

GNG 1103

Design Project User and Product Manual

The Hakuna Matata Wallet

Submitted by:

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December 8, 2021

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1 Introduction

This User and Product Manual (UPM) provides the information necessary for <types of users> to use The Hakuna Matata Wallet effectively and for prototype documentation.

This document has been separated into multiple sections for easy access to the critical details necessary to implement this model. The beginning section details the importance of The Hakuna Matata Wallet, as well as preliminary cautions and warnings.

The next section shows the user how to access the system. This includes the setup process, and its considerations.

The following section dives deeper into using each function and feature of The Hakuna Matata Wallet. It teaches the user the importance of each function and feature as well.

The next section contains guidelines for optimal performance. If the user or the client runs into any issues regarding the application's operation, this is the section they can refer to. Since this is a software based product, there are troubleshooting and bug fixes that the client, user or reproducer can find in this section.

The following section discusses all of the product documentation, including all required materials and their respective costs, and a comprehensive list of instructions.

The last section details the potential for future work on this product, if a reproducer or the client themselves wish to do so.

2 Overview

At the beginning of September 2021, we were contacted by the executive team at Zafin to create this product for them. Zafin is a financial technology company whose goal is to “make banks more agile and efficient than ever before, enabling innovative experiences that improve the lives of customers”.

The concept of loyalty rewards programs has been around for decades. They are successful because they “reduce servicing costs, [decrease] price sensitivity, [increase] spending, and favorable recommendations passed on to other potential customers by loyal buyers” (Grahame 1997). However they also cause “first-or second-year customers to behave like a company’s most profitable tenth-year customers”. Loyalty rewards provide an extra incentive for the customer to spend more (Harvard 2014).

With an ever-increasing popularity of loyalty rewards programs, customers are struggling to keep up with all of them. It has become inconvenient for customers to use loyalty rewards because every single rewards program has its own physical card or phone app. As a solution, the Hakuna Matata Wallet will serve as a single place where every loyalty program can thrive.

The Hakuna Matata Wallet is a unique solution that is mutually beneficial to all parties involved. Our algorithm allows for the banks to change the evaluation of different vendors’ points based on criteria that they can control. The end users’ usage efficiency can be calculated, and the bank can send users reminders based on their spending. The end users will also receive targeted deals based on their past spending.

