

Project Deliverable D - Conceptual Design

GNG 1103 - Engineering Design

Section #A03

Team #12

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Abstract

The following is the conceptual design of Team 12 in lab section A of the GNG 1103 course at the University of Ottawa's Faculty of Engineering during the fall semester. The paper includes each team member's conceptual designs for the loyalty rewards platform subsystems generated in a team meeting on October 9th, 2021. Following the individually tailored ordinance is a synopsis of the finished conceptual design that the group decided on during a team meeting on October 13th, 2021.

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1. Introduction

Zafin is an international financial technology company. Their primary focus is providing software to banks that improves the banks' customer relations, and increases revenue. Zafin has enlisted us to create a new platform whose main goal is to democratize loyalty rewards points.

After creating subsystems, and formulating possible designs individually, these solutions were presented within the team to start a flow of ideas. The ideas were then merged to create one design for each subsystem. This was completed by comparing each idea in a priority matrix, and discussing which parts of each design work well, and which could create issues. The best parts of each design concept were taken and created three final design solutions; one for each subsystem.

After the second meeting with Zafin, clarification on certain unknown aspects was obtained that will allow a further refinement of the scope of the project, and feedback was received on the three design solutions presented.

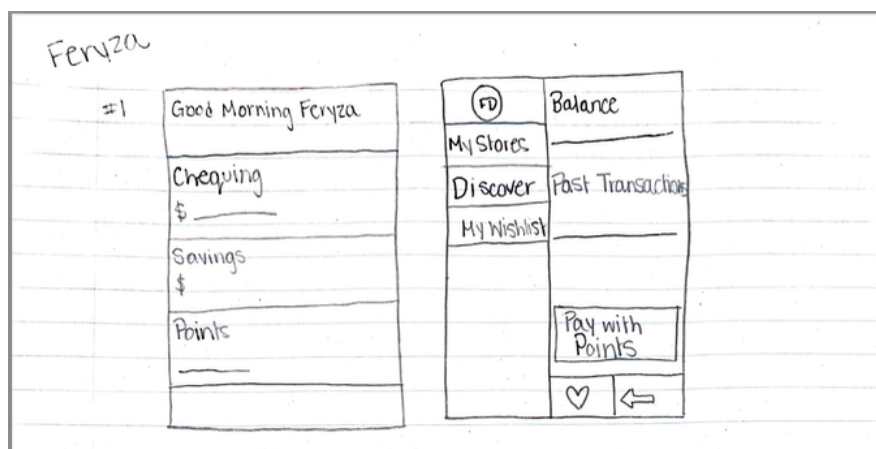
2. Subsystems and Individualized Conceptual Designs

2.1. End-User Interface

2.1.1. Concept 1 - Feryza Damji

Features:

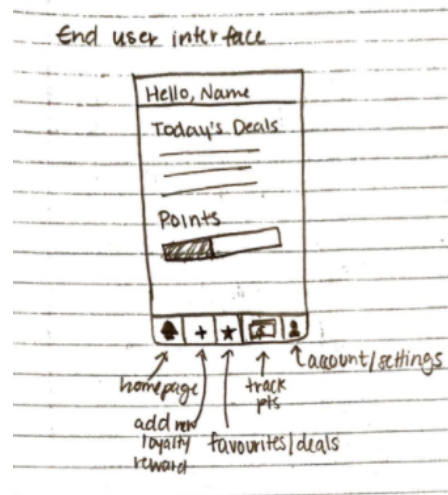
- Adding a section in an existing bank app.
- Connection to Apple pay.
- "My Stores" Tab that shows stores that customers frequently shop at (with or without points).
- Bank shows up as the first store and that's where users can click to use points for bank stuff.
- "Discover" Tab that has deals, emphasizing stores that they usually shop at, like a flyer.
- Section for saved items, coupons.
- Shareable wishlist under "My Wishlist" Tab.



2.1.2. Concept 2 - Katrine Labonte

Features:

- Homepage that displays customer's name, today's deals, points total.
- Adding a loyalty reward section.
- Favourites/deals tab.
- Points tracker tab
 - Including efficiency with which points are being used
- Account/settings tab.

