Team MakeItRain

Phase 2

Gathering User Requirements

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Techniques Used

We used both, survey and interview in order to gather user requirements because they complement each other very well. Surveys are scalable so we can have many responses and aggregate the data without much effort. We have gathered 43 responses to our survey, which are sufficient to allow us to have a quick and simple understanding of user requirements. However, one weakness of the survey is that the answers to the questions are either binary or are some sort of a scale from 1-10, so there's no nuance when answering the questions. It forces the users to not be able to fully express their thoughts. Comparatively, the interview are not as scalable as the survey, but it allows us to gather more detailed and nuanced responses. For example, in a question such as "what do you think about feature X", the user can answer with much more detail and clarity. With the combination of the complementing strengths of the survey and the interview, we are able to gather in-depth user requirements and give us a better picture on the needs of the users.

Users Selected

The majority of the users that we have selected are Canadian residents within 19 - 25 age group, due to the majority of connection that we have belongs in that age group. Although covering more various age groups would have been more beneficial, this age group contains and represents users with various banking needs. Most of the users within this age group also have experience using online banking, due to being of a younger demographic which are more open to technology (Garrett et al., 2014). Response and feedback from experienced users can subjectively give us greater insight than users who have never used online banking. This age group also contains users that have bank accounts across multiple institutions (Garrett et al., 2014). Since users with bank account across multiple institutions benefits the most out of OneBank, this will help give us a more relevant responses.

Our approach to collect the survey responses was to get as many responses as possible. Having many users fill out the survey gives us bigger overview of our user's experiences with online banking which will provide more accurate and representative result. For the interview, we tried to select around 10 users from various age groups to gather in-depth user requirements. Our approach was focused on the user to complete specific tasks, along with thoughts on current online banking solutions. The quality of the response with the interview gives us great insight which differs from general understanding that survey provides us. These responses gathered from both the survey and the interview will help us understand the user requirement greatly, and allow us to develop and improve OneBank that will be welcomed by the users.

Task Descriptions and Analysis

1. Finding out current overall balance across multiple bank accounts

Description & Prerequisites

Having a grasp of financial standing is very important to stay on track and to reach a goal. Many people keeps their funds in different institutions to provide convenience when they need, which adds complexity to determine the overall balance.

Current flow/steps

1. Open a bank login page
2. Login using card number and password
3. Record the balance within the bank
4. Repeat step 1 - 3 until all banks are recorded
5. Cumulate total balance among all banks

Issues with current flow/steps

The current flow consists of a lot of repetitive task, and is very time consuming. The process can take 20 steps if the user has account in all 5 major banks in Canada. It can be more if the user has accounts in more than 5 institutions.

Solution

OneBank's unified dashboard will display overall balance and other relevant information at glance. This feature can cut down the steps down to 3 steps, regardless to the amount of accounts the users has:

1. Open OneBank login page
2. Login
3. View the overall balance section of the dashboard

2. Understanding expenditure among categories

Description and prerequisites

One of the issues with keeping track of your expenditure is that you simply see a list of how much money you have spent per month. Many banking applications have a very rudimentary way of keeping track of your monthly expenditure. For example, TD only provides you with how much money you have spent per month without giving you a breakdown where the money was spent (ie food, clothing, or entertainment).

Current flow/steps

If you use your credit or debit cards to buy something, most banks in Canada keep track of your transactions for a certain period of time. However, if you want to keep track of how much money you are spending amongst different categories (ie entertainment, food, clothing etc.) you have to do the following manually:

1. Open up your transaction history on your banking website
2. Open an excel spreadsheet
3. Look at item X and manually determine which category the item belongs to (ie if you spend $13 at Cineplex, you put the money under entertainment)
4. Repeat step 3 until all items are processed
5. Aggregate using formulas

Issues with current flow/steps

The issue with the process above is that it is very time consuming. Many people are not familiar with data aggregation software such as excel. Furthermore, many people do not have the time or patience to go through their transaction history and manually enter them into excel.

Solution

OneBank's solution does the data aggregation automatically whilst providing feature rich list of transaction history that allows the user to search, sort and filter. Using the aggregated data, various visualizations such as graphs and charts shown in Appendix A are generated to allow the user to understand and compare their expenditure by categories.

3. Payment/Transfer from multiple accounts

Description & Prerequisites

Having multiple bank accounts leads to multiple balances. Some people prefers to distribute their assets across multiple institutions, in case of emergencies. Therefore, transferring or paying big sums of money may require internal transfers first.

Current flow/steps

For example, a person has to pay university $10,000 for tuition and he has three bank accounts, A, B and C, with $4,000 each. The steps that he needs to follow currently are:

1. Log in to bank account A
2. Transfer $4,000 to bank account C
3. Log in to bank account B
4. Transfer $2,000 to bank account C
5. Log in to bank account C
6. Transfer $10,000 to the university

Issues with current flow/steps

The current steps require logging into 3 different bank accounts and it involves 3 different transactions in order to make single payment. It is time consuming, involves math, more prone to error, and may leave the user unsatisfied.