Figure 1.1

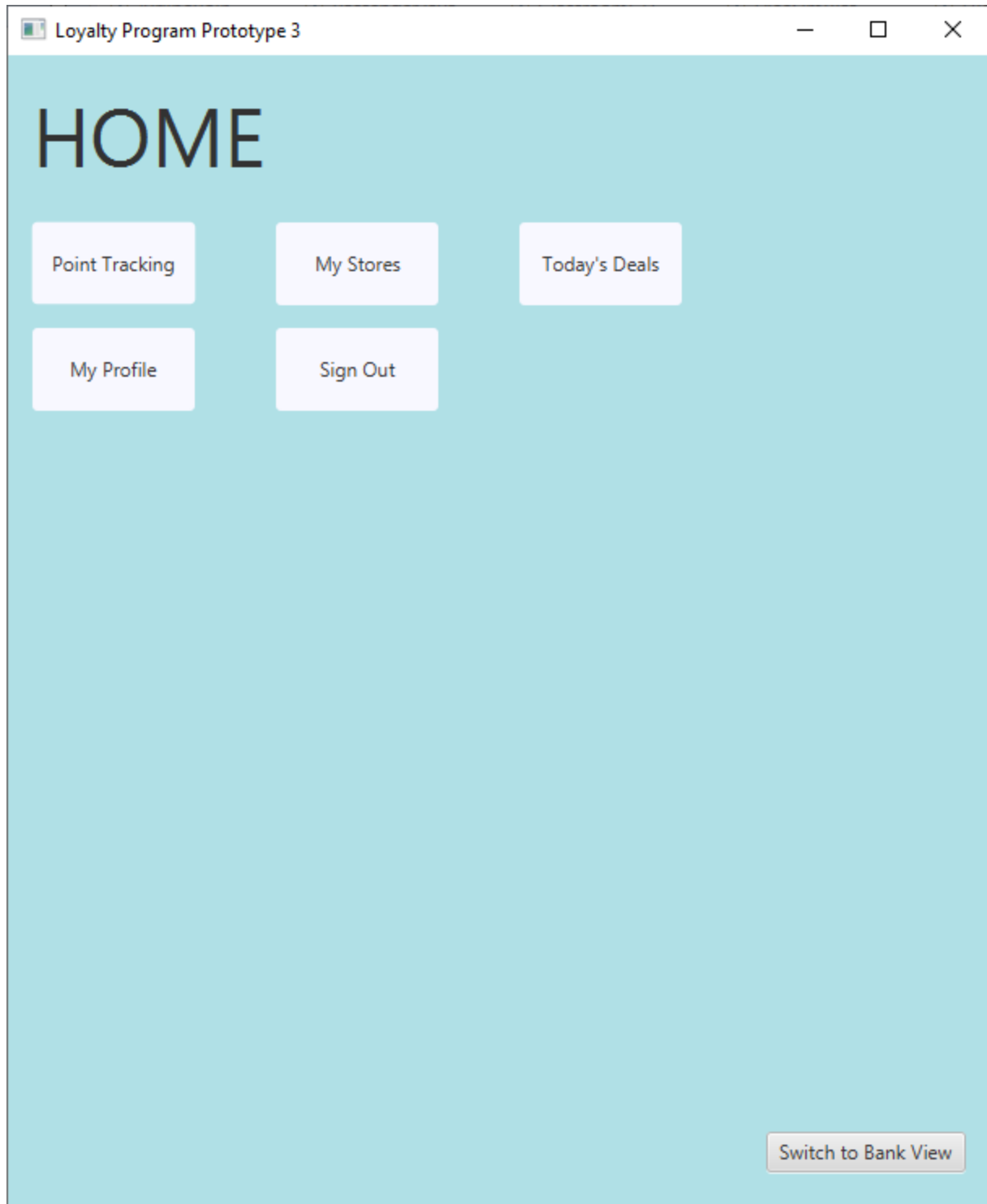


Figure 1.2

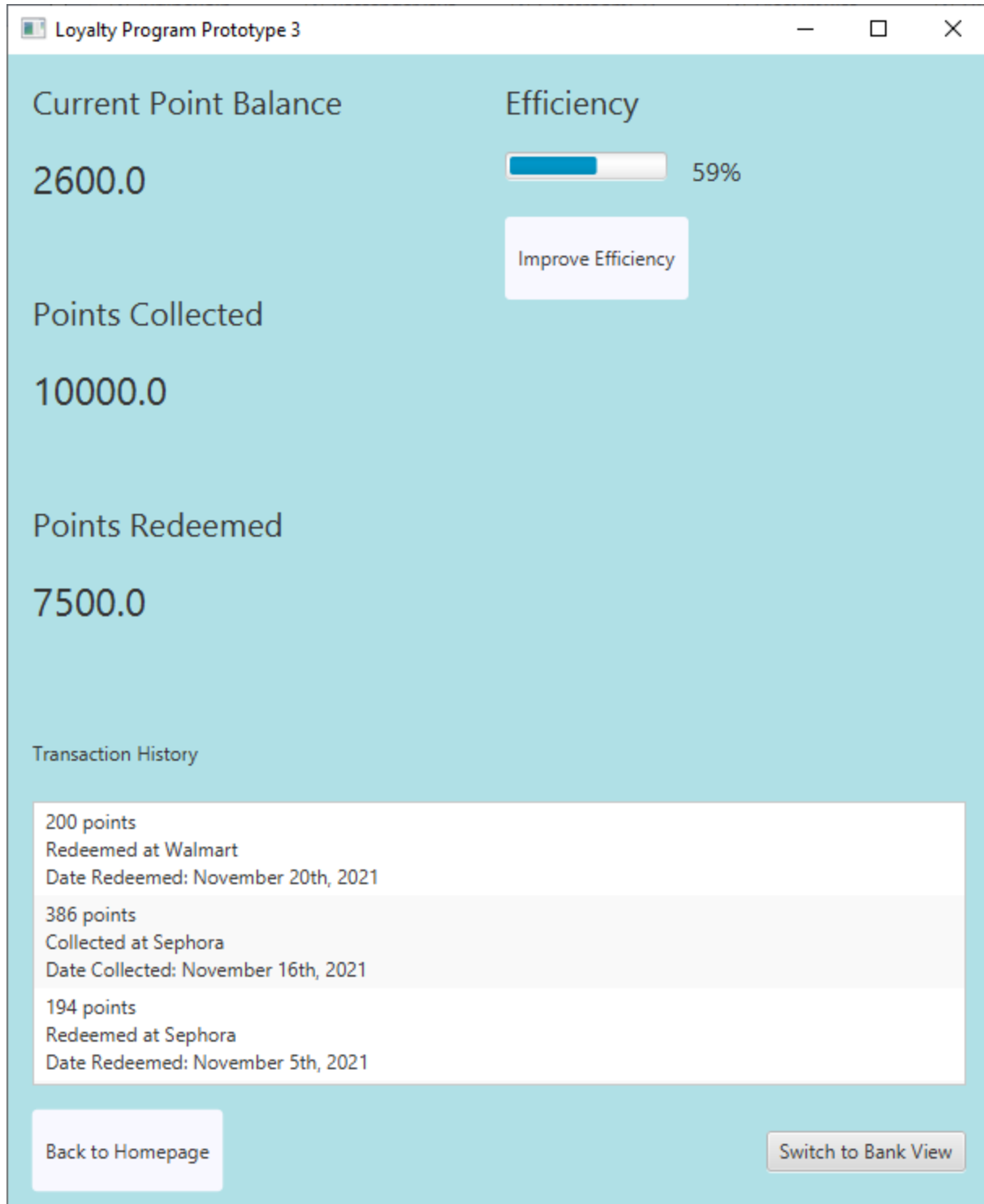


Figure 1.3

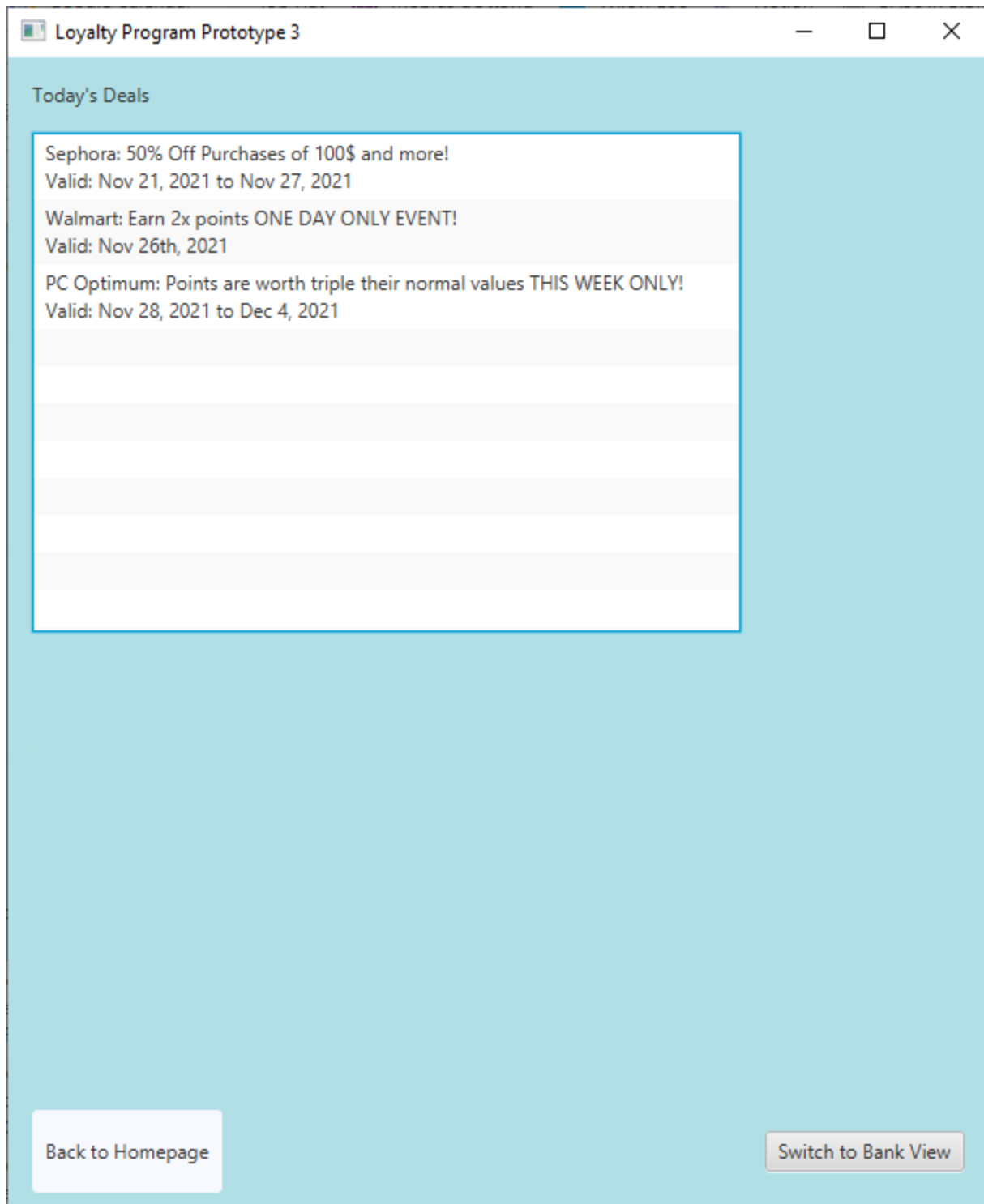


Figure 1.4

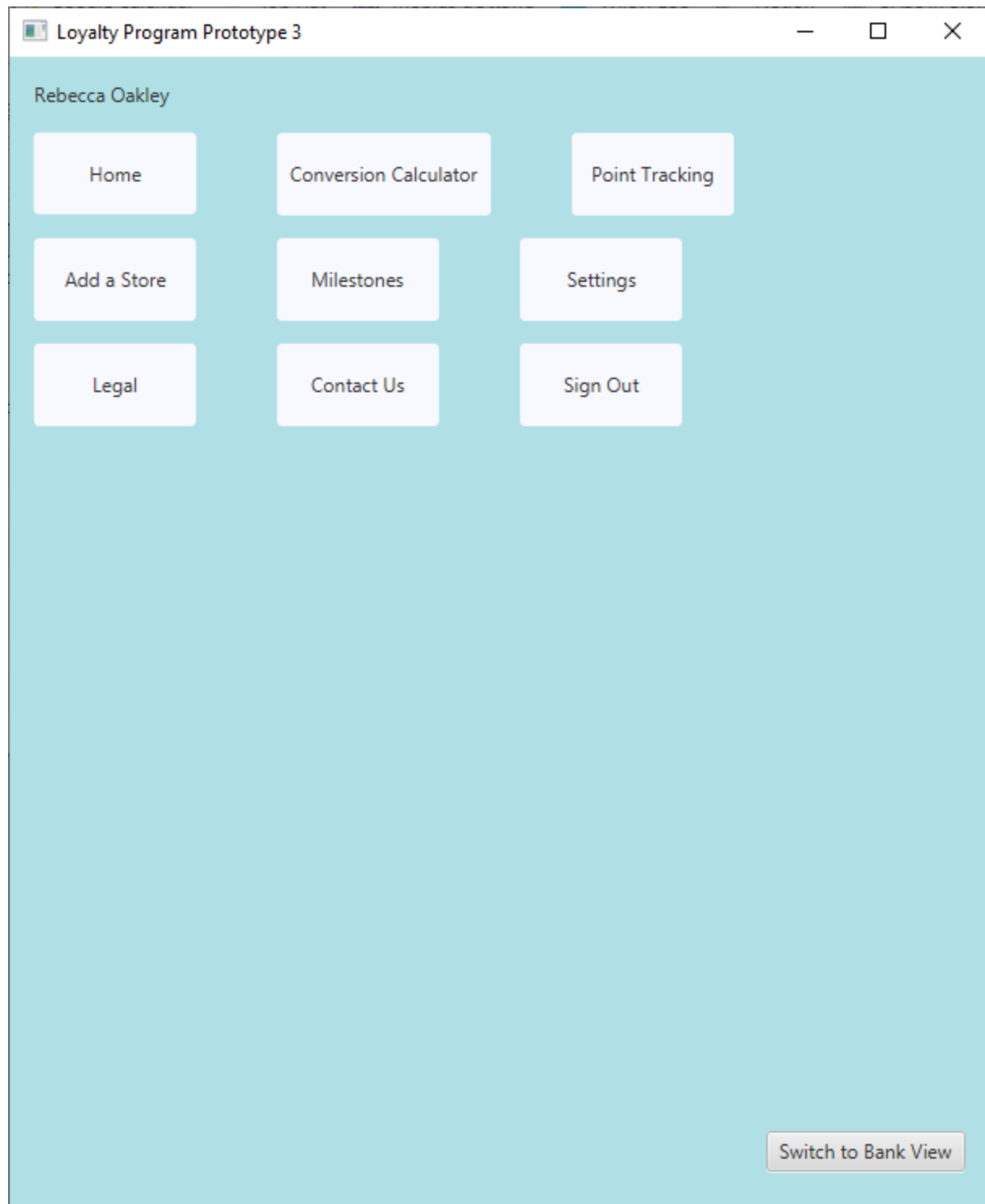


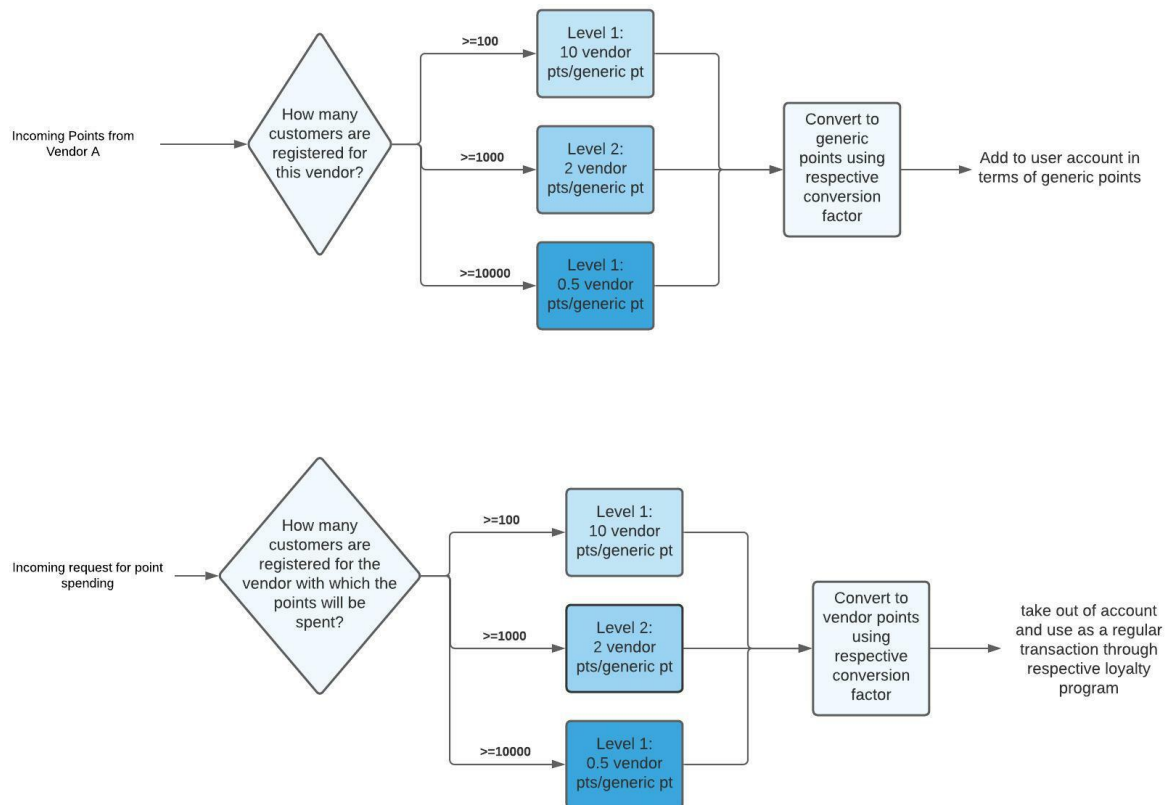
Figure 1.5

The screenshot shows a web application window titled "Loyalty Program Prototype 3". The main content area has a light blue background. At the top left, the word "Convert" is displayed. Below it is a white input field followed by a dropdown menu with a blue border and a downward arrow. The word "to" is positioned below the input field. Underneath "to" is another dropdown menu with a light gray border and a downward arrow. Below these elements, the text "This is equivalent to:" is shown. At the bottom left, there is a light purple button labeled "Convert". At the bottom center, there is a light purple button labeled "Back to Homepage". At the bottom right, there is a light gray button labeled "Switch to Bank View".

Above are photos of the final prototype. This will be the result when the code is implemented.

There are four key features to The Hakuna Matata Wallet. The first is the Conversion Calculator, which allows for conversion between different stores' loyalty points. All the user has to do is enter the amount they need to convert, and which type of points they want to convert that amount to, and the interface will show the conversion value. The next key feature is the Points Tracker, which shows the number of points redeemed, spent, and the current balance. It also shows the efficiency. The third feature is Milestones, which show how much the user needs to spend in order to reach a goal of theirs. The fourth feature is Today's Deals, which is a curated selection of deals updated daily and personalized for each end user.

Figure 2.1



Flowcharts that describe two instances of typical use of The Hakuna Matata Wallet

2.1 Cautions & Warnings

Upon the creation of a new account, the end user will have to consent to their data being used by the bank in order to create a personalized experience. This should be done through a “Terms and Conditions” form. When a new vendor agrees to use the platform, they will have to consent to having their stores’ point value evaluated according to the banks’ discretion.

