# GNG1103-A00

# Deliverable-K-User and Product Manual

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Project Team-7

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# 1 Introduction

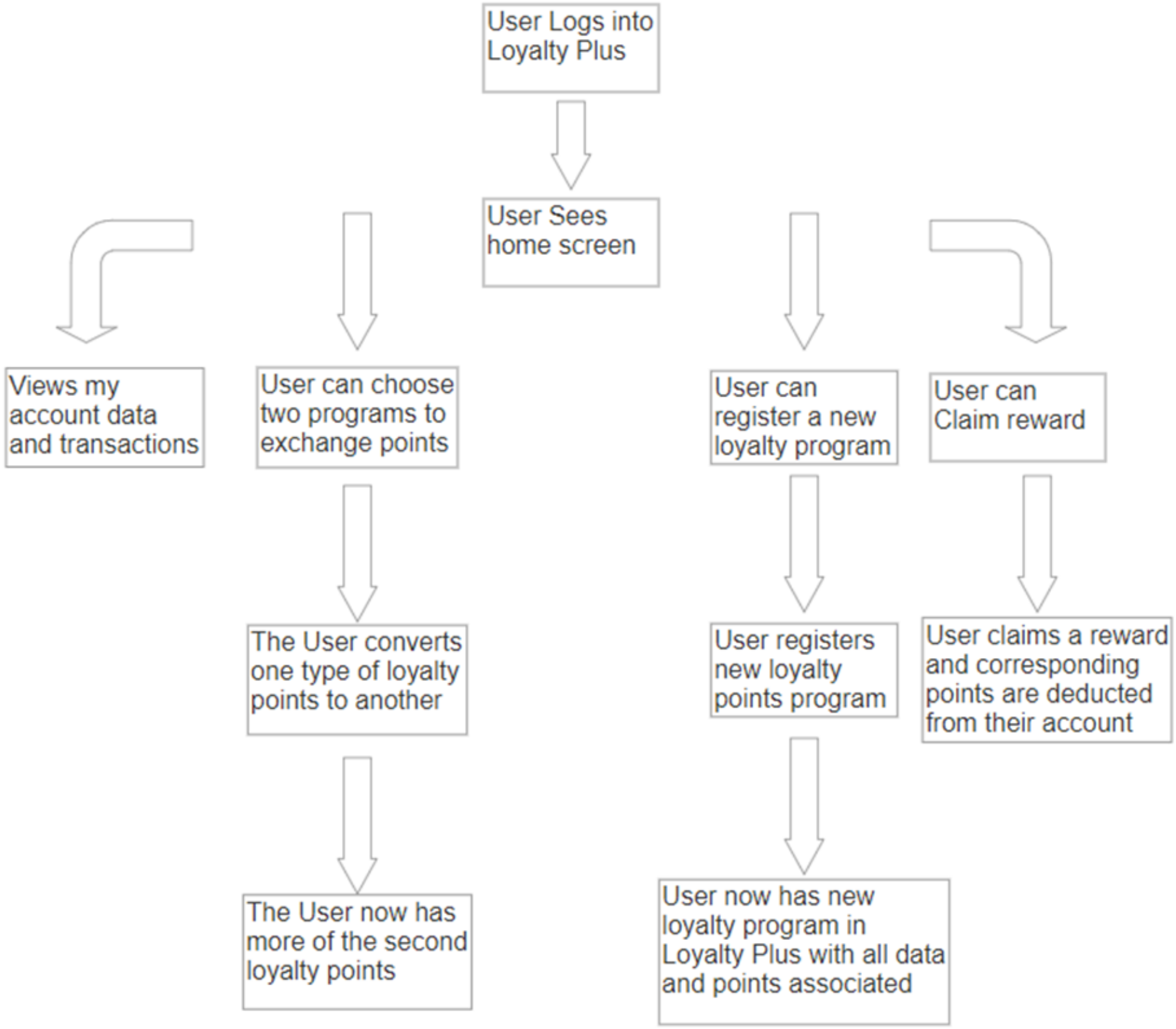
In this project, the client, Zafin, has suggested the use of PowerApps, Power BI, and Excel to develop the application. As such, the team developed Loyalty Plus, an integrated application in PowerApps which will allow users to have all their loyalty rewards programs in one place, but also have key features such as transferring/exchanging points, claim rewards, view my account and register points. The purpose of this deliverable is to outline the user guide of the application, so that anyone may use, further develop, or replicate the application. Additionally, the document will cover any errors or precautions when using the app as well.

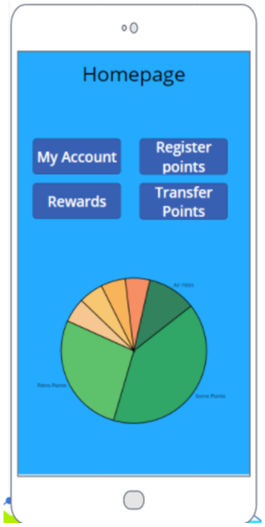
# 2 Overview

The problem that was proposed by our client, Zafin, was a need for a democratization of loyalty points programs, which will allow users and businesses a smooth experience when transactions are made using loyalty points. This is important as loyalty rewards programs are being neglected, thus, a refreshing development of the concept would allow for the loyalty rewards program ecosystem as a whole to grow. The fundamental needs of the user are the requirement of having a way to exchange loyalty points from one program to another and the program needs to give the user an incentive to spend their loyalty reward points. Loyalty Plus bench marked other loyalty programs similar to this such as Spend wiser and Loyalty Republic, however what makes Loyalty Plus unique is its ability to exchange user's loyalty point from one loyalty program to another. This is done by computing individual loyalty reward points value to a common currency called the universal point then converting it to the corresponding loyalty reward point. The conversion factor for each loyalty point is obtained from the loyalty reward website and finding the point value in the from of the Canadian dollar value, then subsequently, converting it to the other loyalty reward program's point.

Some key features of Loyalty Plus are its ability to exchange points which is done by using a conversion factor to a common universal point, then subsequently converted to the desired loyalty point. Then there is the register points page, which will allow the user to register their loyalty rewards program to the app so they can use the features with the loyalty program they registered. Furthermore, my account page allows the user to view all the loyalty programs registered to Loyalty Plus, view the number of points they have for each program and transactions made. Finally, the claim rewards page allows the user to spend their loyalty points earned on products provided by the businesses. All the rewards will be in one place so the user can pick any reward they are interested in.