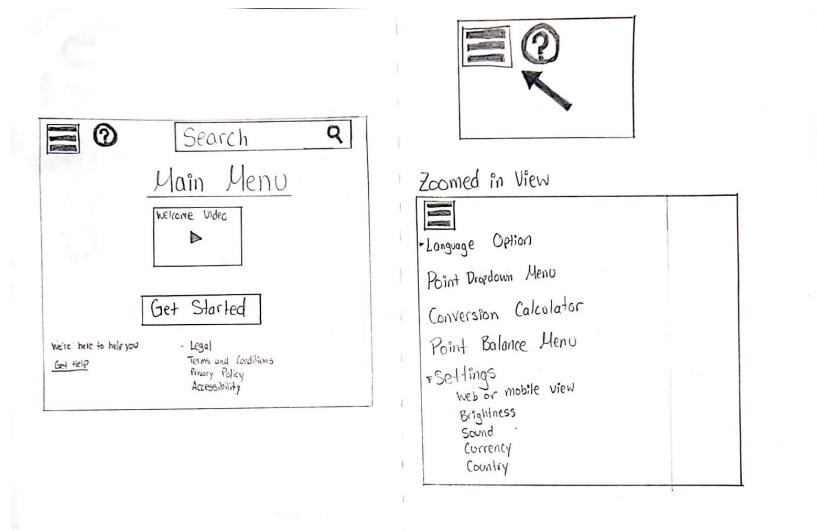


2.1.3. Concept 3 - Anissa Millington

Features:

- Language option: for users in different countries to be able to get their information translated into a language they are comfortable with.
- Points dropdown menu: for users to find which reward points they want to access in one area.
- Conversion calculator: for users to get the conversions from one point system to another or currency.
- Point balance dropdown menu: for users to see their balance for each reward system.
- Main menu and welcome video: an introduction video.
- Get Started: a get started button which will redirect them to a page where they can start setting up their account and points systems.
- Search engine: for users to search anything they want to find easily and information they want to look into.
- Help button: to redirect the user to an frequently asked questions page (FAQ) as well as online chat service to help them and numbers they can call to get help.
- Legal dropdown menu: for users to get all the legal information.

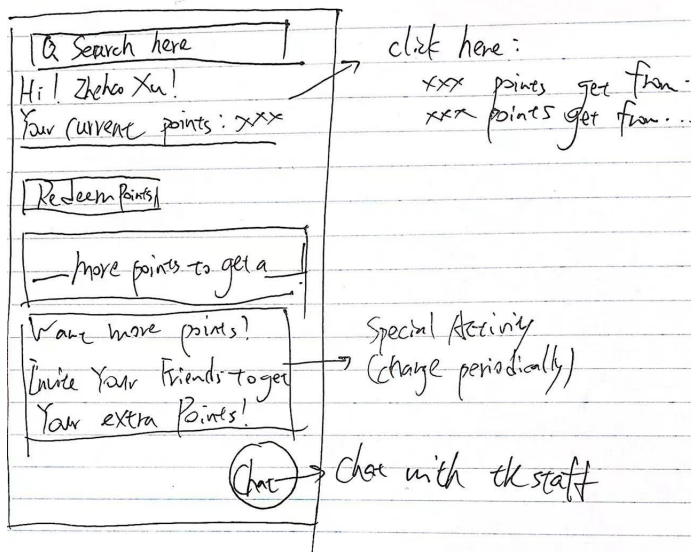
- Settings: for a better view depending on what device a user is using, adjusting the brightness and sound the user will have for the platform, currency setting so that the user can get their conversions for the country they live in, and country setting so that the user can see what point systems are available in their country and any related information pertaining to their country.
 - Web or mobile view
 - Brightness
 - Sound settings
 - Currency
 - Country



2.1.4. Concept 4 - Zhehao Xu

Features:

- Have a search engine on the top for customers to search for the information they want.
- A list shows customers' points collection and where and when they get these points.(and the amount of money saved from redeeming all points).
- “Points Redeem” section for customers to easily redeem their points.
- Good-looking interface.
- Recommended items for customers to redeem (based on bank data analysis of each customer's consumption), or like “get ____ more points in order to redeem ____” to encourage customers to get more points
- A section for customers to get extra points by participating in some special activity (these activities change periodically)
 - E.g customers can invite others to join in the loyalty program, and both of them can get some bonus points.
- “Chat” tab on the right corner allows customers to chat with customer service staff easily.