3 Getting started

The construction of this loyalty point democratization program initiated with the defining of several subsystems that are implemented into a final working product. The subsystems that form the grand program entail different aspects which are broken down in order to become buildable. The subsystems that were used in order to conduct the construction of the prototypes were: Subsystem 1: End User Interface, Subsystem 2: Point Democratization, Subsystem 3: Point use Efficiency.

The program’s functionality begins with a displayable home screen as previously depicted. This part of the prototype falls within the first subsystem. This section entails the navigability as well as user friendly aspects. This main screen is where every other aspect of the program is tied together as a central hub. As shown, the main screen allows the user to navigate to any of the 5 following options: Point Tracking, My Stores, Today’s Deals, My Profile and the Sign Out button. **(Figure 1.1)**

The first functional option, ‘Point Tracking’ takes the user to a page that displays various information types about the user’s points currently as well as the past. Based on the information, an efficiency subsection is formulated on the right hand of the visual which displays the users spending effectiveness in terms of a percentage value. The value is calculated through a means of mathematical process as explained in section 6.3.3. This entire process falls within the construction of the third subsystem. **(Figure 1.2)**

The second functional option, ‘Today’s Deals’ takes the user to a page that depicts a list of curated deals based on the user’s previous spending habits. This section falls within the point use efficiency subsystem. **(Figure 1.3)**

The third functional option, ‘My Profile’ takes the user to a page that displays a number of buttons that can allow the user to go back, contact a member of the company for support, access

user settings, check milestone progress, access the points tracking page, manually add a store to their list of deals, sign out of their account and finally, access a conversion calculator. (**Figure 1.4**)

The conversion calculator (**Figure 1.5**) is a part of the second subsystem; point democratization. This segment of the prototype entails the conversion between loyalty points from one program to another. For more information on the conversion calculator, visit **Figure 2.1**.

The previously depicted features are the most crucial features that bring together the constructed program in order to complete its job at efficiency democratizing loyalty points.

3.1 Set-up Considerations

The program's construction required a numerous amount of equipment and resources in order to ensure the functionality. The list of tools used were categorized into what would be used for each subsystem.

Subsystem 1: User Interface

This subsystem was constructed using the following programs: Figma, Moqups, Wix and Canva. Figma, Wix and Moqups are interface designing softwares that allows users to create interfaces without having to code, however the two softwares were used simply in order to create a visual for what was going to be coded in javafx. Javafx is a coding software which was used to make the entirety of the user interface for the final prototype. To see more, visit section **6.1**.

Subsystem 2: Point Democratization

This subsystem was entirely created using javafx. The basics were idealized and then coded using the software, eventually being integrated into the finished program through the points conversion tab as seen in **Figure 1.5**. To see more, visit section **6.2**.

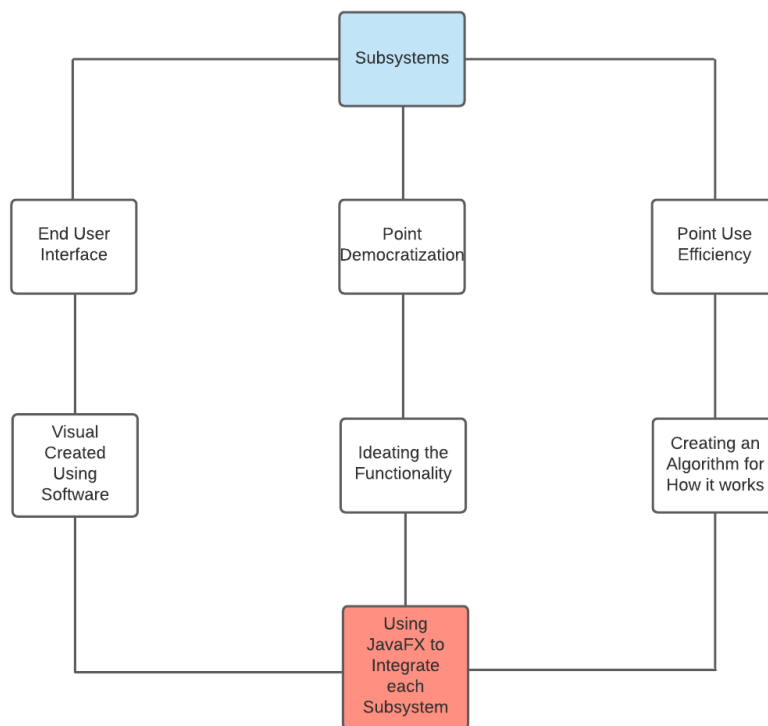
Subsystem 3: Point Use Efficiency

This subsystem was initiated using just a note pad where an algorithm was created that took into account numerous important aspects in order to calculate a percentage that displays the user's spending efficiency and how to improve it. The algorithm was then coded using javafx and integrated into the user interface as shown in **Figure 1.2**. For information on how the algorithm works, visit section **6.3**.

The only hardware or offline tools that were used during the construction included a compatible PC or Mac computer as well as an accompanying mouse.

Flowchart of Conducted Processes:

Figure 3.1



The program is inclusive of numerous limitations due to lack of student resources as well as time. The features that this program is not comprehensive of include integration for banks, vendor interfaces, bank interfaces and vendor organization integration.

3.2 User Access Considerations

The program is a prototype with some distance from perfection and due to such a limitation, there are features that are not integrated within the current model of this software yet. The program comes with restrictions such as lack of a safety program. This is imagined to come with the banking companies working with Zafin. Another restriction for many users is the inability to convert the program into an app usable on smart devices. JavaFX was used to integrate the subsystems onto a code that runs solely on desktop devices as of current times.