## 2.1 Block Diagram


User Logs into Loyalty Plus
User Sees home screen
Views my account data and transactions
User can choose two programs to exchange points
The User converts one type of loyalty points to another
The User now has more of the second loyalty points
User can register a new loyalty program
User registers new loyalty points program
User now has new loyalty program in Loyalty Plus with all data and points associated
User can Claim reward
User claims a reward and corresponding points are deducted from their account

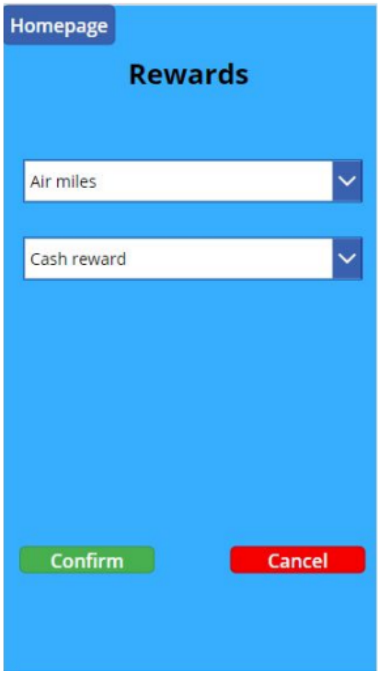


## 2.2 Cautions & Warnings

If a user were to recreate, replicate, improve on or modify this application, they must contact Zafin in order to do so. The team has signed a waiver, so all work done during the semester belongs to Zafin. Therefore, the user must get permission by contacting Zafin. They can do so by sending them an email with the request.

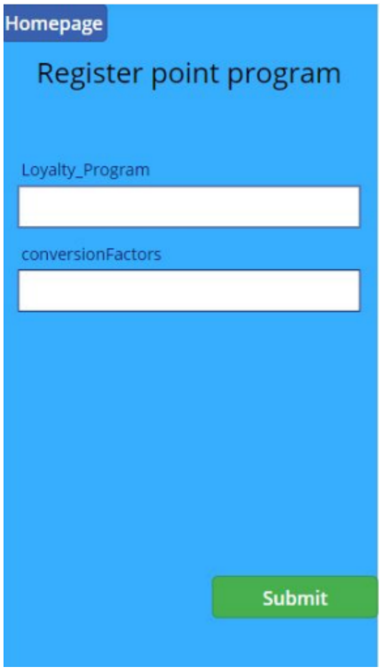
# 3 Getting started

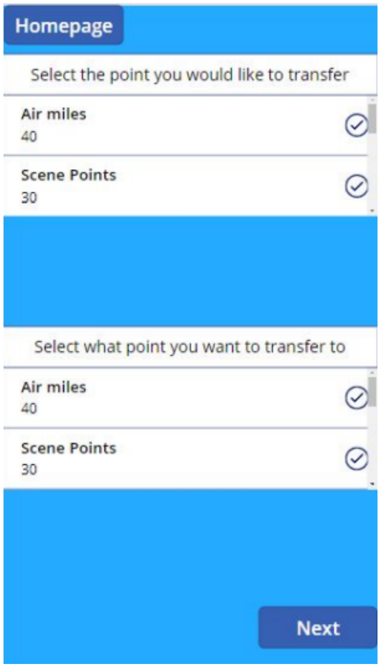
Click the software icon in the device screen to enter the program and enter the program main page. On the home page, we can see that "my account", "reward", "register points", "transfer points" and your personal assets are clearly distributed in the pie chart. Click my account, you can view and manage your personal assets on the main page, and modify your personal information in settings. Transfer points can help you transfer money between accounts or transactions. "Register point" can help you start a new project. In your account, search the project you need in the search bar of its page. In the "reward" interface, you can get some rewards and receive them. After completing and saving all operations to be completed in the interface, use the return key or exit key of the device to end the program.



Air miles

Cash reward





Select the point you would like to transfer

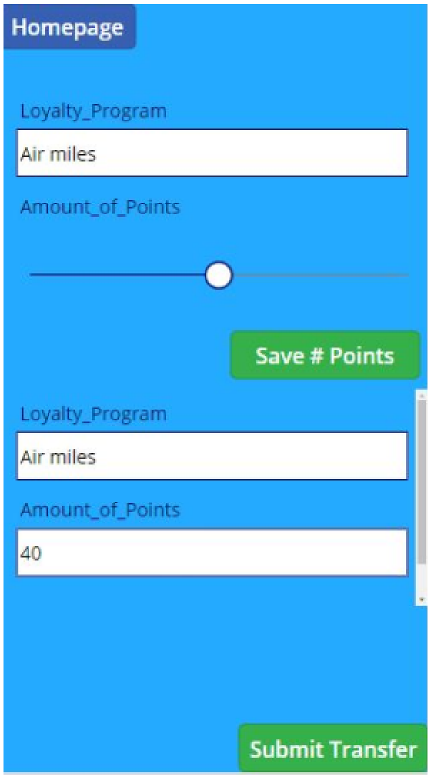
Air miles
40

Scene Points
30

Select what point you want to transfer to

Air miles
40

Scene Points
30

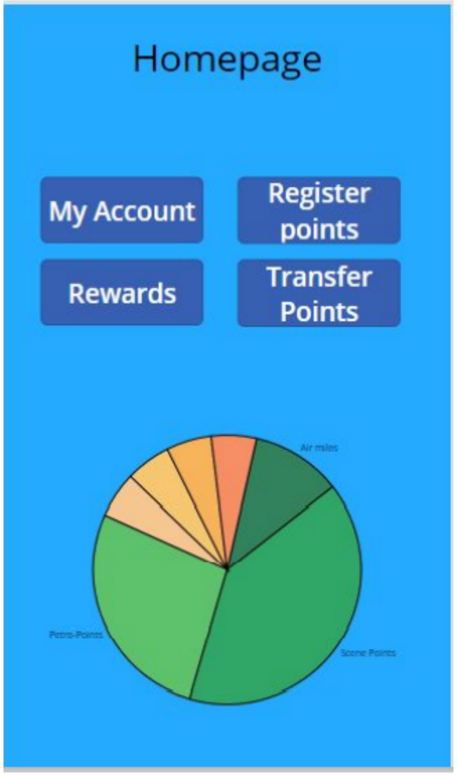


Loyalty_Program: Air miles

Amount_of_Points

Loyalty_Program: Air miles

Amount_of_Points: 40



## 3.1 Setup Considerations

The system is presented in the form of software and can be installed on mobile devices. Customers can contact online through the contact information we set in the software or by telephone. The output equipment shall be the total equipment of the loyalty project company, and the input equipment shall be the mobile terminal equipment of each user.

- While many softwares are offered on smartphones, *Loyalty+* will focus on the 2 largest, iOS (28.53%) and Android (70.75%) to ensure a broad market share. Focus should be on optimizing the software to work with both of these. Apple developer licenses cost 99 cents a year, and Google play (where apps on android are purchased) is a one time payment of $25.

