rates

Retailers POV



Yendra's Retailer UI Feedback

Pros

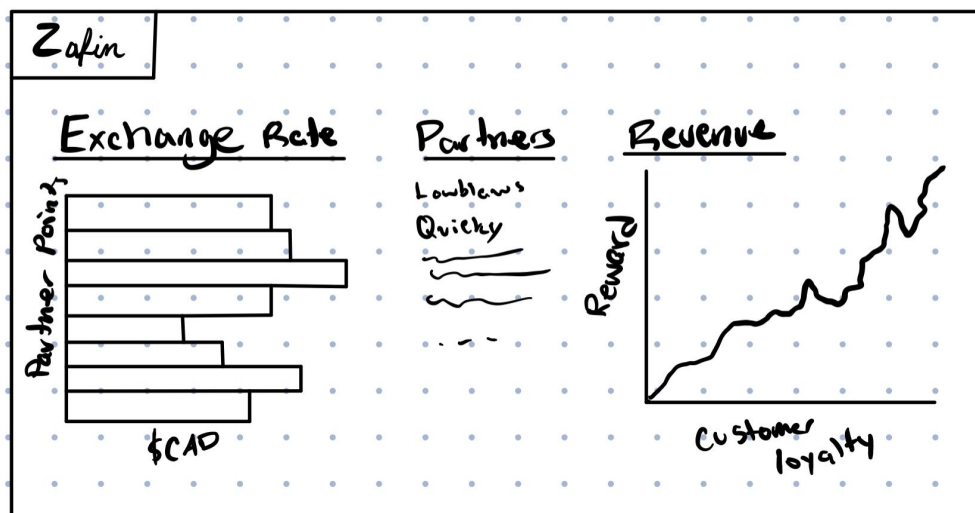
- Shows offers directly related to data
- Sections for different components, makes easy to navigate
- Has profits from each offer

Cons/Feedback

- If there are many offers, it could look cluttered very easily
- Does not show enough info regarding the loyalty points

Alyce's Concept

Bank



Alyce's Financial Institution UI Feedback

Pros

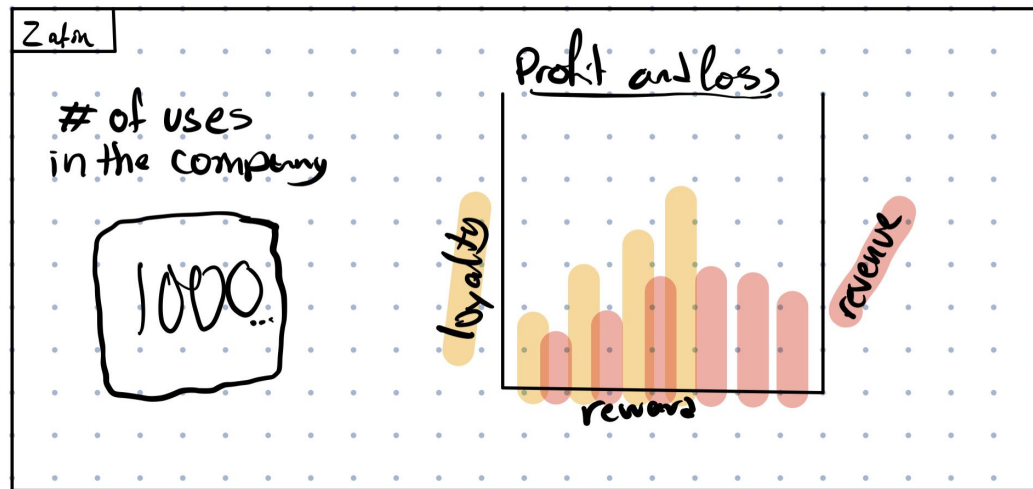
- Good use of a chart to show exchange rates
- Partners list
- Bar graph and plotted chart
- Looks organized, and simple to navigate
- Exchange rates are easily available