Solution

With OneBank, we have access to all the bank accounts of the user. Therefore, we can provide the user an interface to choose specific amounts of money across various accounts for a single transaction. This will save time for the user and increase their satisfaction. Also, another feature that can save time in doing the math is Waterfall Prioritization. In this feature, the user simply needs to order the bank accounts they want to pay from first. The most prioritized account that is selected will be used to transfer the money. If it does not have enough balance, the next account will be chosen, and so on so forth.

4. Logging into Bank Account

Description & Prerequisites

Having multiple bank accounts requires multiple login screens. Different institutions use different method of logging in, such as the debit card number, user specified username, or email address. User is required to remember the login method each institution uses, and apply accordingly.

Current flow/steps

1. Open Bank Homepage
2. Locate and click login or sign-in button to open login page
3. Enter card number, username, or email address with the password

Issues with current flow/steps

Having multiple accounts across multiple institutions leads to users needing to memorize multiple ways of logging in. This is prone to errors and it leads to unnecessary frustration.

Solution

OneBank’s login system will incorporate one login for all bank accounts that the user has linked. The user will then be able to pass the login screen with a simple login, or other established solutions such as Apple’s touchID.

5. Monthly expenditure comparison

Description & Prerequisites

Comparing the spending habits on a monthly basis is important to understand if a user is on track with their financial goals. Solutions that are currently available are able to show the spendings of past months, but do not provide any functionality to compare between the months.

Current flow/steps

1. Download monthly statement PDF for the months that needs comparison
2. Record the data for each month
3. Repeat steps 1 and 2 for each banking institution
4. Aggregate and possibly categorize monthly expenditure
5. Compare between the months

Issues with current flow/steps

The issue with this method is that it's time consuming nature and the limitation of information that users has access to. Needing to manually process the data from monthly statements is very tedious task, and requires lots of time. Furthermore, different institutions may provide the data differently, which greatly increases the complexity when trying to aggregate.

Solution

OneBank's solution automates all the data aggregation and allow the user to search and filter in order to compare months with ease. Furthermore, stacked bar chart will be provided to visualize the monthly categorized expenditure, as shown in Appendix A, Visualization D. Automating a tedious task and providing a visualization for the user will greatly increase their satisfaction.

Artifacts Used

For the survey, we chose to use Google Forms due to its ease of creation and compilation of results. We have initially tried to solutionize the survey using SurveyMokey, but they required a membership fee if we wanted to add more than 10 questions. Since we had at least 15 questions in mind to ask, we settled with Google Forms which had similar functionality without the limitation. Once the survey was created, it was shared through social media by all team members. We accumulated 43 responses and the results summary generated by Google Forms is included in the Appendix C.

For the interview, we met users directly in person to perform one-to-one structured interview. The interview consisted with opinion questions and specific task related questions. The opinions that we asked for are aimed to compare and get feedback of OneBank's' solution compared to current online banking solution. We have developed several low-fidelity mockup of interfaces using Balsamiq Mockups (included in Appendix A), and asked users for their opinions to gather feedback from the users. By providing visual example of what and how it For specific task related question, we asked the users to demonstrate how they are currently approaching each given task, and thoughts towards OneBank's solution.

Summary of Results

The results from the survey and interviews complemented most of our solutions for the 5 tasks and provided insights for different approaches and next steps. According to the survey, majority of the user spends more than 5 minutes in each online banking session. Our approach of using dashboard and visualizations can provide equivalent information in a lot shorter period of time, and the extra time can be used to provide the user with further in-depth analysis. The survey results for average monthly expenditure will help us to tailor the scale of our visualizations amounts too. Majority of the people have more than 3 separate banking accounts. It supports the solution for Task 1 where we accumulate the financial balances across all the accounts. The solution for Task 4 is complemented as well, since the user does not need to remember the different credentials for each account. Approximately 84% of the people use online banking to pay bills, and around one-third of them use different accounts to pay it. Our interview question for the task also revealed that the current flow is very tedious and the solutions to this that the interviewees mentioned are very similar to the solution in Task 3. Around 65% of the people track their monthly expenditure online. According to our interviewees, the task of analysing data just through the transaction history are very inefficient and difficult. This supports the idea of having functionalities like search, sort, and filtering mentioned in our Task 2 solution.