## 3.2 User Access Considerations

Users may be individuals, companies, or investment and financial groups. In the system, non project users can only view the project name, project profile, profit and loss of the project on that day, etc. Project users can view personal asset details, project status analysis and personal asset profit and loss provided by the system.

## 3.3 Accessing the System

The publication of the software will start be accessible on the web (chrome, explorer, etc.) pending approval and proper software architecture for the app store and google play (iOS and Android cross application) on chrome, the application will be started by inputting the softwares url, and as explained in 3.4, using salt and hash, as well as NOSQL, and with funding, we would purchase data base sets to store our users information safely.

## 3.4 System Organization & Navigation

As shown in the photos rendered of the application, the software would be divided into 3 main parts.

- Section 1: Support, Help & Feedback
    - Very basic start off, which every application needs. Support and feedback will be dedicated to the satisfaction of our users, with a direct submission area, where users can enter their email (which is attached to their account), description of their problem and optional phone number.
    - Help will mimic that of Apple™ Q&A's section, where users will submit questions, and a team of support staff will answer them as soon as available. Users will also have a search tab to search for questions which have already been asked.
- Section 2: Login Page

    - Will as well mimic many other applications which involve a username and password, using salt and hash. The user's password is never sent to the server, but is encrypted instead (using a hash algorithm). The hash is sent to the server, usually over an encrypted channel and saved for later.
    - Within the login page, there will be a sign up page. Each new user will require an email and passwords (password conditions will be one uppercase letter, a number and non-latin symbol [i.e !@#$%&]). Because the app could lead to an increase in net worth, the team will explore requiring information that is typically needed to use most trading services(Social Insurance Number, Address, DOB, etc.). To ensure a safe sign up and user experience, the team will explore and learn encryption services designed to protect users information from being stolen. (Schaefer 2021)
- Section 3: Home Page
    - The home page is divided into 4 subsections, in no specific order: My account page, rewards for  page, transfer points, and register points.
    - The pages have already been described in the overview section of the deliverable

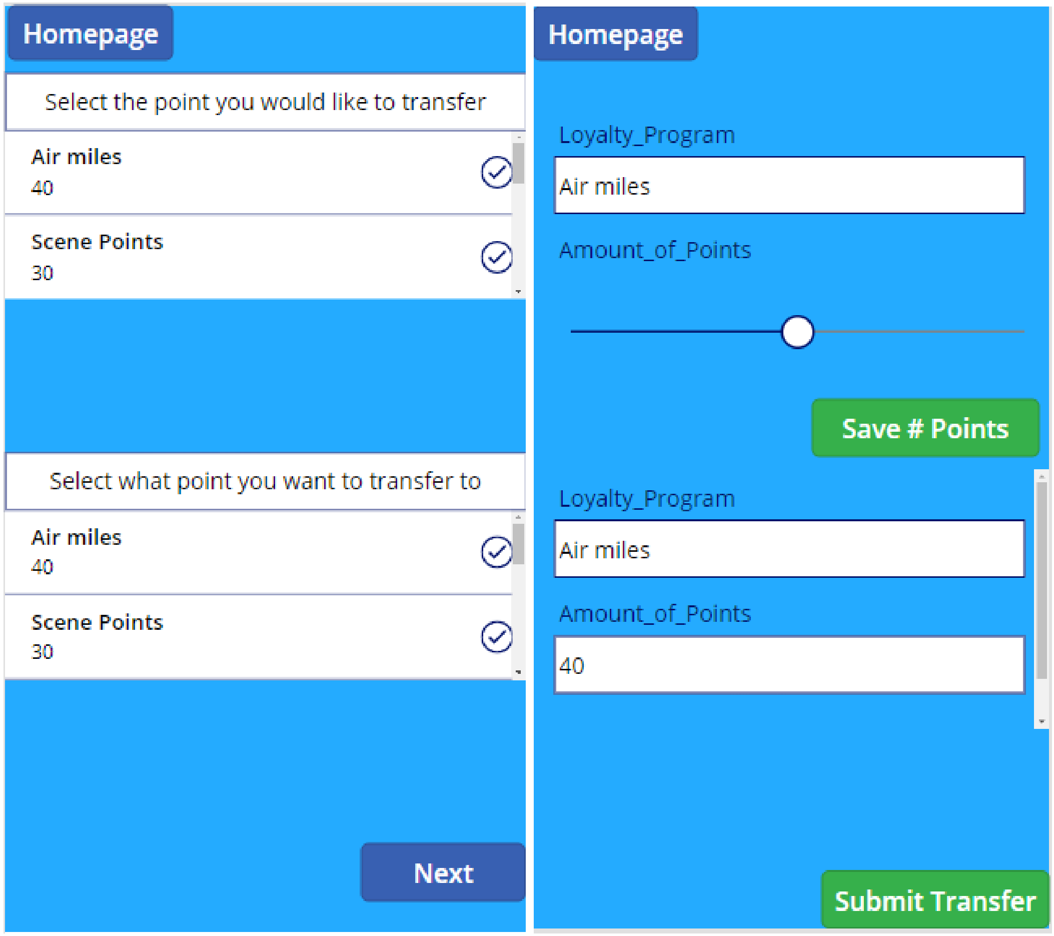
## 3.5 Exiting the System

- After completing and saving all operations to be completed in the interface, use the return key or exit key of the device to end the program.
    - All information will be relayed to the code designed for the app to function, number of points bought, which points bought, at what time, where, as well as dollar value of points will be saved in a secure server, where it will be taken into account once the app is open again. Using this information, the app will react to promote purchase options which will further engage the user.

# 4 Using the System

## 4.1 Transfer points

The action of transferring points is done by selecting the transfer page on the home screen. One you click the button you will be brought to the transfer page where you can select which point programs you want to take points from and at the bottom you can select which program to add funds to. Then click next to be able to choose the amount of points to convert. Hit the save button and then click the submit button to transfer funds from one program to another.