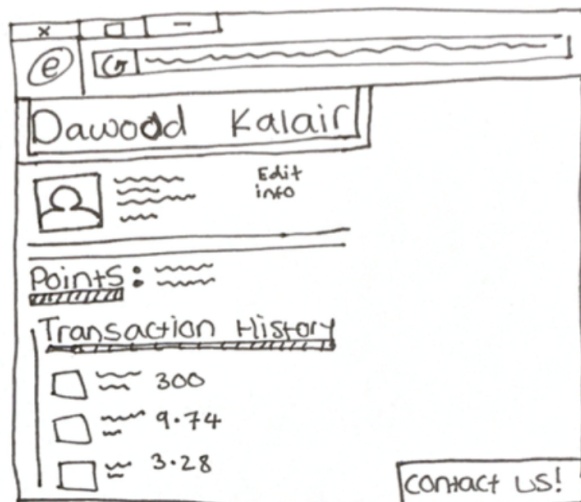


2.1.5. Concept 5 - Dawood Kalair

Features:

Create a website/app that allows for easy navigation and is designed to be accommodating for all target audiences. The interface is equipped with a colourful and appealing aesthetic to attract the prioritized younger audience. This can be made through a website creator or through coding.

- Simplistic website with welcoming page
- Name in corner
- User information under name (can be edited but password must be entered)
- Information on the user's points
- 'Get help' tab for customer service
- Transaction history with details

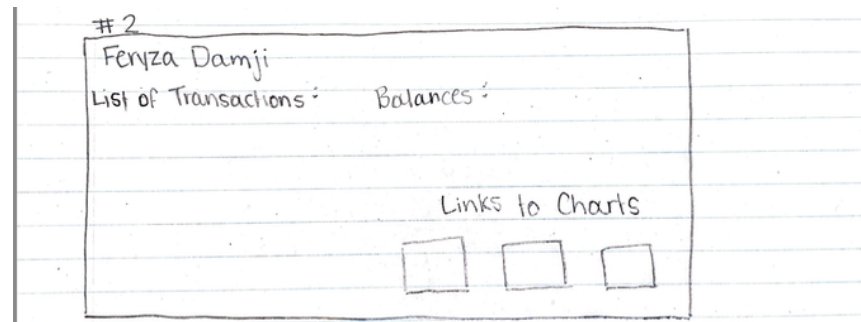


2.2. Bank Data Analysis

2.2.1. Concept 1 - Feryza Damji

Features:

- For the Customer:
 - Every client has a points account set up by default.
 - Whenever a client spends points, that will be registered and remembered the same as a normal transaction.
 - Whenever a client uses points to pay off a credit card it shows up as “Thank you, Point Received”.
 - Transactions made will be stored (via coding) into 3 charts (general, what store/type of store, what demographic is the client) so that they can curate deals and ads and app notifications.
- For the Vendor:
 - Transactions made within each store will be saved as part of a chart that is connected to the store's business bank account.
 - Vendors that bring in lots of points will get rebates on insurance, something useful to their business in return.



2.2.2. Concept 2 - Katrine Labonte

Features:

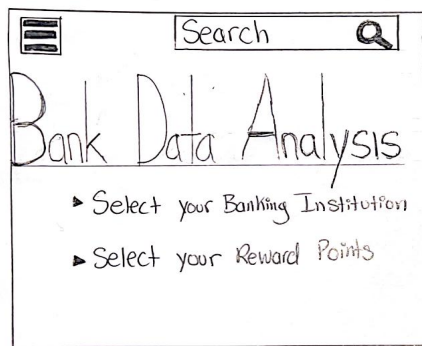
- Homepage with bank name, programs, customers, points redeemed, and points collected.
- Value settings tab.
- Add new partners tab.
- Stores tab.
- Settings tab.



