

Project Deliverable H: Prototype III and Customer Feedback

GNG 1103 - Engineering Design

Section #A03

Team #12

Feryza Damji, Katrine Labonte, Anissa Millington, Zhehao Xu, Dawood Kalair

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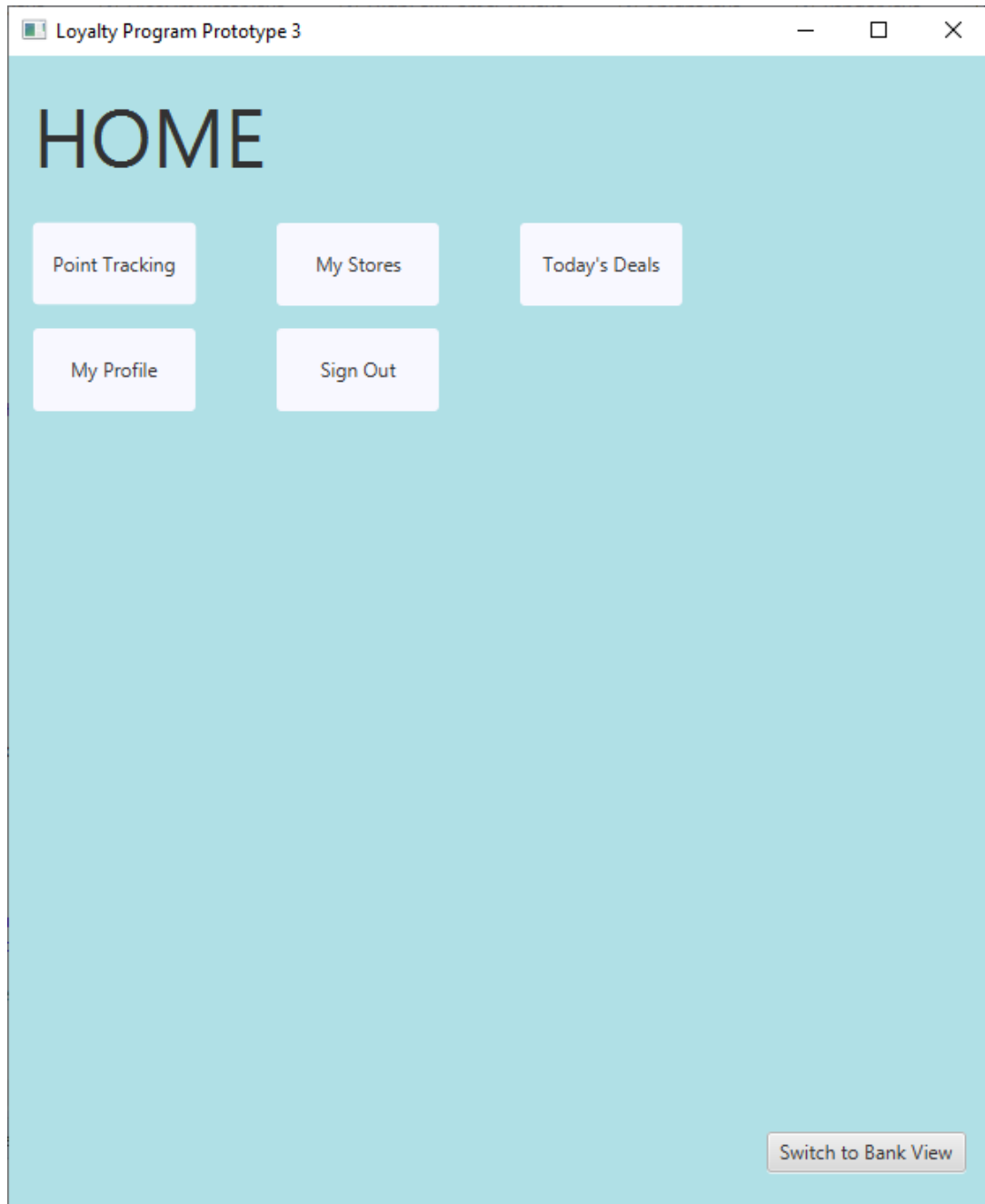
Faculty of Engineering

University of Ottawa

## Introduction

Prototyping is the most crucial aspect of the design process. It allows for trial and error, while providing ample customer and supervisor feedback. The primary focus of the third deliverable is adding functionality to our pre-existing designs. This prototype will include all three subsystems, and their unification into our final product. This deliverable will provide a deeper understanding of our third prototype. It will discuss its creation based on feedback from the first and second prototypes, the testing plan and analysis for the third prototype, and a task breakdown of this prototype.