Cons/Feedback

- Would maybe work better if each partner had their own section in the application, rather than listing them in the middle, because there will most likely be a lot of partners so things could look overwhelming very easily.
- The name of the financial institution should be displayed somewhere in application
- No contact information to zafin/customer service options
- Not enough information regarding loyalty points

- More data regarding the users and how they're using/receiving points would be good

Partners



Alyce's Retailer UI Feedback

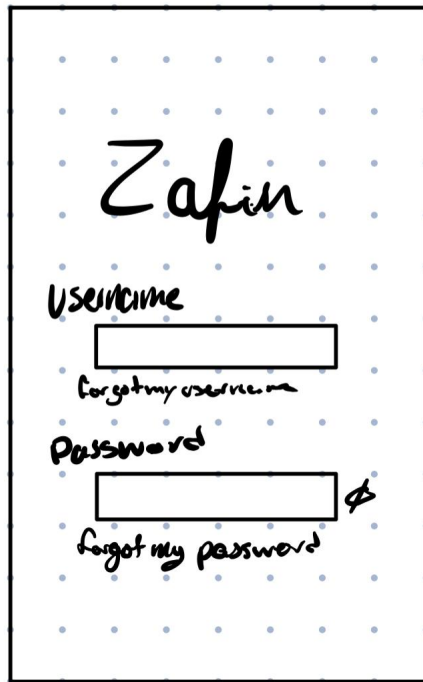
Pros

- Number of users in business is easily available
- Looks clean
- Not complicated to figure out

Cons/Feedback

- A bit limited in terms of data and banking info
- More pages for different things like profit, customers, offers used, etc.. would be good to see