Select the point you would like to transfer

Air miles 40 ✓

Scene Points 30 ✓

Select what point you want to transfer to

Air miles 40 ✓

Scene Points 30 ✓

Loyalty_Program: Air miles

Amount_of_Points

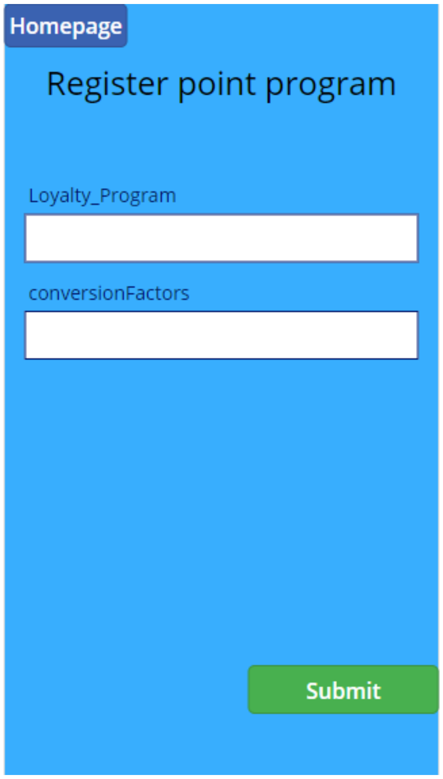
Loyalty_Program: Air miles

Amount_of_Points: 40

## 4.2 Register points

The action of registering points is done by selecting the register page on the home screen. One you click the button you will be brought to the register page where you can add the name of the new reward program and add the conversion factor to be able to transfer points. After adding the information hit submit and it will save the program to your account. After it is saved, the information provided by the user will be sent to an email, where a team member will assess its usage, its exploitation, and in short, whether or not the loyalty program will be beneficial to the application and its shareholders

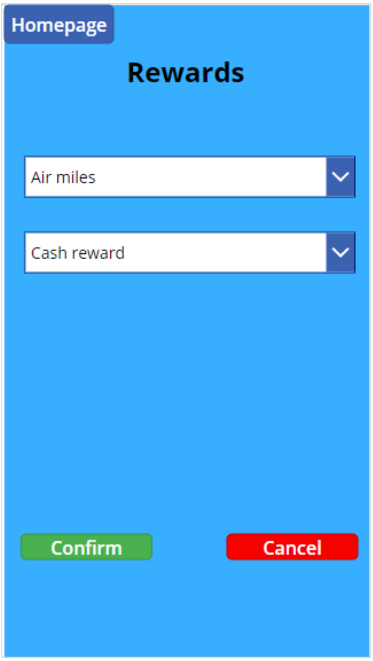
- The assessment will use a few factors to determine a loyalty programs viability.
    - Demographic: To ensure that the app is attractive to all ages, races, genders, religions, etcetera, we will be sure to keep a balanced engagement index.
    - Potential: One of the most important questions that should be asked is whether the company who controls the loyalty program, how much they have invested in it, and what their plans are with the loyalty point.
    - Benefits: How can the application benefit? If the loyalty program offers access to a new demographic, such as a population in new guinea, it will be looked at more favourably, as would a loyalty program that brings a larger engagement to the application
    - Further assessment indexes will be periodically added as the company grows, with the ultimate goal to program an algorithm to send reports to a head of assessment, where the program will be graded by the algorithm on a point scale.



## 4.3 Claim rewards

The action of claiming rewards is done by selecting the rewards page on the home screen. One you click the button you will be brought to the rewards page where you can select rewards depending on the reward program.

- Each morning, staff members will send reports to the company who owns a specific loyalty program. The reports will include trading volume, how much of a point users currently hold, and other statistics to advise companies on the level of rewards being offered. Another option to be explored is, upon verification, owners of loyalty programs will be able to advertise and post their own rewards, much like a social media app promoting a product.



Air miles

Cash reward

# 5 Troubleshooting & Support

If you are a human, then you may make mistakes. That's why we need a team to check our work over and over again, and secure our product. The users can help us deliver high-quality products to your clients, they look at the applications from a user's perspective, and point out the hidden shortcomings we have. The following subsections provide several measures on how to fight against the various problems occured in the test or the bugs we are able to envision.

## 5.1 Error Messages or Behaviors

Incorrect information may reduce the customer's brand loyalty and word-of-mouth. In order to prevent the app from being unpopular, we can vastly improve the user experience just by avoiding a few common mistakes.

Error messages include: Ambiguity, Condescending language, and poor placement of error messages. At first, the error messages need to clearly define the problem that occured. There are no vague statements allowed. Then, people are always glad to accept the suggestions in a gentle tone. If our error message is with a tone of ordering the users to follow the instructions, the users may feel fooled and angry. Finally, the users would be delighted to see we put the instructions in sight, instead of putting effort to find those.

In these wrong situations, our team should ask how the users feel about the error message in the pop-up window. If they are not satisfied about that, we can redo these messages until it reaches a satisfaction level.

Here are also some conditions of error behaviors:

Condition 1: Due to too many users, the server crashes, and *Loyalty* + cannot be logged in and used temporarily.

Measure 1: Team members need to reconnect to the server quickly to ensure normal use.

Condition 2: The application often crashes during startup and cannot run(also include the situation of crashing when installing).

Measure 2: Platform-specific bugs. Each mobile platform (Android, iOS) has its own bugs connected to the way the operating system works. Just need to provide instructions for different platforms. Also, Clicking on a button with a hidden bug can make the whole application crash.

Condition 3: The app’s webpage freezes.

Measure 3:A reminder of “Please do not click refresh repeatedly, put the device in places with a good network connection.” will be displayed on the screen

## 5.2 Special Considerations

In this part, we considered plenty of situations in trouble.
After the users download *Loyalty* + and finish registering for a personal account for the first time, we will introduce them to improve their personal information and quickly understand the main role of *Loyalty* + with a novice tutorial. If the user forgets how to operate, just need to click the help page, there are videos explaining the various operation sequences, which are in the middle of the screen and can be easily found. We can also provide users with some effective suggestions. When the app is stuck or the current version is too low, the system can also remind the customer to restart the app or download the latest version with instructions. The situation that users cannot type letters and (or) numbers when entering account and password exists; And when the user encounters an error in the information in the application, we will also remind the customer to use the official announcement as a benchmark.

## 5.3 Maintenance

Using a support page on the app, we will add a feedback tab to gather individual assessments of the app. Using the power app, and other applications we will update *Loyalty* + periodically. The period we would use would be once a month, implementing algorithms to scan the feedback for the most important ones first. One of the many available softwares found that we could put to use would be Chetu (pricing is based on the needs of the company hiring them). Another solution would be to learn debugging methods.

## 5.4 Support

By dialing the official phone number, customers can get all kinds of help. The customer will select the desired service item according to the voice prompt. If necessary, customers can also use manual services to help solve them. On the human service platform, customers can talk to service personnel who can communicate in multiple languages to deal with problems as soon as possible.