For the prototypes, the most of the users liked the prototype of widget style dashboard (Dashboard B). They mentioned that they would like pre-configured widgets that they can add or delete just like Android and iOS have, whilst not flooding the user with too many information. For the visualizations, the users liked all the visualization prototypes and had a hard time ranking

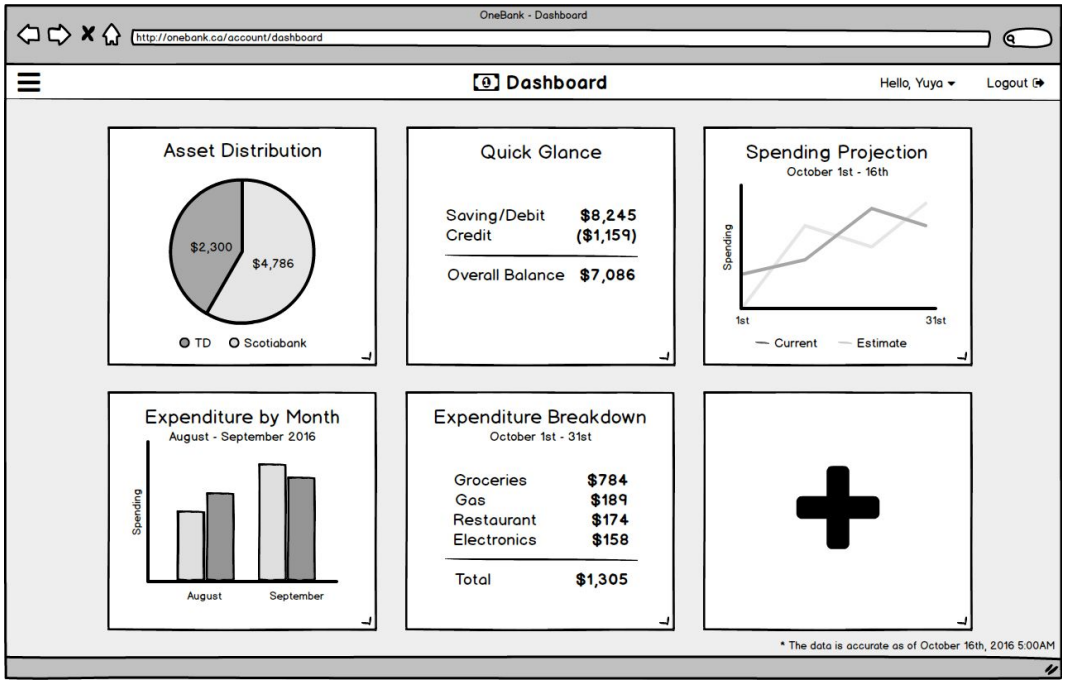
them. They found stacked bar chart (Visualization D) to be the most useful one. It will give them the ability to see their monthly breakdown of what they spent their money on (food, utilities, etc). Also, they were fascinated by the heatmap (Visualization A) as now they can leave their credit card at home if they are going to place they end up spending a lot.

Next Steps

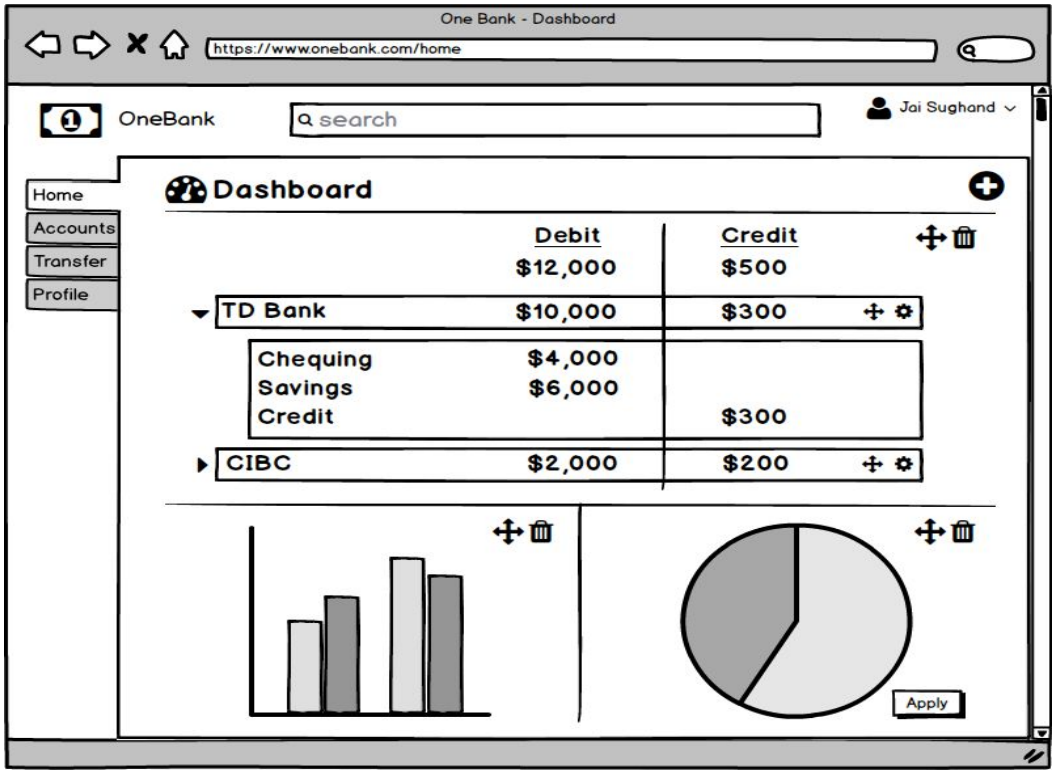
In our survey, majority of the people rated online banking websites easy to use, therefore we will try to keep the user interface similar to the current solutions. The interviewees provided great feedback for our interfaces in the prototypes. For visualization D, the most of the interviewees suggested that the filtering and search layout looks distractive and confusing and that it could be more simplistic. Also, one of the interviewee brought to our attention that RBC has started providing categories for transactions but with very limited functionality. Hence, we will be studying the interface RBC is providing for our future prototypes. The demand for some features over the other will let prioritize or eliminate them in future. Therefore, with the help of this information, we will be modifying and improving our current prototypes and features as we move to our next phase of the project.