User



Alyce's Customer UI Feedback

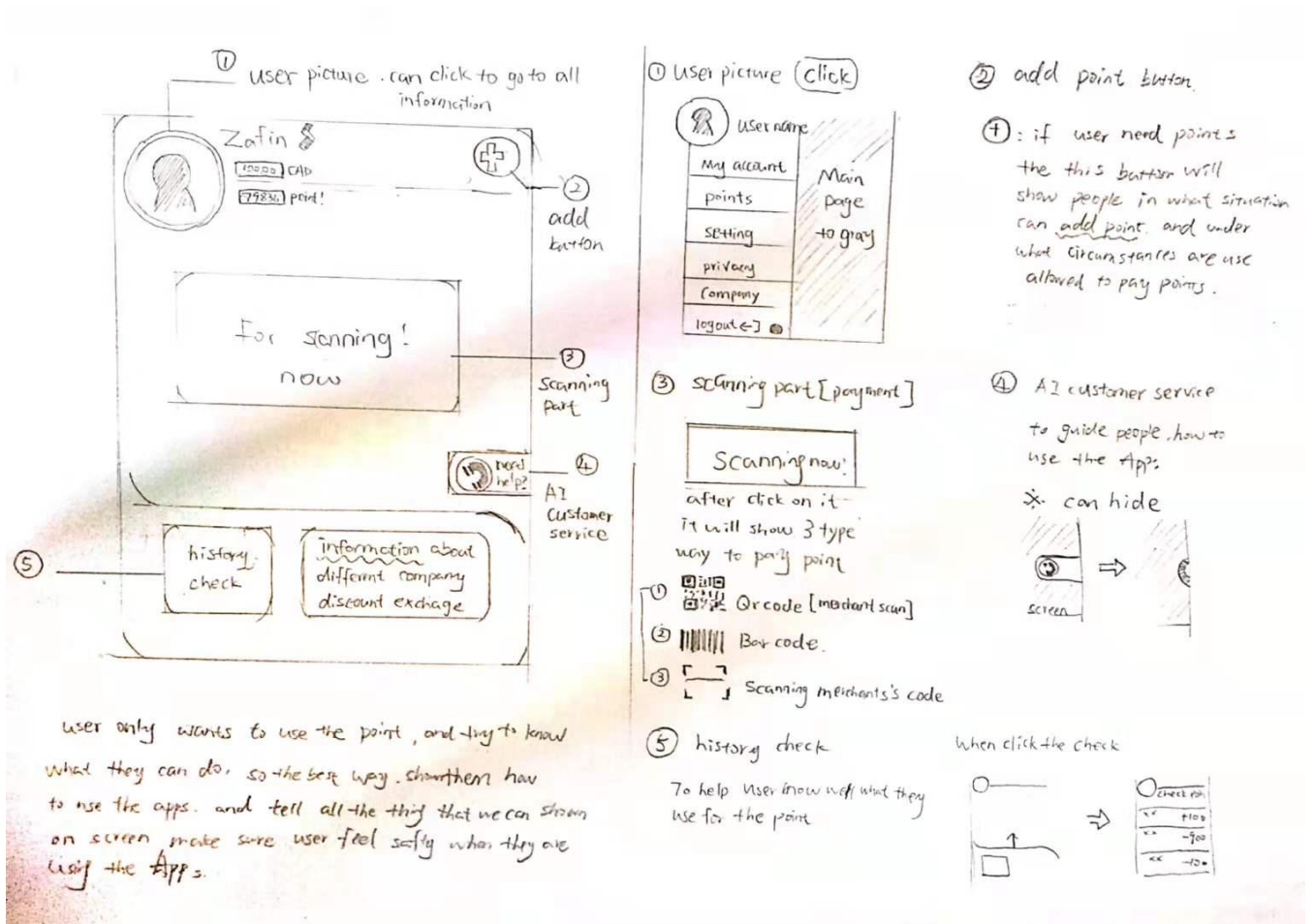
Pros

- Forgot my password and forgot my username option
- Shows amount of points directly related to dollars and is very accessible
- Participating retailers is a great idea to include in the app
- Button for special offers
- Scanning button

Cons/Feedback

- Customer service button or FAQ section would be good
- Sections for separate loyalty programs would be good
- Button for account information