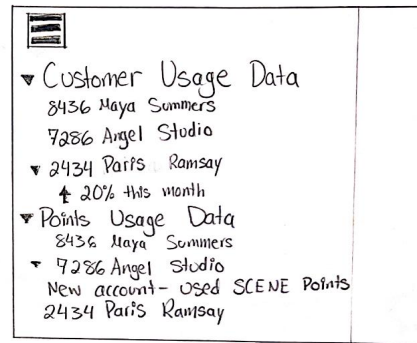
2.2.3. Concept 3 - Anissa Millington

Features:

- Customer usage data: for banks to see how often customers are using the platform.
- Points usage data: for banks to see how often customers are using their points.



Zoomed in View



2.2.4. Concept 4 - Zhehao Xu

Features:

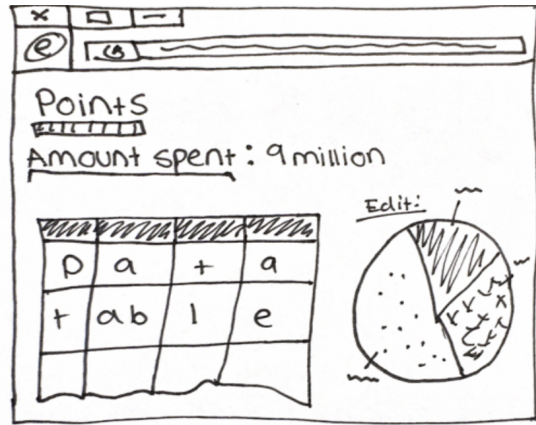
- Customer's consumption custom data analysis: Observe how and where customers spend their money, and how much money customers can afford on purchasing.
- Security check: see if the money is safe or not.
- Can see customers' interaction/feedback to a loyalty program and can update or present new loyalty program solutions.

2.2.5. Concept 5 - Dawood Kalair

Design a sort of data interpreter that is sorted neatly and accessible in order to perform safe and proper analysis of the data recorded through the user. This can be done by creating a table in which the data is neatly inputted and sorted using code or excel using formulas or organizing methods (charts).

- Website application
- Points information display
- Spending amount display
- Organized data in tables
- Data from tables can be translated into different formats of charts