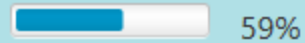
## Prototype 3



Current Point Balance

2600.0

Efficiency



Improve Efficiency

Points Collected

10000.0

Points Redeemed

7500.0

Transaction History

200 points  
Redeemed at Walmart  
Date Redeemed: November 20th, 2021

386 points  
Collected at Sephora  
Date Collected: November 16th, 2021

194 points  
Redeemed at Sephora  
Date Redeemed: November 5th, 2021

Back to Homepage

Switch to Bank View

### Today's Deals

Sephora: 50% Off Purchases of 100\$ and more!

Valid: Nov 21, 2021 to Nov 27, 2021

Walmart: Earn 2x points ONE DAY ONLY EVENT!

Valid: Nov 26th, 2021

PC Optimum: Points are worth triple their normal values THIS WEEK ONLY!

Valid: Nov 28, 2021 to Dec 4, 2021


[Back to Homepage](#)

[Switch to Bank View](#)



Loyalty Program Prototype 3



Rebecca Oakley

Home

Conversion Calculator

Point Tracking

Add a Store

Milestones

Settings

Legal

Contact Us

Sign Out

Switch to Bank View

Loyalty Program Prototype 3

Convert

Walmart

to

Sephora

This is equivalent to: 400.0 Sephora points

Convert

Back to Homepage

Switch to Bank View

### Prototype Testing Analysis

Our specific test's purpose was to acquire a critical proof of concept for our method. This will allow us to see our concept as a whole and discover any challenges we may have ignored earlier and how

they were resolved. This would also serve as a basis for us to see the results of our improved prototypes and see if we overlooked anything.

The purpose of this prototype test is to examine the system integration of constructing an app and a website, as well as generating a seamless customer experience. We ensured that the interface was simple to use during the prototyping process and included whatever the client instructed and what the customer would want.

This prototype assists the customer and us in identifying any weaknesses in the concept so that they may be addressed. This prototype also allows us to display the user the final product of our idea, allowing for more precise and meaningful feedback.

Our prototypes should provide three categories of results: "Good," "To Be Improved," and "Bad." The best results are outstanding, perform as expected, and can be maintained. The "To be Improved" outcomes are those that can be improved with our knowledge and talents so that they can function as intended. The negative consequences are those that can't be changed or improved and must be discarded and remade in order to work correctly.

This data will aid us in determining which features of the prototype require improvement for it to be helpful and which areas must be redesigned entirely since progress is unachievable. Overall, these will allow us to guarantee that our final prototype is as practical and realistic as possible. The prototype's ultimate outcome is a fully functional app that shows clients what their experience would be like using our app, depicting an easy-to-use software with a frictionless encounter.

**Table 1: Summary of Prototype III Testing**

<b>Test ID</b>	<b>Test Objective (Why?)</b>	<b>Description of Prototype used and of Basic Test Method (What)</b>	<b>Description of Results to be Recorded and how these results will be used (How)</b>	<b>Estimated Test duration and planned start date (When)</b>
3a	Integrate functionality for user interface (point efficiency)  Analyzing system integration	High fidelity, test with entering false data to see if code is accurate	Check if results are accurate and how efficient the code is (run time)  Used to verify the functionality of code and increase code efficiency (decrease wait times)	2-3 days  November 14
3b	Integrate	Medium high fidelity,	Check if results are	2-3 days

	functionality for user interface (point tracking inventory)  Analyzing system integration	test with entering false data to see if code is accurate	accurate and how efficient the code is (run time)  Used to verify the functionality of code and increase code efficiency (decrease wait times)	November 12
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## Client and User Feedback