Appendix A: Low-fidelity Prototypes

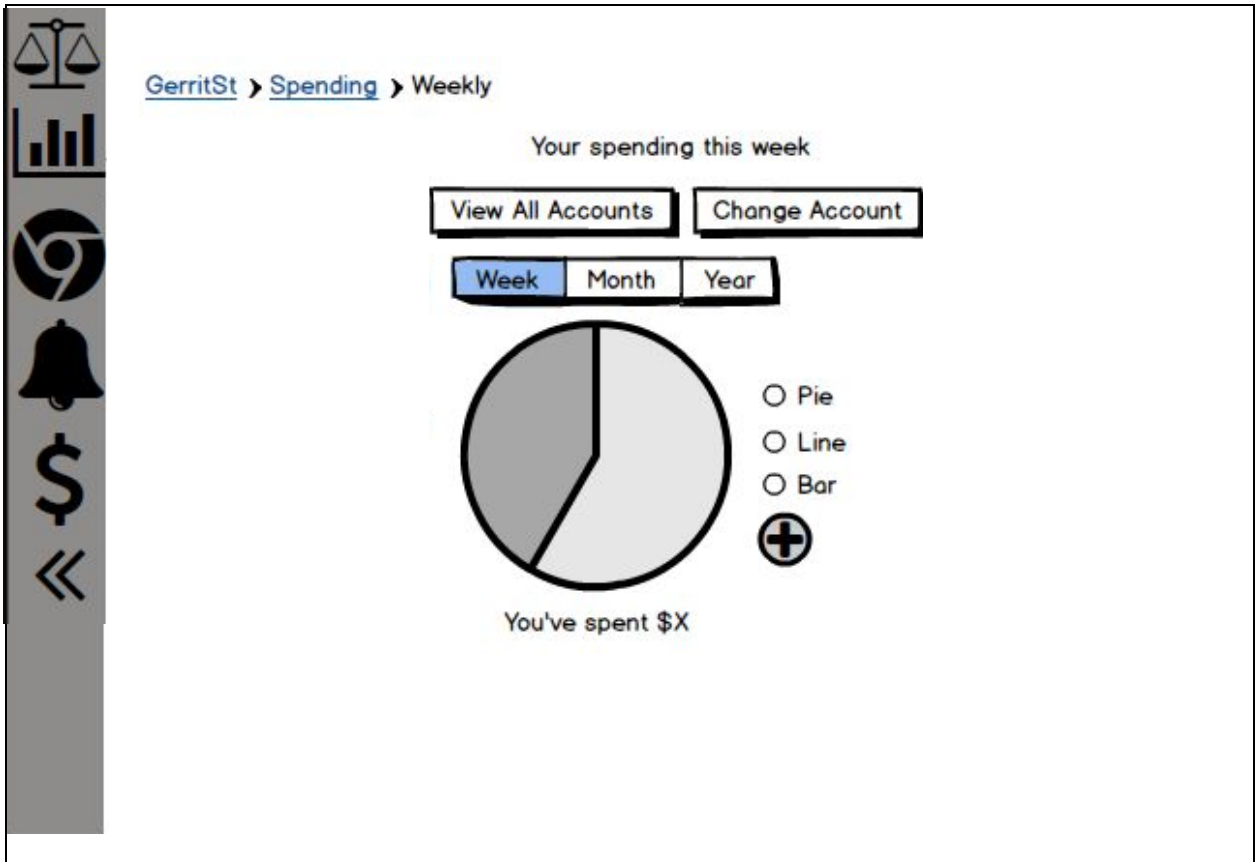
Dashboard A



Dashboard B

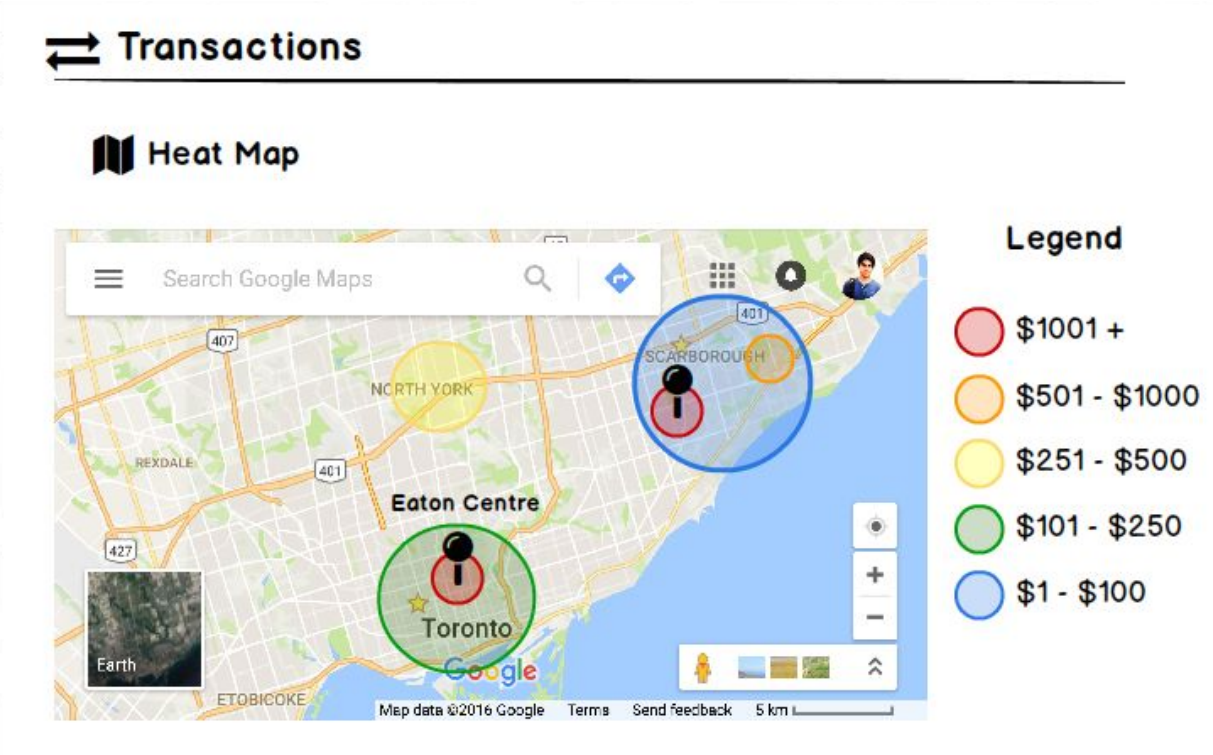


Dashboard C


GerritSt › Spending › Weekly
Your spending this week