- Charts can be changed to the banker's preference using the edit function

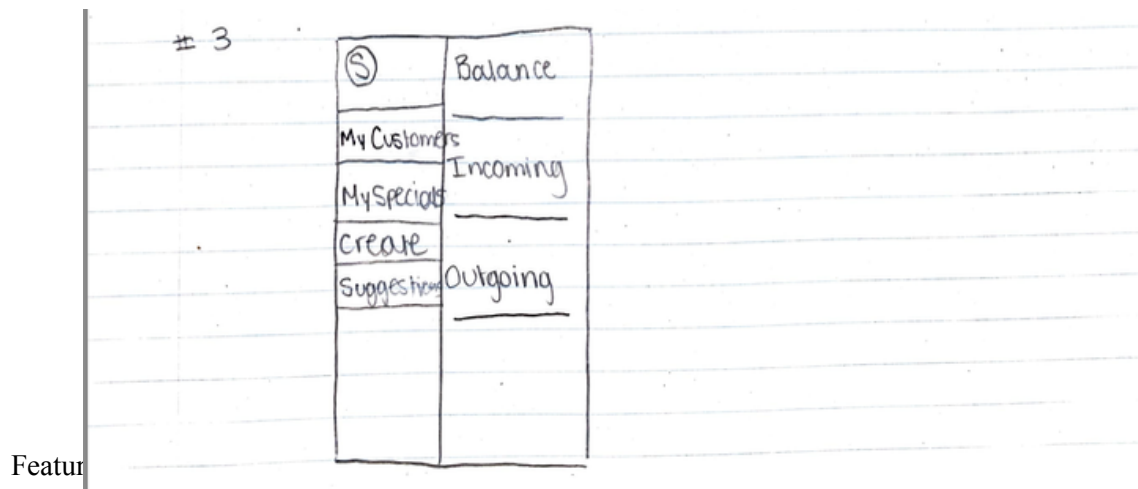


2.3. Vendor Interface

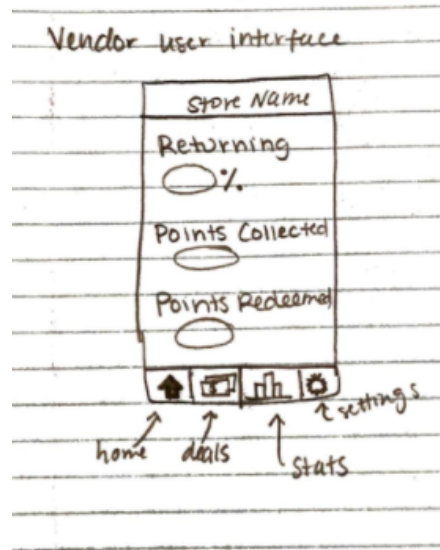
2.3.1. Concept 1 - Feryza Damji

Features:

- Through the business accounts' bank app.
- "My Customers" Tab to see what points are coming in to buy what things.
- "My Specials" Tab to see the store's existing and upcoming specials, how many people have used them.
- Smaller vendors will have a "Create" tab where they can create specials and set a date for them, but they have to be approved by the bank first.
- Curated "Suggestions" based on specials that would make the most profit (pre-approved by bank, just set dates and it's all done) (based on an algorithm).



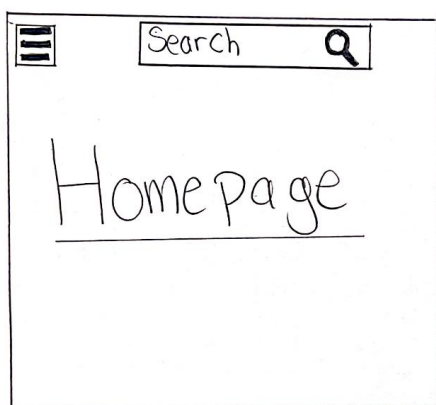
- Homepage with store name, percent of customers returning, points collected, points redeemed.
- A tab where deals can be found.
- Statistics tab
 - Including efficiency stats
- Settings tab.



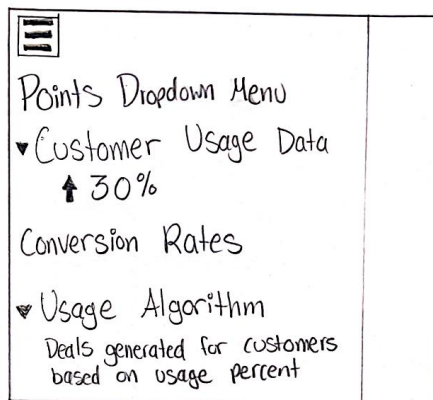
2.3.3. Concept 3 - Anissa Millington

Features:

- Points dropdown menu: for stores to see all the reward systems available in the platform (stores only have access to the reward system they use).
- Customer usage data (consensus): to help stores see how often their customers are using the platform and their points (stores only see the percent and if it increased or decreased).
- Conversion rates: for stores to see the rates their customers are getting (so that stores can let their customers know the rates and give them deals).
- Usage algorithm - generate deals to send to customers.



Zoomed in View



2.3.4. *Concept 4 - Zhehao Xu*

Features:

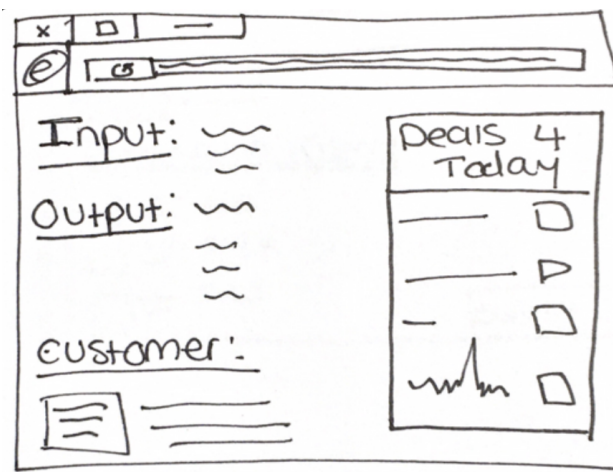
- Can see how many customers purchased in their stores and how much money points they redeemed from that.
- Observe customers' payment (google pay/apple pay) to let them figure out some ways to attract more customers.
- See feedback to allow them to promote their goods.