3.3 Accessing the System

The current model of the system is accessible using the coding software. The program has not yet been published onto any established website or domain, therefore restricting outside access as of the current moment. Similarly, a user ID or account creation function has not been implemented into the software, however a sign in and sign out button is present. The buttons do not have any proper functionality other than displaying very basic empty text boxes. Only a skeleton of the account accession has been engineered in this version of the prototype.

3.4 System Organization & Navigation

3.4.1: Home Page

This program was organized in such a way that all of the features would be tied together through the main hub or starting page. The first section of the program is a section that allows the user to navigate to any of the following options shown in **Figure 1.1** through the usage of the buttons.

3.4.2: Points Tracking

The first option available is the points tracking section which navigates the user to the page shown in **Figure 1.2**. This page showcases the user's point balance, point usage and points redeemed. A list of transaction histories using points is located at the bottom of the page to allow the user to regulate their spending. On the right hand of the page, there is a meter showcasing the point use efficiency. This progress bar is accompanied with a percentage value representative of how

efficient said user's spending is. In case of low efficiency, a button with the option to aid the user in improving their efficiency and avoid point hoarding is offered right under the progress bar.

3.4.3: Today's Deals // Improve Efficiency

The improve efficiency button navigates the user to a page that showcases a list of curated deals for each customer, giving each user incentives as well as products to spend their credits on. This page is known as 'Today's Deals.' This page is also accessible through the home page by using the respectively labeled button. **Figure 1.3** showcases the visual look of the 'Today's Deals' page.

3.4.4: My Profile

The next option available is the 'My Profile' button which navigates the user to a page as shown in **Figure 1.4**. As depicted, this page offers a variety of functions including, going back to the home page, going to the points tracker page, adding a store to allow their respective deals to show up in the deals page, a point spending milestone page, a settings page, legal information page, a customer support option, an account sign out option and finally a loyalty point conversion tool.

3.4.5: Conversion Calculator

Navigating from the 'My Profile' page, the conversion tool is a page that allows for users to convert their points from one loyalty program to another to allow for easy to use and efficient democratization. From here the user can return to the home page if they wish to. This page can be seen in **Figure 1.5**.

3.4.6: Sign Out

Back at the home page, there is a sign out option allowing for users to log out of their accounts at any given time.

3.4.7: Switch to Bank View

At the bottom right hand corner of every single page shown by each of the visuals, there is an option to 'Switch to Bank View' which allows banking companies to regulate sections of the program for each customer signed up. This part has not been configured yet due to it being reliant on banking companies working with Zafin.

3.5 Exiting the System

To safely close the system, you simply close the application through the 'X' icon in the top left or top right corner of the running program. If you wish to sign out of the application you can do so by clicking the button on the home page. For more information on signing out, visit section **3.4.6**.

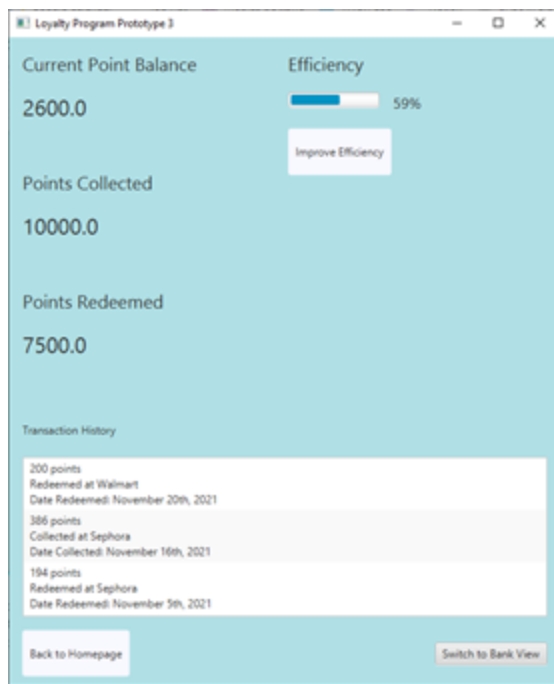
4 Using the System

The following subsections provide detailed, step-by-step instructions on how to use the various functions or features of the <System Name and/or Acronym>.

4.1 Points tracking

Customers can see their current point balance, points they have collected and points they have redeemed on this page. Also, how efficient they use their points will also be shown on the left. The transaction history is shown below includes how many points they redeemed at what time and which store.

Figure 4.1



4.1.1 Improve efficiency

Under the efficiency part there is a [improve efficiency] button, clicking on this button will lead the customers to [today's deals] page.

4.2 Today's deals

This page includes some discounts that could improve the customers' efficiency, and it includes the name of stores that are offering discounts today and the valid date of these deals. Also, how many percentage off is shown. beside the name of the stores.

Figure 4.2



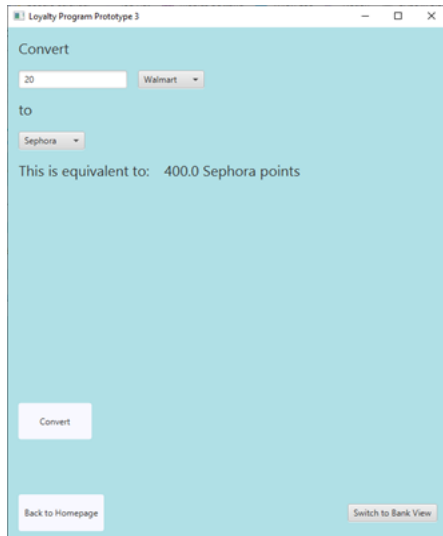
4.3 My profiles

This page includes the specific functions that the users might use frequently.

4.3.1.1 Conversion calculator

This allows customers to calculate how many points they can convert from one store to another. The customers need to enter how many points they want to convert and select the store they convert from and convert to. Then click on the “convert” button, and the customers can see how many points they can convert.