- The email associated with the help desk will be help@loyaltyplus.xyz (Yes that is a real email address) linked to all the email addresses of each team member as of now, to ensure a quick and logical response to any inquiries.
- The domain is held in the Name of the group, with each team member having their individual account (ex haonan@loyaltyplus.xyz), as well as accounts for business

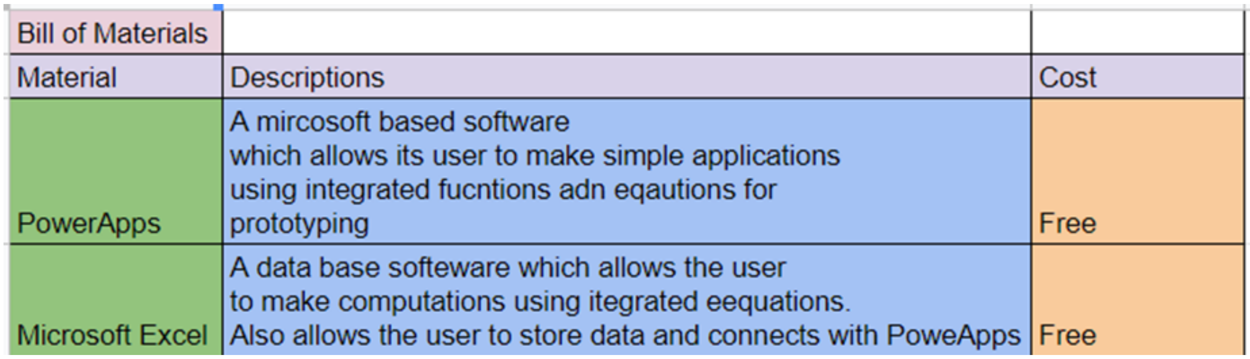
dealings, an email for north american communication, as well as western europe and East asia. The team's hope is to have an email for each country *Loyalty Plus* is located.

- There is even an email for Zafin, with the email zafin@loyatlyplus.xyz, password: TeamSevenIsTheBest
    - Feel free to keep the email and change the password.

# 6 Product Documentation

## 6.1 Prototype

### 6.1.1 BOM (Bill of Materials)



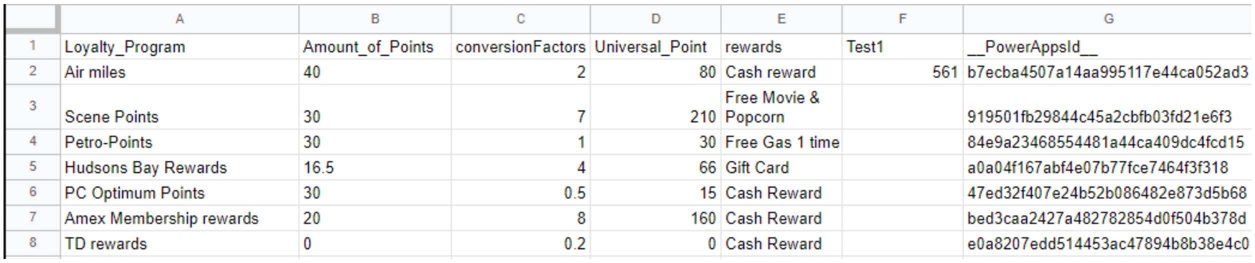
| Bill of Materials | | |
|---|---|---|
| Material | Descriptions | Cost |
| PowerApps | A mircosoft based software which allows its user to make simple applications using integrated fucntions adn eqautions for prototyping | Free |
| Microsoft Excel | A data base softeware which allows the user to make computations using itegrated eequations. Also allows the user to store data and connects with PoweApps | Free |

### 6.1.2 Equipment list

The only equipment needed to make this prototype is the software in the BOM and also a computer with access to the internet. No other materials were used to make these prototypes.

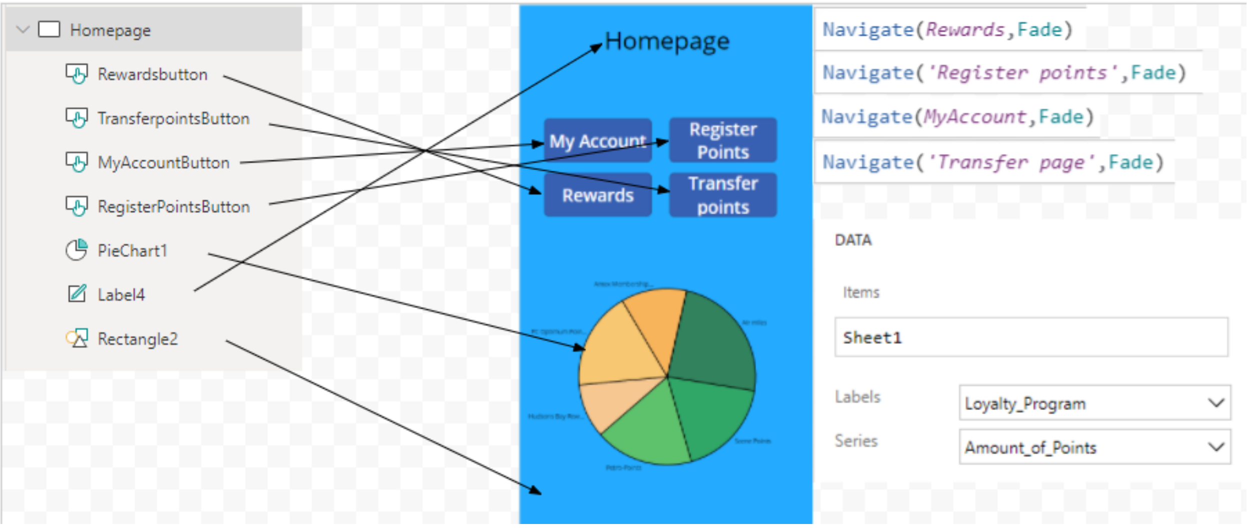
### 6.1.3 Instructions

Spreadsheet linked to the powerapps:



| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | Loyalty_Program | Amount_of_Points | conversionFactors | Universal_Point | rewards | Test1 | __PowerAppsId__ |
| 2 | Air miles | 40 | 2 | 80 | Cash reward | 561 | b7ecba4507a14aa995117e44ca052ad3 |
| 3 | Scene Points | 30 | 7 | 210 | Free Movie & Popcorn | | 919501fb29844c45a2cbfb03fd21e6f3 |
| 4 | Petro-Points | 30 | 1 | 30 | Free Gas 1 time | | 84e9a23468554481a44ca409dc4fcd15 |
| 5 | Hudsons Bay Rewards | 16.5 | 4 | 66 | Gift Card | | a0a04f167abf4e07b77fce7464f3f318 |
| 6 | PC Optimum Points | 30 | 0.5 | 15 | Cash Reward | | 47ed32f407e24b52b086482e873d5b68 |
| 7 | Amex Membership rewards | 20 | 8 | 160 | Cash Reward | | bed3caa2427a482782854d0f504b378d |
| 8 | TD rewards | 0 | 0.2 | 0 | Cash Reward | | e0a8207edd514453ac47894b8b38e4c0 |