We gathered feedback from a computer programmer and the Zafin team. After creating prototype III with the coding for point democratization and point use efficiency to implement into the app for the user interface and the website for the bank interface. The point use efficiency algorithm was implemented into JavaFX to make it a fully operational code. We asked if the code would be well-functioning if the coding language used were correct and any errors. We received feedback that the code had no mistakes and would be fully functional. However, the coding language had to be changed from Java to JavaFX. Other than that, the code corresponded to the criteria for the subsystem. After further analysis of the code for point democratization was completed, the feedback given was that once it was finalized and the variables were assigned values, the code would be efficient and running. Additionally, the implemented functions continue to output accurate results when data is manually fed into the algorithm. Thus the feasibility of the code has been thoroughly inspected and approved.

Furthermore, the feedback we received from the client was that the designs and concepts we created were good, and they admired the direction we were going in. We were also able to improve prototype II using the feedback we received and implemented it into prototype III, which has been demonstrated in the finalized prototype design.

## Detailed Design

After receiving further feedback from users and the client as well as running more tests, we integrated all of our previous prototypes into the finalized prototype to make it fully functional. The following are the statistics compilations that resulted:

- **Subsystem 1.1: For the End-User Interface (Application):**
  - Have a successful login page
  - A home page
  - A search engine at the top right corner
  - A help icon
  - A chat tab for customer to get information
  - 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
  - an account/setting icon
  - a dropdown menu in the left hand corner:



- ❖ a conversion calculator
- ❖ a contact us link
- ❖ adding a new loyalty program
- ❖ linking accounts and referrals
- ❖ a points tracker
- ❖ suggestions for effective spending
- ❖ a section for past transactions

- **Subsystem 1.2: For the Bank Data Analysis Interface (Website):**

- Section for transacting points
- A secured place to store transaction records
- A place to set values for points
- A place to add new loyalty programs or alter existing programs
- Demographics show customers' information
- A statistics tab that shows statistics per vendor and per customer
- The vendors' statistics includes:
  - ❖ Demographics
  - ❖ Percentage of returning customers
  - ❖ A points overview
- The customers statics includes:
  - ❖ Top vendors
  - ❖ The top way that points were received and redeemed
  - ❖ Amount of points collected and redeemed.

- **Subsystem 1.3: For the Vendor Interface (Website):**

- Have early access to upcoming deals involving their store(s)
- Have access to their stores' sales statistics that involve points
- Stores' sales statistics include:
  - ❖ Percentage of returning points shoppers
  - ❖ The amount of points collected through sales
  - ❖ The amount of points redeemed at their store
  - ❖ The number of users that are affiliated with the points program

- **Subsystem 2: Point Democratization**

- Assign respective values to each organization's loyalty points
- Convert all organization's points to a neutral point system
- Ability to assign point value based on predetermined factors
  - ❖ Organization size
  - ❖ Customer demographic
  - ❖ Bank demographic
- Convert points from one loyalty program to another

- Convert points into a value for real life currency respective to each country

- **Subsystem 3: Point Use Efficiency**

**Definition:**

- the ratio of the points spent to the points earned+current balance
- anything over 0.5 is efficient
- anything under 0.5 is not efficient

**To promote point use efficiency:**

- reminder :
  - if under 0.5 then reminder once a week
  - if under 0.2 then reminder twice a week
- Provide user with efficient spending advice
- Display a variety of recommended products/services to spend points on
- Ability to analyze customer data and advertise products accordingly
- Invent incentives to avoid point hoarding
  - ❖ Point expiry dates
  - ❖ Promotional events
  - ❖ Discounts
  - ❖ Persuasion through product/service advertising
- Deals offering
- Offer rewards as listed in the previously illustration of point use efficiency
- Point promotions (seasonal x2 earning events)
- Product/service advertising relative to current customer point balance

## **Target Specifications**

Zafin is a worldwide financial technology company with offices all over the world. Their main goal is to provide banks with software that improves client relationships and increases revenue. Zafin has asked for our assistance in creating a new platform with the goal of democratizing loyalty rewards points. From examining the goal requirements, the design criteria needed to fulfil the client's demands and priorities. We will create and improve our prototypes using the design criteria and goal specifications that we specified. To guarantee that our prototypes satisfy the client's expectations and what they stressed in our meetings, we included each design criteria into our prototypes.