Jiachen's Concept



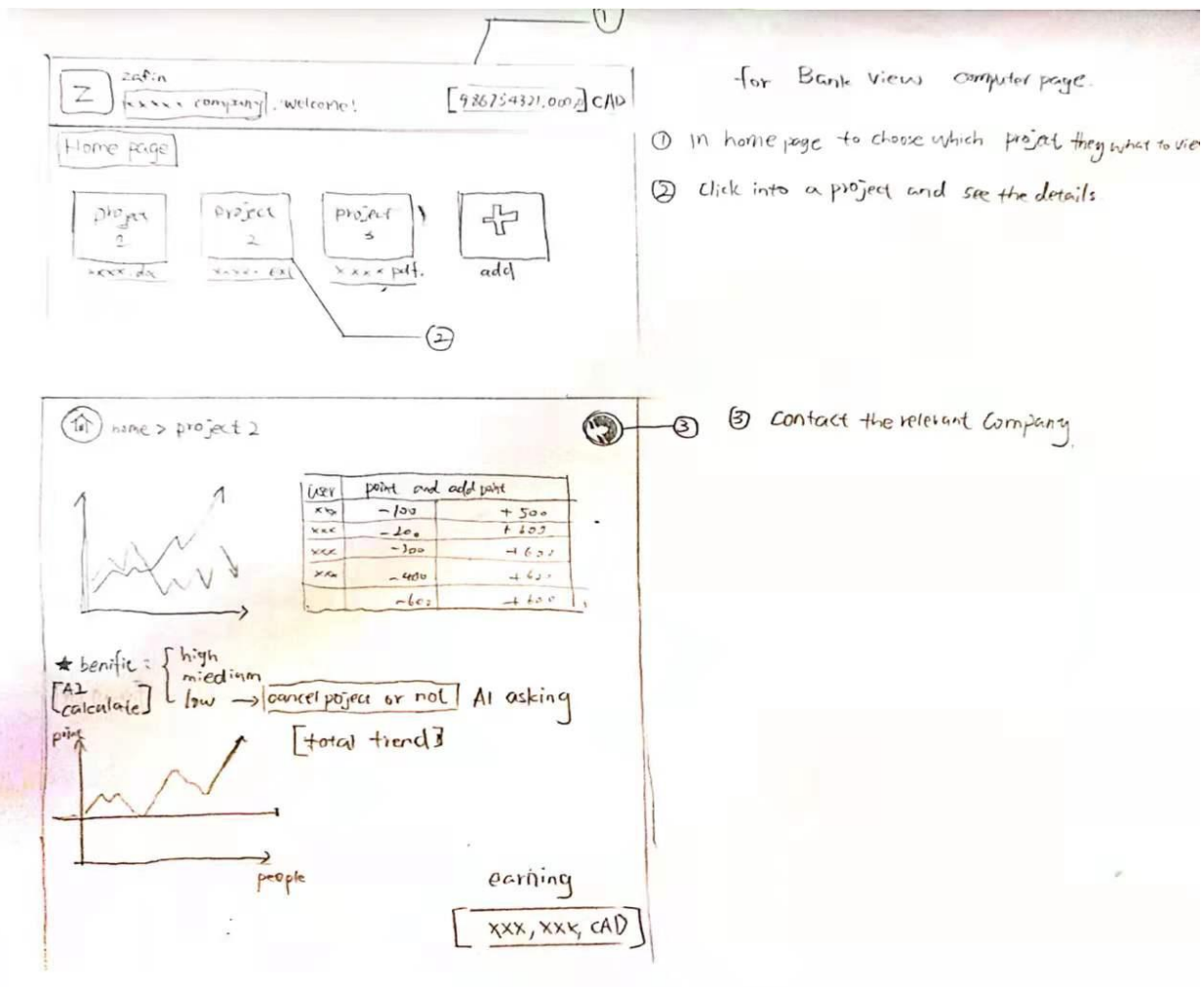
Jiachen's User UI Feedback

Pros

- Shows how to add points and how to pay points
- User has the option to have an account picture

Cons/Feedback

- Having the home screen as the scanner could be a little bit overwhelming on the front page, especially when all of the other information is mixed in with that too



Jiachen's Financial Institution UI Feedback:

Pros

- Options for different projects
- Graphs of data right next to data table make the data very easy to interpret
- Shows trends and benefits

Cons/Feedback

- More data on customers would be good

Customer UI Pros

- User friendly and easy to navigate, has clean simple aesthetic
- Shows amount of points in CAD
 - This puts the values of points into something the user can better understand instead of a somewhat arbitrary value of points

- Having slight but not over the top branding
- Having a user friendly interface, with easy navigation between pages, especially to key pages like home, special offers and
- Having the scan feature be easily accessible when you open the app
 - This allows customers to get straight to the scan page when they might be in a rush
 - Three different modes of scanning (QR Code, product barcode, and merchant's barcode)
- Should be aesthetically pleasing
- Having a swiping feature to transfer between the multiple point systems
- Customer service option
- Forgot my password/username option in sign in page
- Search bar

Financial Institution UI Pros

- Easy navigation and access to information, has clean simple aesthetic
- Graphs of data right next to data table
- Exchange rates easily available
 - Easy to view and easy to change
- Search bar to make it easier to find information
- Lots of data/metrics that are visualized in multiple types of graphs
- List of partners
- Data on customers (i.e. engagement, popular offers, popular stores to redeem/spend points, etc...)
- Graphs that plot future trend predictions
- Drop-down pages on the side
- Bar graph and plotted graph to present data