Homepage:



```
Navigate(Rewards,Fade)
Navigate('Register points',Fade)
Navigate(MyAccount,Fade)
Navigate('Transfer page',Fade)
```

DATA

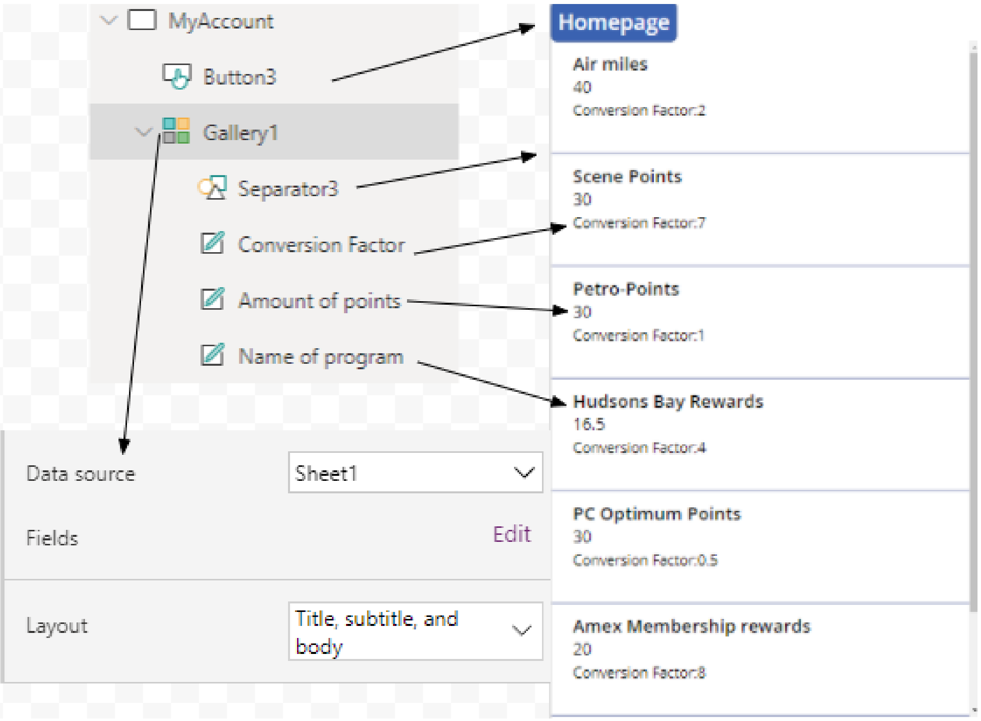
Items: Sheet1

Labels: Loyalty_Program

Series: Amount_of_Points

There are 4 buttons on the homepage to go to other pages. Rewards, Transfer, MyAccount and Register all use the same function to go to other pages. They use the navigate and then also the name of the other page. eg:Rewards , Register points, MyAccount,Transfer page. Also there is a pie chart that is linked to a spreadsheet that each slice of the pie corresponds to the Amount_of_Points and the Loyalty_Program name is on the outside of the graph. The label just shows the name of the page and the rectangle just adds some color to the back.

My Account:



Data source: Sheet1

Fields

Layout: Title, subtitle, and body

Air miles
40
Conversion Factor:2

Scene Points
30
Conversion Factor:7

Petro-Points
30
Conversion Factor:1

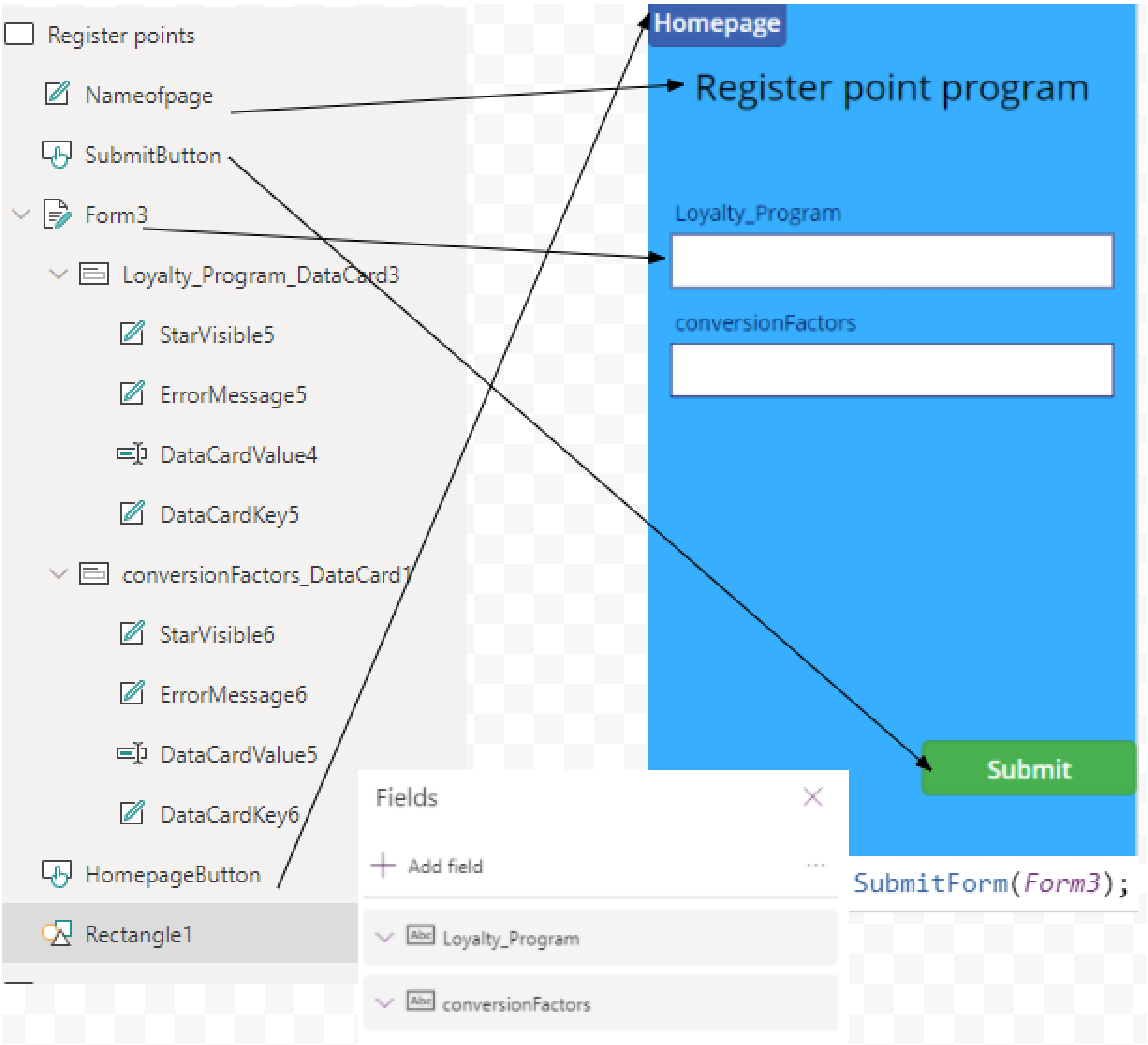
Hudsons Bay Rewards
16.5
Conversion Factor:4