2.3.5. *Concept 5 - Dawood Kalair*

Features:

Another website/app that is designed to regulate all of the data and important aspects of the loyalty rewards. This may include the vendors being able to sort out the details of their loyalty rewards programs. The fluid transfer of points from one platform to another can be done through this interface. It can be created through the use of coding or accommodating websites to aid in design without using direct coding language.

- Website application with descriptive details
- Points spending input information
- Points spending output information
- Customer spending stats for that transaction
- Chart with deals for the specific time period



3. Priority Matrix

The evaluation is based on the weight multiplied by a scale of 1-3; 1-red (not great), 2-yellow (decent), 3-green (good).

Priority based on the following scale:

- 5 - Criteria satisfaction is critical
- 4 - Criteria satisfaction is highly desirable
- 3 - Criteria satisfaction would be nice, but not necessary
- 2 - Criteria satisfaction is not important
- 1 - Criteria satisfaction is undesirable

Concept Options						
Selection Criteria	Weight	Concept 1	Concept 2	Concept 3	Concept 4	Concept 5
Security Protocols	5	1	1	2	3	1
Working execution of the program	4	3	3	3	3	3
Software Protocols *	4	2	2	2	1	1
Integration Software	4	3	2	2	3	2
Cost (\$)	3	3	3	3	3	3
Calculation and Conversion System	4	1	3	3	3	1
Interface Design Protocol	3	3	3	3	3	3
Institution Protocol	3	3	3	3	3	3
Total Score		68	72	77	82	60

4. Finalized Conceptual Design

Analysis

After an exhaustive analysis the team decided to incorporate a coalescence of the ideas from concepts 2, concepts 3, and concepts 4. These concepts focus on the features that will allow the team to construct a platform that will seamlessly integrate loyalty reward programs into one platform and allow the customers to have a frictionless encounter when they redeem their points through a myriad of options. Subsequently, after further deliberation as a team it was decided to incorporate the best ideas from each concept to develop the finalized conceptual design.

4.1. End-User Interface

It was decided that when the application is opened, the first thing that will appear is the login page and after when the login is successful the homepage will open and the customer will see a search engine at the top right hand corner, a help icon, a virtual chat for help or suggestions, the stores that the customer has selected as their favourites, the point balance of the customer, the deals available for the customer that day, the amount of points they have and need to complete a milestone, as well as an account/setting icon. In the left hand corner of the website or app there will be a dropdown menu that includes a conversion calculator, a contact us link, adding a new loyalty program, linking accounts and referrals, a points tracker along with suggestions for effective spending, along with a section for past transactions.

4.2. Bank Data Analysis

For the bank data analysis, it was decided to create a website personalized to each individual bank. All information will be sent here and then sorted. Within this system, transactions involving points will be treated the same as money transactions. This includes the same security and fraud detection, and the same record keeping for transactions. There is also a place to set values for points, and one to add new loyalty programs or alter existing programs. A statistics tab is present as well, which shows statistics per vendor and per customer. The vendors will have access to their demographics. The customers' information will be a part of their personal bank profiles and accessible from there. The vendors' statistics will include their demographics, percentage of returning customers, and a points overview. The customers' statistics will include top vendors, the top way that points were received and redeemed, and amount of points collected and redeemed.

4.3. Vendor Interface

For the vendor interface, it was decided to create a website where vendors can have early access to upcoming deals involving their store(s), and their stores' sales statistics that involve points. This includes the percentage of returning points shoppers, the amount of points collected through sales, the amount of points redeemed at their store, and the number of users that are affiliated with the points program.

5. Conclusion

To conclude, the final design for solution 1 will be a page integrated into the bank's applications/websites. It will include various customer service features, and keep track of past transactions. The final design for solution 2 will be a website for the banks' internal use, where incoming customer data will be sorted and evaluated. The final design for solution 3 will be a website for the vendors, where they can access upcoming deals and sales statistics.

The feedback obtained from the second meeting with Zafin will be used to augment the designs as necessary.