Figure 4.3



Loyalty Program Prototype 3

Convert

20 Walmart

to

Sephora

This is equivalent to: 400.0 Sephora points

Convert

Back to Homepage Switch to Bank View

4.3.2 Add a store

The customers need to enter the name of the store and the country of the store, then they can add a store to their loyalty program account.

4.3.3 Milestone

Customers can see how many points they've collected(in percentage) and how many points left until the next milestone.

4.3.4 Contact us

This page is used for customers to contact the staff when they meet problems. The customers need to enter the subject of their problem and their email address and enter the message they want the staff to know.

4.4 Settings

This page includes all the private settings of the customers.

4.4.1 Security and privacy

This page includes all the information needed to the security and privacy of the customers' account.

4.4.2 Find a store

The customers need to enter the name of a store and the city of that store, then they can locate the exact store they are looking for and add it to the loyalty program.

4.4.3 Interac E-transfer

The customers need to enter the name of the recipient, the amount of the point they want to send, from which account, and the account's password to complete an e-transfer.

4.4.4 Legal

Here are all the profiles of legality and contract of the loyalty program.

5 Troubleshooting & Support

If the site fails, the administrators should go to the WIX technical issues site and follow the instructions on how to resolve the problem. If the app fails, administrators should go to Oracle's JavaFX Deploying JavaFX Applications: Troubleshooting page and follow the steps for resolving the issue. Almost any mistake that might occur during troubleshooting and maintenance can be found on either site.

JavaFX Sites:

<https://docs.oracle.com/javafx/2/deployment/troubleshooting.htm>

<https://docs.oracle.com/javase/8/docs/technotes/guides/deploy/troubleshooting.html>

WIX technical Difficulties site: <https://support.wix.com/en/technical-difficulties/live-site-issues>

5.1 Maintenance

To begin, maintenance on our product is highly cost-efficient because it is a website constructed using a website builder, which helps eliminate the majority of difficulties connected to bugs and malfunctions inside the site. To keep the website's infrastructure up to date, make sure the subscription is current each year. In addition, the annual domain cost must be paid to keep the website up and a WHOIS privacy enquiry to guarantee that the users' information is kept private. Although most domain registry fees include a WHOIS, it is critical to ensure that it is kept up to date. Furthermore, for general issues with buttons or functionalities on the website, this sort of maintenance will take a few minutes to open the Wix builder editor and either replace or reprogram the button/feature to the original purpose it was designed. To address these difficulties, you can utilize the code provided by the Wix editor to reprogram a function.

6 Product Documentation

To begin with, because our program is a loyalty program, it's basically all built on coding and ideating. Thus, the main conflicts of our program are how to run our code properly and how to make our prototype satisfied with the user's needs. First, we clear out our design criteria. List out what we should include in our prototype. And we decided to develop something special in our prototype to make it unique, which is the point efficiency subsystem. After understanding what we should do, we started testing and analysing and developing our prototypes based on feedback. After developing and testing three prototypes, we finally completed our prototype.

- Javafx vs powerapps

At the beginning of the project, we need to decide to use which tool to build our program. We started tangling with javafx and powerapps. These two tools both can help us develop our prototype, but they are operating in different ways. For example, javafx is based on java, a programming language, but powerapps is just linking different pages together to form the interface. Thus, javafx is more flexible than powerapps but powerapps is easier to use. And because our project includes the efficiency part, and it's hard to use powerapps to realize, we finally decided to use javafx. Besides, a team member has java coding experiences.

6.1 <Subsystem 1 User Interface>

6.1.1 BOM (Bill of Materials)

Table 3.1: Bill of Materials

Item Number	Item Name and Description	Quantity	Unit Price	Amount
1	Figma:	1	\$0	\$0
2	Moqups:	1	\$0	\$0
3	Wix:	1	\$0	\$0
4	Canva:	1	\$0	\$0

6.1.2 Equipment list

Table 3.2: Bill of Materials

Item Number	Item Name and Description	Quantity	Unit Price	Amount
1	PC/Mac:	1 (per person)	\$0 (previously owned)	\$0
2	Mouse	1 (per person)	\$0 (previously owned)	\$0

6.1.3 Instructions

The user interface has three parts: the end user interface(application), the bank data analysis interface(website) and the vendor interface. For prototype 1 and prototype 2, we built the end user interface by using figma and moqups, and we used canva to develop the end user interface in prototype 3. and for the bank data analysis interface and the vendor interface, we finalized it in prototype 1 by using wix, so we kept it the same when doing prototype 2 and 3.

6.2 <Subsystem 2 Point Democratization>

6.2.1 BOM(Bill of Materials)

Table 3.3: Bill of Materials

Item Number	Item Name and Description	Quantity	Unit Price	Amount
1	Javafx:	1	\$0	\$0

6.2.2 Equipment List

Table 3.2: Bill of Materials

Item Number	Item Name and Description	Quantity	Unit Price	Amount
1	PC/Mac:	1 (per person)	\$0 (previously owned)	\$0
2	Mouse	1 (per person)	\$0 (previously owned)	\$0

6.2.3 Instructions

This subsystem is entirely based on coding, so to ensure the code can run properly is all we should do in this subsystem. We coded to make our program to convert points to another store and can convert points into a value for real life currency respective to each country, etc.