PC Optimum Points
30
Conversion Factor:0.5

Amex Membership rewards
20
Conversion Factor:8

There is not a functional part on this page but is just for viewing the program name with the amount of poignant and conversion factor. All this is done by using a gallery linked to the spreadsheet and the layout shows the three parts. Also there is a Homepage button that uses the same “navigate” function from the buttons on the homepage.

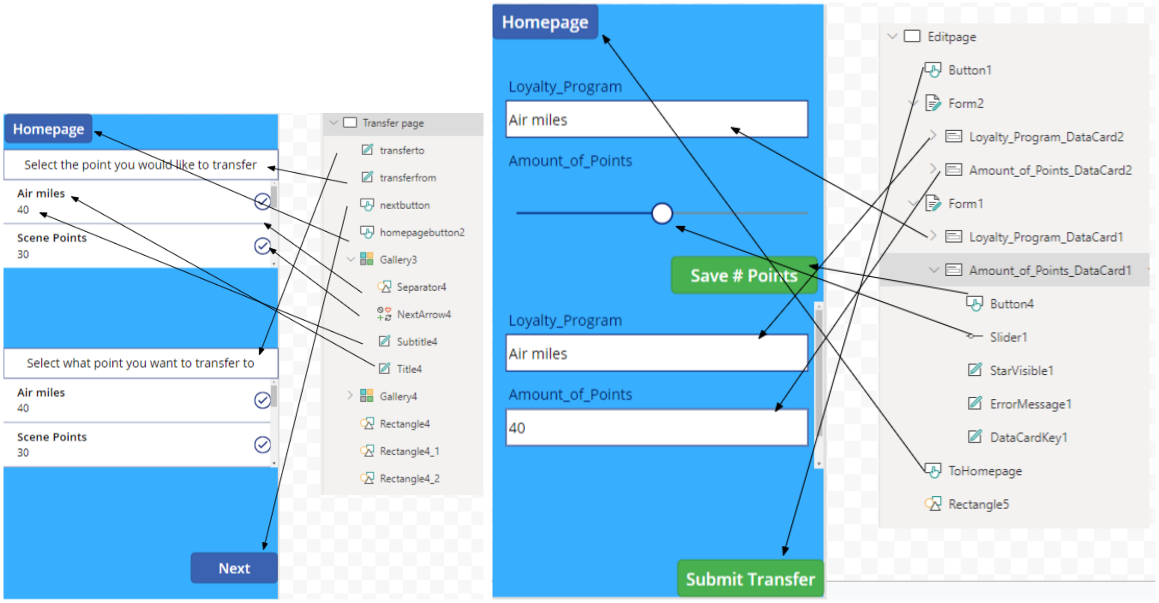
Register Points:



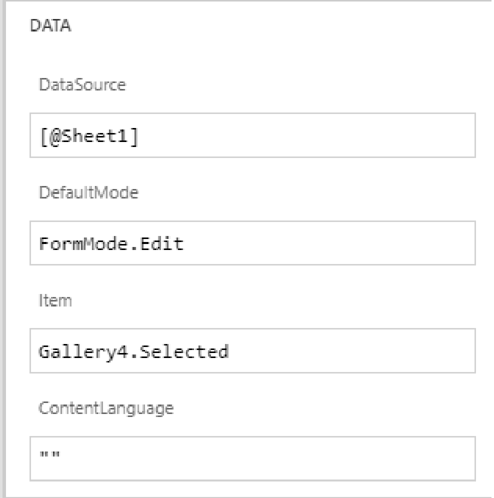
```
SubmitForm(Form3);
```

There are two buttons on the register points page. One is to go to the homepage and one is to add the new reward program to the spreadsheet. The main function of this page is done by something called an edit form in powerapps. When you add the edit form you link it to the spreadsheet and you are able to choose which fields to display on the screen. Choose Loyalty_Program and conversion factors. The rest of the function is done by powerapps and you should be able to add a new program. Lastly, to be able to save the program to the spreadsheet you need to click on the submit button which has the command “SubmitForm(Form3);” which will update the spreadsheet with the new information.

Transfer Points:



The transfer page is the most complicated. There are 2 pages responsible for this task. The first page allows you to select which program to transfer point to and from. The little check mark on the gallery allows you to change one of the forms on the next page. The "Onselect" formula is "EditForm(Form1)" which allows you to change the Form1. Same is for the next gallery below to transfer points into but this one will allow you to change a different form. The NEXT button uses the formula "EditForm(Form1);EditForm(Form2);Navigate(Editpage, ScreenTransition.None). This makes you go to the next page which allows you to choose the amount of points to transfer. There are 2 forms on this page. For each of the forms, in the advance section you need to have them linked up to the gallery on the previous page. Form1 uses "Gallery3.Selected" and Form2 uses "Gallery4.Selected". Also the fields are Loyalty_Program and Amount_of_Points for both forms. In form 1 the slider and save button are added to the Amount_of_Points-DataCard1 which is generated when making the form.