View All Accounts
Change Account
Week
Month
Year
Pie
Line
Bar
You've spent $X

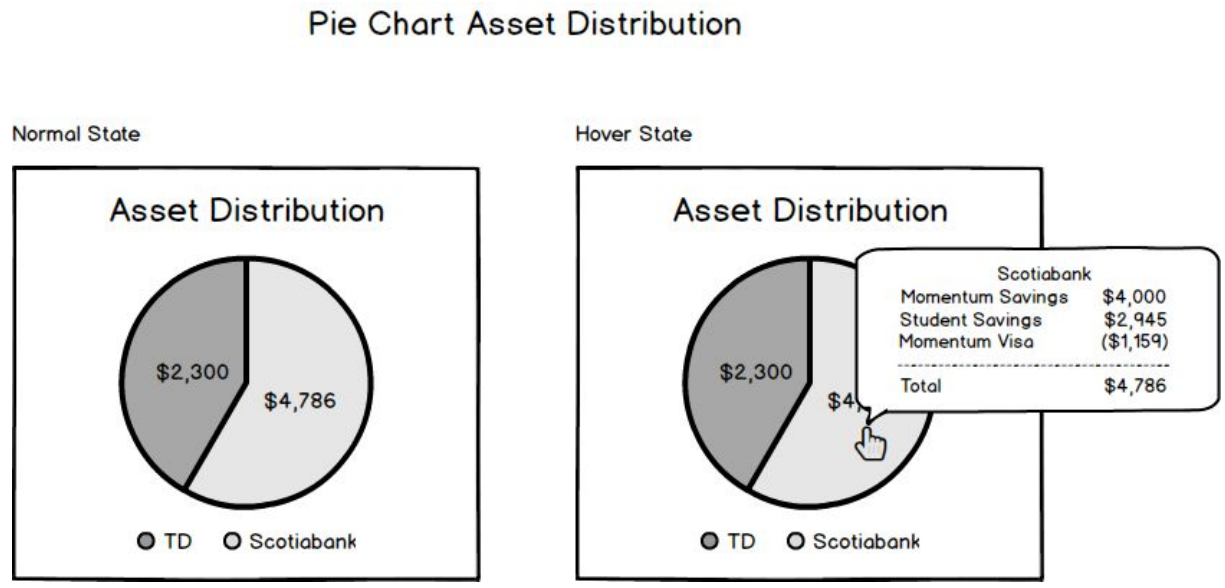
Visualization A

Heat map showing locations where expenditures are concentrated.