Partner UI Pros

- Easy navigation and access to information, has clean simple aesthetic
- Graphs to display metrics
- Data on customers (i.e. how much profit in points, how much money spent in points, etc...)
- Grouped information
 - Information is divided into main sections and branches out
- Institution, clients, and profit are good divisions to have and the subdivisions are well thought out
- Search bar - makes it easier to find certain pages without having to search through the U.I

- Customer statistics that relate to the different loyalty programs
- Good idea to be able to track business unrelated to loyalty programs in the application, that way the business will have all their info in the same place
- Option to see trends
- Search by option for profits screen is good
- Shows offers directly related to data
- Sections for different components
- Has profits from each offer
- Number of users in business is easily available

Features

Customer Features

- Offers easily accessible
- Points in CAD
- Search bar
- QR code easily available
- Scanning abilities for products
- Customer service option
- Ability to scroll through different reward programs
- Ability to view transaction history
- Ability to change language, currency and region

Financial Institution Features

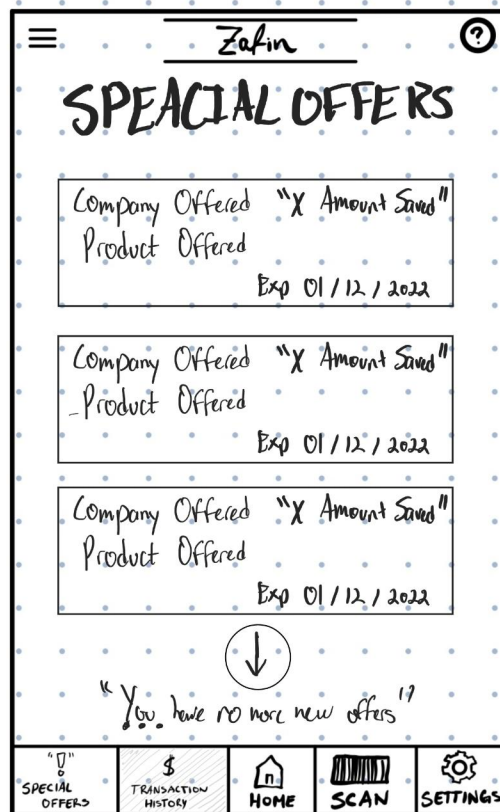
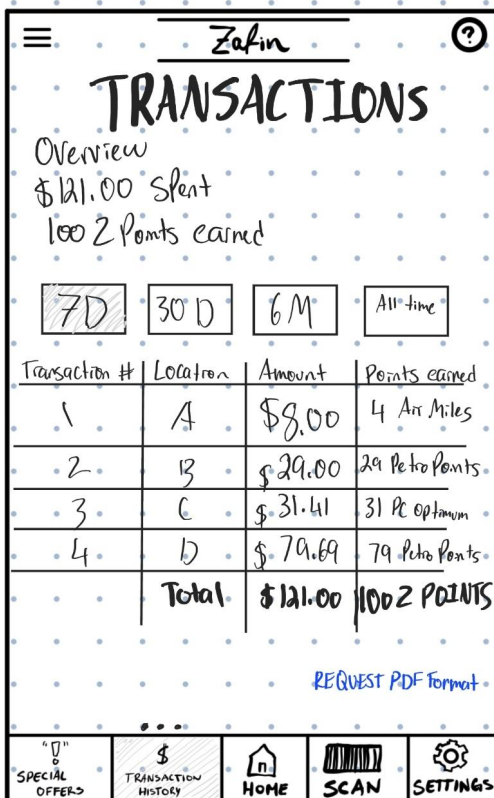
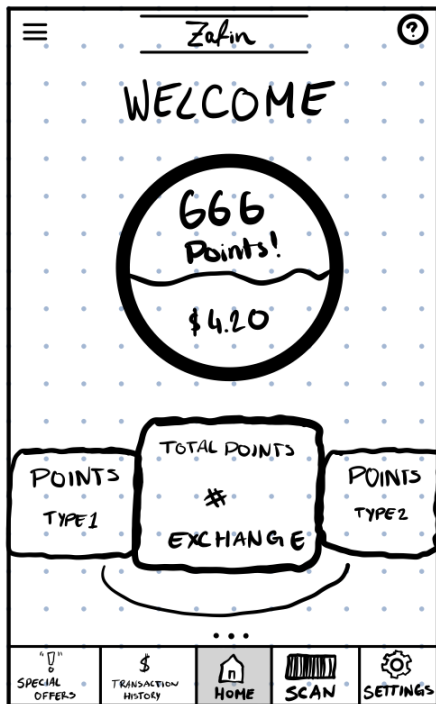
- Be able to see top profitable retail partners
- Deals from institution to companies for good profits
 - Eg. If company wants to expand, bank can give out x amount money based off the company's profitability in the program
- Ability to view customer and retailer data
- Ability to view all loyalty programs that are participating
- Ability to view all retailers participating