DATA

DataSource

[@Sheet1]

DefaultMode

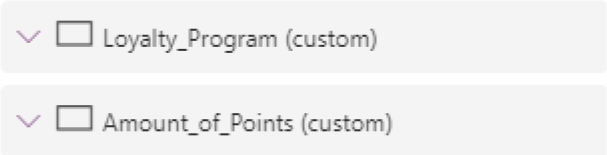
FormMode.Edit

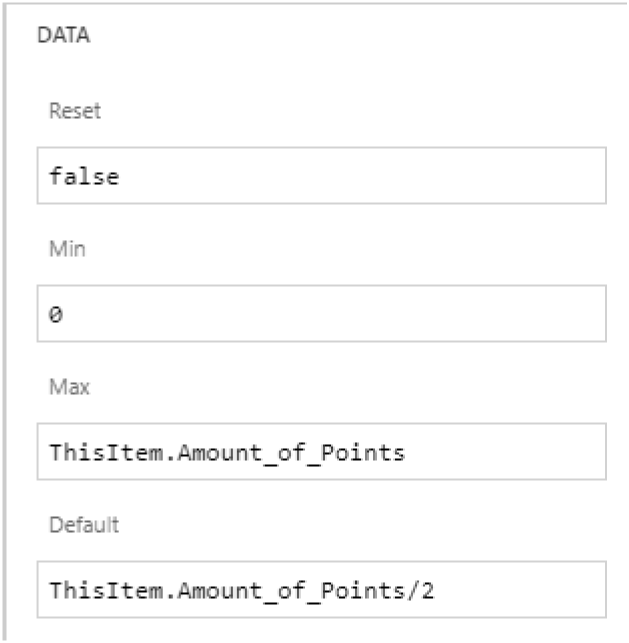
Item

Gallery4.Selected

ContentLanguage

""





DATA

Reset

`false`

Min

`0`

Max

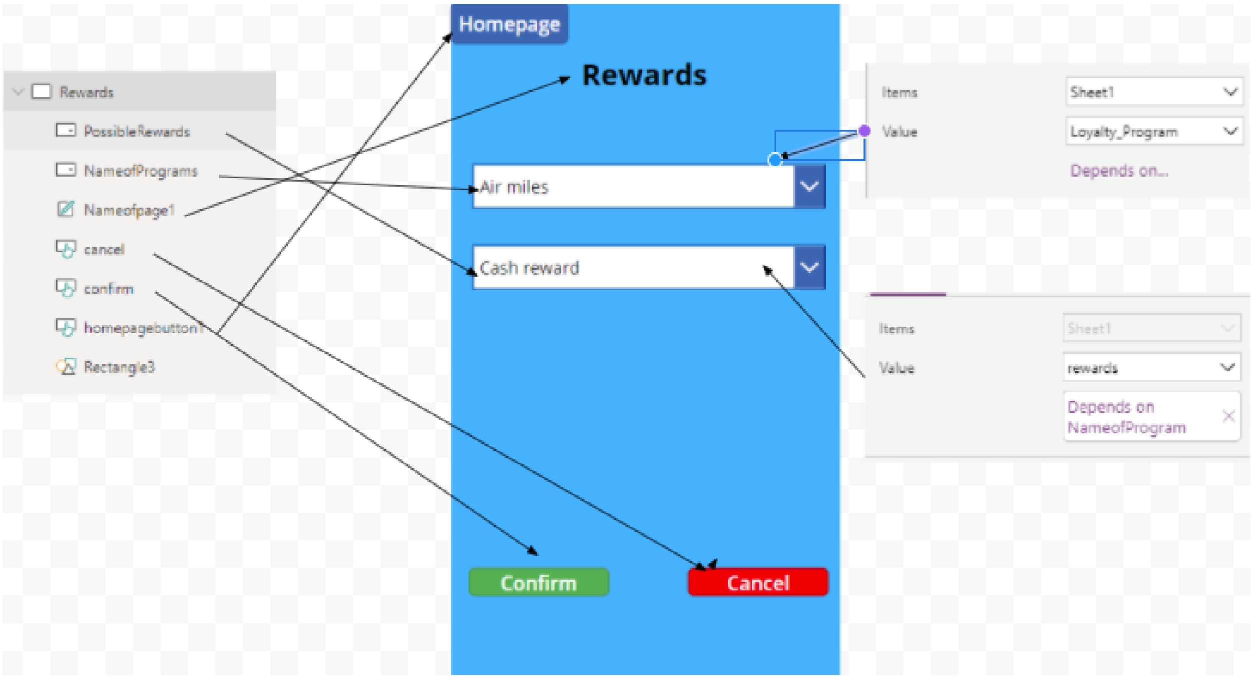
`ThisItem.Amount_of_Points`

Default

`ThisItem.Amount_of_Points/2`

This is the data for the slider bar which will allow the user to only choose points available for that program. The Save # Points button uses this formula "UpdateContext({Total1:Slider1*ThisItem.conversionFactors}) & UpdateContext({Total:ThisItem.Amount_of_Points-Slider1});" and the Submit Transfer button uses this formula " SubmitForm(Form1) & SubmitForm(Form2)". Also both pages have a homepage button that uses the same navigate formula.

Rewards:



Items: Sheet1
Value: Loyalty_Program
Depends on...

Items: Sheet1
Value: rewards
Depends on NameofProgram

Currently the reward page does not do anything and the functions are just for looks. There are two drop down menus linked to the spreadsheet. One of the menus shows all the loyalty programs and the other one shows the rewards that depend on the loyalty program chosen.

## 6.2 Testing & Validation

The team tested the various functions by using the actual pages and testing them as a user would. The rigorous test entails testing the homepage buttons and the exchange points function. It was tested multiple times, by various users that the home page buttons work correctly. First, we tested my account button, it correctly directed us to my account page. As well all user information with regards to each loyalty rewards program was displayed correctly. Additionally, the register points page and transfers points page work; the user was able to access them with ease.

The tests for the transfer points page were tested by exchanging one point value for another. This was tested a plethora of times with various currencies and exchange/conversion factors. This was tested in the app and in the spreadsheet, the numerical model of the final design. The application was working in the spreadsheet, the various currencies inputted were correctly being converted to the proper point value desired. Moreover, the function works well in app updating the data in real time. When values were inputted, the value was able to be converted to the proper desired value.

When testing the rewards page, the user attempts to purchase a reward with tier loyalty points, the function passes the test successfully taking the proper number of points out of the user’s account. Of course, the user was not actually given a reward because there is none to give, but the main feature works. Moreover, the register points page was tested by the user entering a new point program and the system updating it into the database with a conversion factor. The Final design successfully accomplished this, with a new loyalty program in the application, that works with all other features of the app.

# 7 Conclusions and Recommendations for Future Work

Overall, the team's final design was well received by the client and the judges. Some lessons learned along the way were to test multiple times in a variety of scenarios to ensure the prototype works. Additionally, always get ahead on work and do not be afraid to ask for help. Moreover, iterate your ideas and make a plethora of avenues to explore with your solution in order to make the best final product. If the team had more time, they would have updated the app with real time changing conversion rates based on how the business is doing, as well as refine the app to look more pleasing to the user. The features that were abandoned due to insufficient time were the help and instructional videos for the user if they need help. These features are non-functional, so it did not affect the final product significantly.

- Future work should focus on the development of the app, take into consideration other similar applications (benchmark) that would be used as inspiration
- Many ideas are mentioned in this document for future work, looking into them would, we believe, to a strong and successful application
- Innovate the UI and UX to garner attention from all demographics

# 8 Bibliography

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