## **Bill of Materials**

**Table 2: Bill of Materials**

Item Number	Item Name and Description	Quantity	Unit Price	Amount
1	Powerapps:	1	\$0	\$0
2	Javafx:	1	\$0	\$0
3	Figma:	1	\$0	\$0
4	Moqups:	1	\$0	\$0
5	PC/Mac:	1 (per person)	\$0 (previously owned)	\$0
6	Excel:	1	\$0	\$0
7	Mouse	1 (per person)	\$0 (previously owned)	\$0
8	Wix:	1	\$0	\$0
9	Canva:	1	\$0	\$0
10	Lucid:	1	\$0	\$0

The BOM showcases all of the potentially usable apparatus our group plans to utilize to bring our project plans into reality (may be modified in the future). This list includes many software and hardware that will be of significant use in the engineering process of our prototypes. The resources and their uses include:

**Powerapps** is a microsoft software that allows you to use a large variety of business apps to construct an application tending to your needs. This can be used to add functionality to our prototypes as well as design user interfaces with the respective features our subsystems entail.

**Javafx** is a developer platform that can be utilized in order to create a software or application. This is done through the means of coding. Javafx can be used to code and add functionality to our features that adhere to our project plans. This application will be relied on in the creation of the second prototype.

**Figma** is a website which allows for many prototype configurations through the means of simple graphic design. This will be useful for the second and third prototype construction process due to the aesthetic and functional aid it can provide us with. Figma can be used to create an outline or a goal and potentially even a final product if it adheres to our wants and needs.

**Moqups** is a tool used to aid in collaborative efforts. This can be used to make diagrams or visuals crucial in helping the engineering process of our prototypes. Moqups may be used in the first prototype process due to the visual aid aspect that it can provide us with. This will allow the team members to have an easier to follow linear path in creating a finished product.

**PC/Mac** is a piece of hardware necessary for everything relating to this project. This is a requirement for each group member.

**Excel** is a microsoft software that allows you to create spreadsheets for storing data or formulating values. This can be used by the group to create displays for each data type whilst working on the subsystems adhering to banking and vendor interfaces. Data displays are crucial and a part of our design as of currently.

**Mouse** is a piece of hardware which is not necessary, however it may greatly aid in the creation of a proper prototype due to the advantages it may provide. This hardware is simply for the quality of life aspect for the group members to explore if they wish.

**Wix** is a tool used to create websites. It helps the group to create the prototypes of websites for the banks to use internally. It has several functions which are useful to create an ideal website.

**Canva** is a graphic design platform, used to create social media graphics, presentations, posters, documents and other visual content. It helps the group to create the prototype's interface and presentations.

**Lucid** is an online software that allows the user to create descriptive and detailed flow charts displaying a numerous variety of different information. Lucid will be used to create one of the flowcharts that will display the efficiency aspect of the program and user spending for the submission of the first prototype.

The links to each of the listed materials in the BOM include:

- ❖ Powerapps
  - <https://powerapps.microsoft.com/en-us> (Free Through University)
- ❖ Javafx
  - <https://openjfx.io> (Free of Charge)
- ❖ Figma
  - <https://www.figma.com> (Free of Charge)
- ❖ Moqups
  - <https://moqups.com> (Free of Charge)
- ❖ PC/Mac
  - (Previously Owned Product)
- ❖ Excel
  - <https://www.microsoft.com/en-us/microsoft-365/excel> (Free Through University)
- ❖ Mouse

- (Previously Owned Product)
- ❖ Wix
  - <https://www.wix.com> (Free of Charge)
- ❖ Canva
  - <https://www.canva.com> (Free of Charge)
- ❖ Lucid
  - <https://lucidchart.com> (Free Signup)