Partner Features

- Option for companies to send out offers to customers
- Be able to see top profitable deals
- Option for companies to keep all banking info in application
- Ability to view all customer data
- Ability to compare loyalty programs relative to their business


Final Design Concepts


Customer Subsystem



Financial Institution Subsystem

BANK

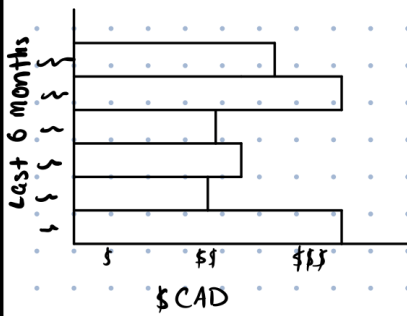


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Dashboard

Retailer points by month



Last 6 months

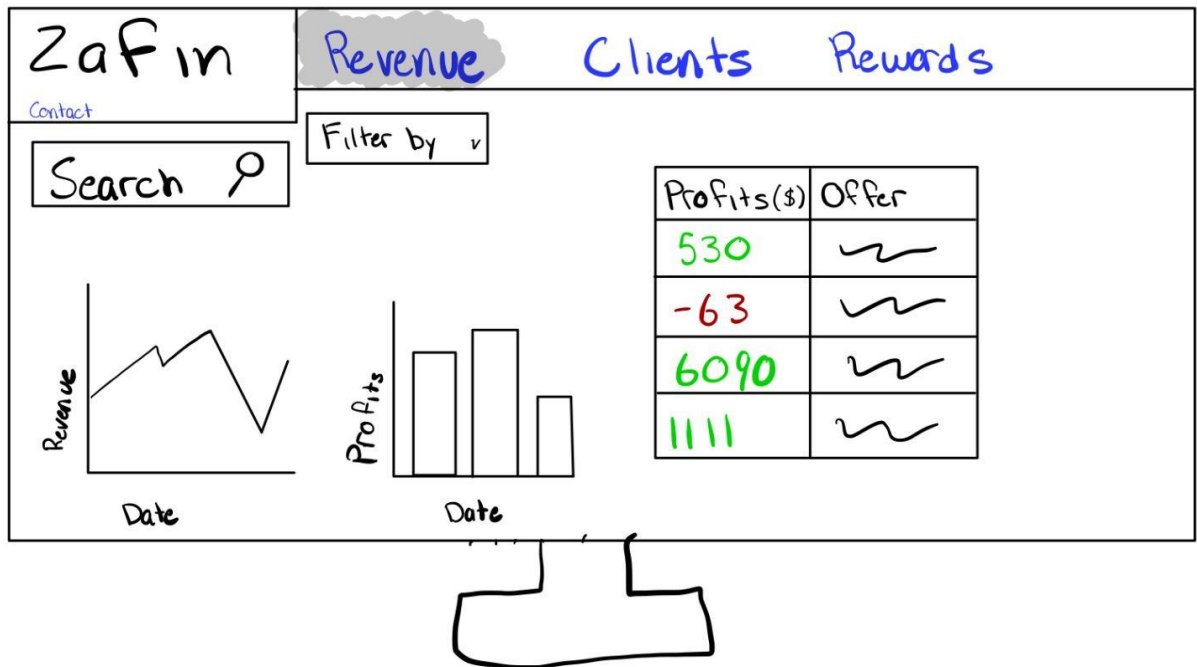
Loyalty point Exchange

+ Add Retail + Reorder

<input type="checkbox"/>	Retail	Last Price	Change	% change	Ccy	Avg Volume
<input type="checkbox"/>	AAPL	~	↑	+%	USD	~
<input type="checkbox"/>	DIS	~	+	+%	CAD	~
<input type="checkbox"/>	TSLA	~	+	+%	USD	~
<input type="checkbox"/>	L	~	-	-%	MXN	~
<input type="checkbox"/>	ENB	~	+	+%	USD	~
<input type="checkbox"/>	AMZN	~	-	-%	USD	~
<input type="checkbox"/>	BBDO	~	+	+%	CHF	~
<input type="checkbox"/>	AC	~	+	+%	CAD	~
<input type="checkbox"/>	BTE	~	-	-%	USD	~

Retailer Subsystem

Partner Design



Analysis

Design Criteria	Analysis
Inclusivity Ease of use Accessibility	Yes it seems user friendly to all team members, however we will need to test it and ask for feedback to know for sure.
Points should be expandable into different programs/markets	Yes the banks version allows for easy applications for any new retailers who want to join.
Give users more insight on their points	Yes, information on when and where points are being spent and how much at a time is readily available on application.
Security	Not yet, looking for more information from client meeting.
Inclusivity Accessibility	Yes, it is very intuitive and easy to allow new retailers who want to join to join, and allows consumers to spend their points anywhere they choose

Design Specifications	Analysis
Time	Developing something along the lines of our sketches will take a lot of time to get it into a fully working product, so team members will likely leave it as multiple subsystem prototypes and join them to show for design day.
Budget	Since we will be designing this on figma and the app is completely software related, there will not be much costs