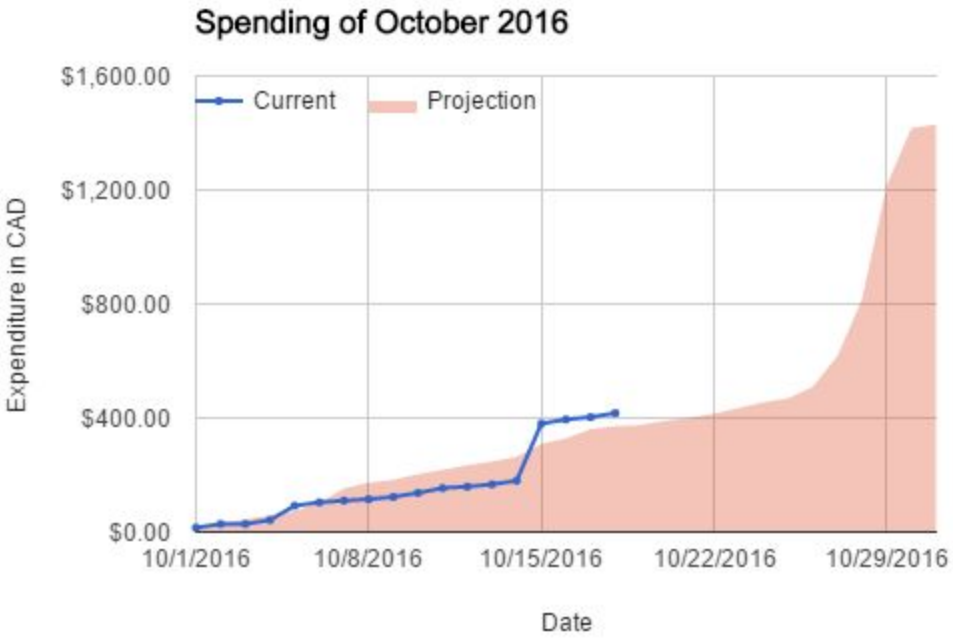
Visualization B

Pie chart showing which institution and accounts the assets are located



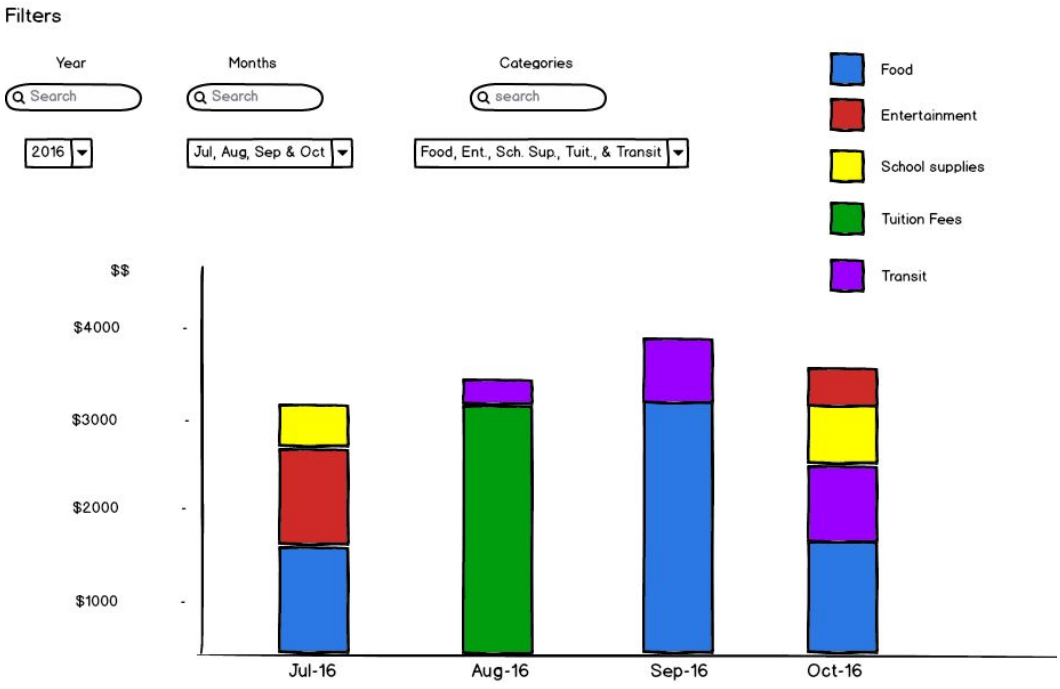
Visualization C

Line graph showing expenditure of current month with projection based off past months



Visualization D

Stacked bar chart with that shows categorized expenditure per month



Appendix B: Interview

Generic Questions

1. How do you feel about online banking?
2. What features do you think online banks are lacking?
3. Do you prefer mobile or web banking? Why?
4. What do you think of the concept of OneBank?
5. Check out these Dashboards (included in Appendix A).
   Which one do you prefer? Why?
6. Check out these Visualizations (included in Appendix A).
   Rank them and provide reason for it.