## Project Plan

### Tasks Breakdown

**Table 3: Tasks Breakdown**

Prototype	Tasks	Time Estimate	Start Date	Target Date	Dependencies	Owner
Prototype I	Divide the concepts equally	1 hour		Oct 24	N/A	All
	Learn more about Powerapps and Javafx	2 days		Oct 27	N/A	All
	Integrate ideas for subsystem 1: User Interface	1 week		Nov 3	Learn more about Powerapps and Javafx	Anissa Feryza
	Integrate ideas for subsystem 2: Point Democratization	1 week		Nov 3	Learn more about Powerapps and Javafx	Kat
	Integrate ideas for subsystem 3: Point Use Efficiency	1 week		Nov 3	Learn more about Powerapps and Javafx	Feryza Anissa Paul Dawood
	<b>Customer Feedback and questions for Prototype I</b>	3 hours		Nov 5	Integrate ideas for subsystem 1, 2, and 3 : User Interfaces	All
Prototype II	Use Feedback to update Prototype I	2-3 hours	Nov 3	Nov 5	Customer Feedback and questions for Prototype I	All

	Adding Functionality to Prototype I	5 days	Nov 5	Nov 10	Use Feedback to update Prototype I	All*
	Update detailed design and BOM	5 minutes	Nov 11	Nov 11	Customer Feedback and questions for Prototype I	Dawood Paul
	Prototype II Finalization	1-2 hours	Nov 10	Nov 11	Adding Functionality to Prototype I	All*
	Gather Feedback and Comments on Prototype II	3 hours	Nov 11	Nov 15	Prototype II Finalization	All
Prototype III	Use Feedback to update Prototype II	2-3 hours	Nov 15	Nov 20	Gather Feedback and Comments on Prototype II	All*
	Refining the functionality for Prototype II	4 days	Nov 20	Nov 24	Use Feedback to update Prototype II	All*
	Getting users feedback on Prototype III	2 days	Nov 24	Nov 26	Refining the functionality for Prototype II	All
	Prototype III Finalization	1-2 hours	Nov 26	Nov 26	Getting users feedback on Prototype III	All*
	Improve the aesthetic of the design	1 day	Nov 27	Nov 28	Customer Feedback and questions for Prototype I	All*
	Integration of Prototypes into Presentation	1 hour	Nov 28	Nov 28	Prototype III Finalization	All*
	Presentation/Visual Aid Design/Aesthetic	2 hours	Nov 28	Nov 28	N/A	Kat Anissa Feryza
	Design Day Presentation Rehearsals	1 day	Nov 29	Nov 30	Presentation/Visual Aid Design/Aesthetic  Integration of Prototypes into Presentation	All

### **Tasks Breakdown Change Analysis**

There was a change of ownership of Subsystem 3: Point Use Efficiency. As Paul and Dawood had no experience in coding, the ownership went to Anissa and Feryza because they had some knowledge of coding and were willing to do further research so that most of the coding didn't fall on Katrine. The change in ownership occurred during the second prototype, which was the algorithm and will continue until the end of the project. Paul and Dawood designed the flowchart for the first prototype, and Anissa and Feryza did the algorithm and code for the second and third prototypes.

### **Prototype III (High fidelity fully functioning prototype)**

For prototype 3, using the newly obtained feedback, we will analyze the comments we have received and yet again add or modify some features in our program with respect to our clients' wants and needs. A series of updates will be performed on our prototype to make sure it is fit to be our final product. After the modifications, a process of refinement will be conducted in order to ensure that the functionality previously integrated into prototype 2's construction is working and is easy to use for the entirety of our target audience. Next, the refined prototype will be used to interview and obtain feedback from sources other than our clients. This feedback will then serve as another source of ideas for further refinement and finalization. Once the product's functionality and criteria have been met, the aesthetic aspect of the prototype will be addressed and modified for viewing pleasure and to act as a sort of hook for the target audiences. All of the prototypes' features are compiled into this final product, so to present this as our grand final outcome, this prototype will be accompanied by a presentation slide show allowing us to explain our product in a fluid and proper fashion. Once that has been done and rehearsed the final prototype is ready for presentation on design day.

### **Conclusion**

A prototype is a model used to test the functionality of a design before moving forward. With this high fidelity prototype, our client will be able to see and engage with a working model of the project, while providing comments, requesting project adjustments, and changing model specifications. As seen above, we have been able to abide by our detailed design, target specifications, and bill of materials throughout the prototyping process. This is the final prototype of this design. The main purpose of this prototype was to unify the three subsystems into one product, as well as add functionality and make our final product more aesthetic.