6.3 <Subsystem 3 Point Use Efficiency>

6.3.1 BOM(Bill of Materials)

Table 3.3: Bill of Materials

Item Number	Item Name and Description	Quantity	Unit Price	Amount
1	Javafx:	1	\$0	\$0

6.3.2 Equipment List

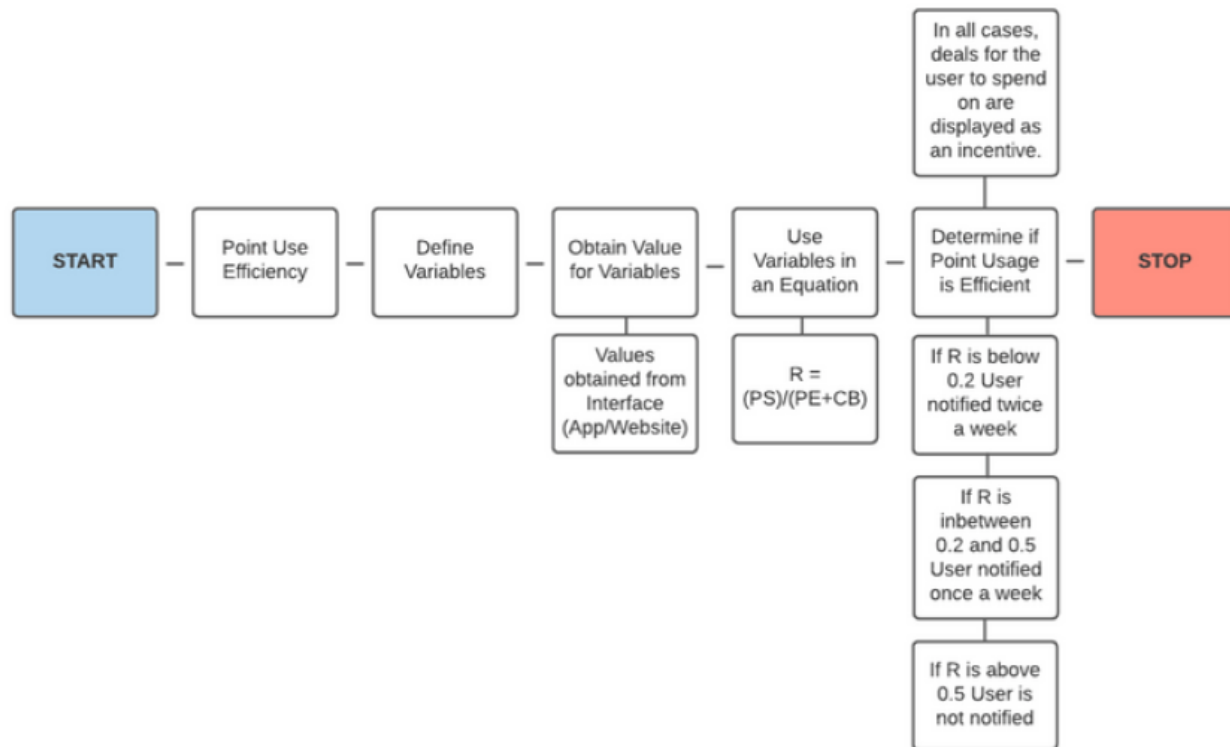
Table 3.2: Bill of Materials

Item Number	Item Name and Description	Quantity	Unit Price	Amount
1	PC/Mac:	1 (per person)	\$0 (previously owned)	\$0
2	Mouse	1 (per person)	\$0 (previously owned)	\$0

6.3.3 Instructions

This subsystem is about to make sure customers use their points efficiently. For prototype 1 and 2 we had a flowchart to show and define the concept of efficiency. And in prototype 3, we had an algorithm to define efficiency. Figure 1 shows the flowchart of the efficiency.

Figure 5.1



6.4 Testing & Validation

We develop the code based on the interfaces, so the main test we do is to see if the code can run and if it can fit the interface. When testing the codes, we debug the codes and add more functions to the prototype. So the difficulty we met is mainly about ideating and coding, about how we can make our prototype better and how the code can satisfy our needs.

7 Conclusions and Recommendations for Future Work

To conclude, this User Manual contains the information necessary to implement this prototype of The Hakuna Matata Wallet. While creating this platform, the biggest lesson learned... For future work, it is suggested that more criteria are added to the vendor evaluation algorithm, efficiency related notifications are created, and The Hakuna Matata Wallet website is made to be fully functional.

Over the course of the last four months, The Hakuna Matata Wallet website has been the lowest priority. This is because applications are more commonly used for shopping with points, and it would be easy to connect with existing bank apps. However, this website would be crucial to the end user, especially if it can be used while shopping online. If given more time, this website would have full functionality.

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APPENDIX: Design Files

Table 4: Design Documents

Document Name	Document Content Description
Github Instructions	Instructions on how to download and run code for this project stored on github
Point Use Efficiency Information	Condensed information on how efficiency is calculated and implemented within the project
Project Deliverable B_ Needs Identification and Problem Statement	Initial need identification based on first client meeting and problem statement
Project Deliverable C_ Design Criteria and Target Specifications	Initial design criteria and target specification creation, includes user and technical benchmarking data
Project Deliverable D_ Conceptual Design	Initial design concepts, sorting and analysis
Subsystems 2.0	Final design subsystems (after reiteration)
Project Deliverable E_ Project Schedule and Cost	Project Schedule, including task breakdown and cost documents including BOM
Project Deliverable F_ Prototype I	Prototype 1 documentation including feedback and testing analysis
Project Deliverable G_ Prototype II and Customer Feedback	Prototype 2 documentation including feedback and testing analysis
Project Deliverable H_ Prototype III and Customer Feedback	Prototype 3 documentation including feedback and testing analysis

Design files are made available on MakerRepo at:

<https://makerepo.com/katrinelabonte/977.loyalty-reward-program-team-12-the-hakuna-matata-wallet>