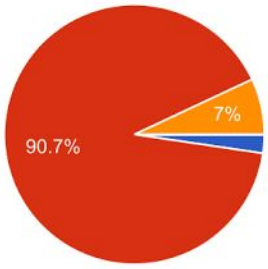
Task-Related Questions

1. Let's assume you had multiple bank accounts, how would you find the total balance of those accounts?
2. Let 's say you spent $1000 last month. How would you categorize and sort your transactions?
3. Let's say you had 3 different Bank accounts A, B, and C with a balance of $500, $300, $200 respectively. If you had a bill for $900, how would you pay that bill?
4. Let's say you have 2 bank accounts A and B. How would you compare the amount spent in the month X and month Y?
5. Can you think of any other tasks that can be improved upon?

Appendix C: Survey

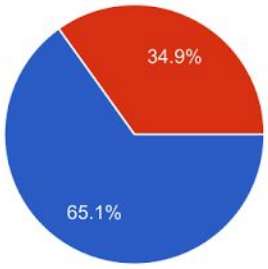
Survey Link: https://goo.gl/forms/b4gG6VhVYaAj2ekF2
Total Responses: 43

What is your age group?



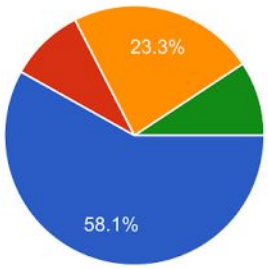
18 and under	**1**	2.3%
19-25	**39**	90.7%
26-35	**3**	7%
36-45	**0**	0%
46-55	**0**	0%
56-65	**0**	0%
66 and above	**0**	0%

What is your Gender?



Male	**28**	65.1%
Female	**15**	34.9%
Other	**0**	0%

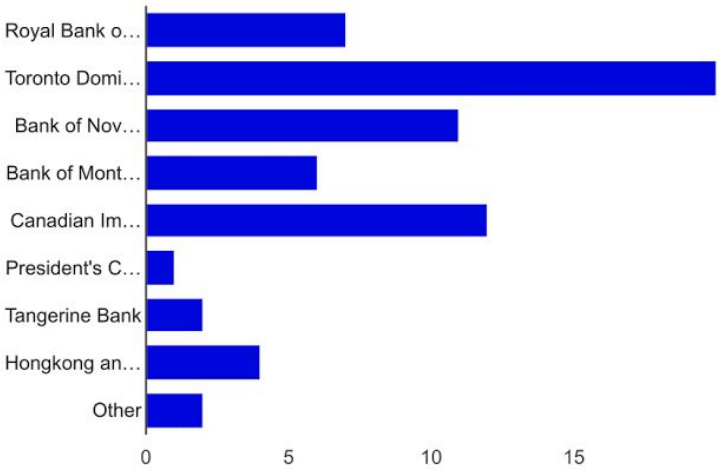
What is your legal status in Canada?



Citizen	**25**	58.1%
Permanent Resident	**4**	9.3%
Temporary Resident	**10**	23.3%
Other	**4**	9.3%

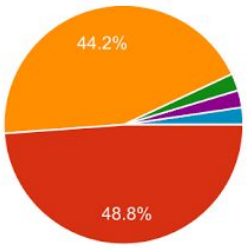
Basic Banking Information

Which banks do you have accounts with?



Royal Bank of Canada (RBC)	**7**	16.3%
Toronto Dominion Bank (TD)	**20**	46.5%
Bank of Nova Scotia (Scotiabank)	**11**	25.6%
Bank of Montreal (BMO)	**6**	14%
Canadian Imperial Bank of Commerce (CIBC)	**12**	27.9%
President's Choice Financial (PC)	**1**	2.3%
Tangerine Bank	**2**	4.7%
Hongkong and Shanghai Banking Corporation (HSBC)	**4**	9.3%
Other	**2**	4.7%

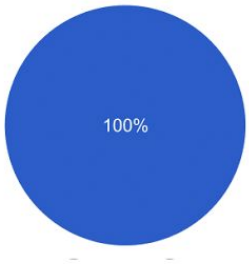
How many bank accounts do you have? (e.g. Chequing, Savings, Credit)



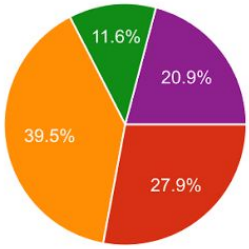
0	**0**	0%
1 - 2	**21**	48.8%
3 - 5	**19**	44.2%
6 - 8	**1**	2.3%
9 - 10	**1**	2.3%
10 +	**1**	2.3%

Do you use Online Banking?

Yes	**43**	100%
No	**0**	0%

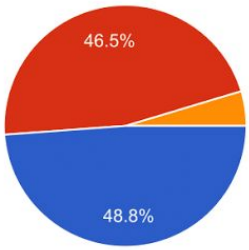


How often do you use Online Banking in a month?