Works on iOS, android, windows, macos etc.	Figma is mainly a browser based software which works on windows, macos, linux etc. Mirror application can be installed on ios and android devices or can be made specialized for them later down the line
Materials (Order + delivery time)	If we choose to pay for an online service to create the application, there will be no delivery time. We are still not sure what materials we may need to order, hoping to find out more after the client meeting.

Design Specifications	Analysis
Convenient user interface	Yes, does not overwhelm user
Available internationally and in different languages	Yes, will be able to change region and language in the app
Free of bugs and lag issues	Cannot verify- Product has not been made
Users supported at once	Cannot verify- Product has not been made yet. Need to check will final app and server capacity

Design Specifications	Analysis
Convert loyalty points across different platforms	Yes, loyalty points are exchangeable between all recognized loyalty rewards programs
Horizontal traceability of points and value	Yes, loyalty points will be calculated on a per dollar exchange rate
Allows all companies to join if they desire	Yes, companies will be able to submit their applications to join the program as they choose
Allow users to be able to choose what they would like to do with their points (Save, transfer, share, bank and acquire, etc...)	Yes, all the features from this list are met
User information should be private and secure	We hope to achieve this, but more information is needed from client about what data if they plan to collect data and if yes what data.

Future Client Meeting Questions

1. Do you want a separate type of point to combine all the other program points, or simply the dollar value of all points, if and when multiple programs sign on?

Conclusion

After carefully reviewing each team member's concepts, and identifying the pros and cons, we have created a prototype sketch. This prototype will be presented to the client and will receive more feedback which will be applied to future prototypes. Based on the received feedback, we are planning to use these concept sketches and create our prototypes in Figma.