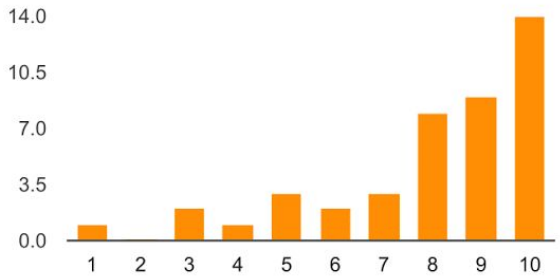
0 times	**0**	0%
1 - 2 times	**12**	27.9%
3 - 5 times	**17**	39.5%
6 - 10 times	**5**	11.6%
More than 10 times	**9**	20.9%

How long do you spend in one Online Banking session?



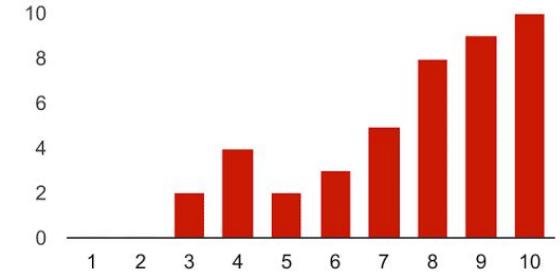
0 - 5 mins	**21**	48.8%
5 - 15 mins	**20**	46.5%
15 - 30 mins	**2**	4.7%
30 - 60 mins	**0**	0%
More than 60 mins	**0**	0%

How easy are Online Banking applications/websites to use?



Very Hard: 1	**1**	2.3%
2	**0**	0%
3	**2**	4.7%
4	**1**	2.3%
5	**3**	7%
6	**2**	4.7%
7	**3**	7%
8	**8**	18.6%
9	**9**	20.9%
Easy Peezy Lemon Squeezy: 10	**14**	32.6%

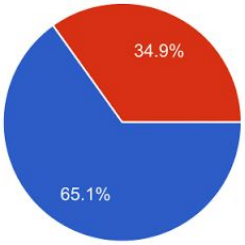
How satisfied are you with the features of Online Banking applications/websites?



Very Unsatisfied: 1	**0**	0%
2	**0**	0%
3	**2**	4.7%
4	**4**	9.3%
5	**2**	4.7%
6	**3**	7%
7	**5**	11.6%
8	**8**	18.6%
9	**9**	20.9%
Very Satisfied: 10	**10**	23.3%

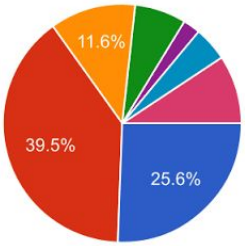
Spending

Do you track your spending on a monthly basis?



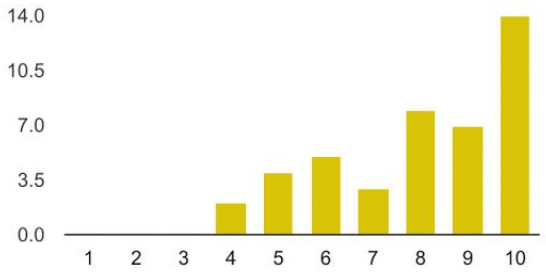
Yes	**28**	65.1%
No	**15**	34.9%

What is your estimated average monthly expenditure? (in CAD)



$0 - $500	**11**	25.6%
$501 - $1000	**17**	39.5%
$1001 - $1500	**5**	11.6%
$1501 - $2000	**3**	7%
$2001 - $3000	**1**	2.3%
$3001 and above	**2**	4.7%
I prefer not to say	**4**	9.3%

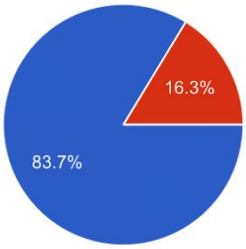
I think visualizations can help analyze my expenditures and balances.



Strongly Disagree: 1	**0**	0%
2	**0**	0%
3	**0**	0%
4	**2**	4.7%
5	**4**	9.3%
6	**5**	11.6%
7	**3**	7%
8	**8**	18.6%
9	**7**	16.3%

Strongly Agree: 10 **14** 32.6%

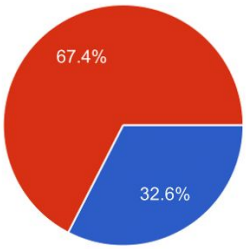
Do you pay any bills through your banks?



Yes	**36**	83.7%
No	**7**	16.3%

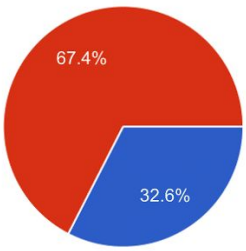
Billing

Do you use different accounts to pay Bills?



Yes	**14**	32.6%
No	**29**	67.4%

Do you use recurring bill payment options?



Yes	**14**	32.6%
No	**29**	67.4%

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