Homework 2

Group 10
Class: CS-361

I. Prototypes:

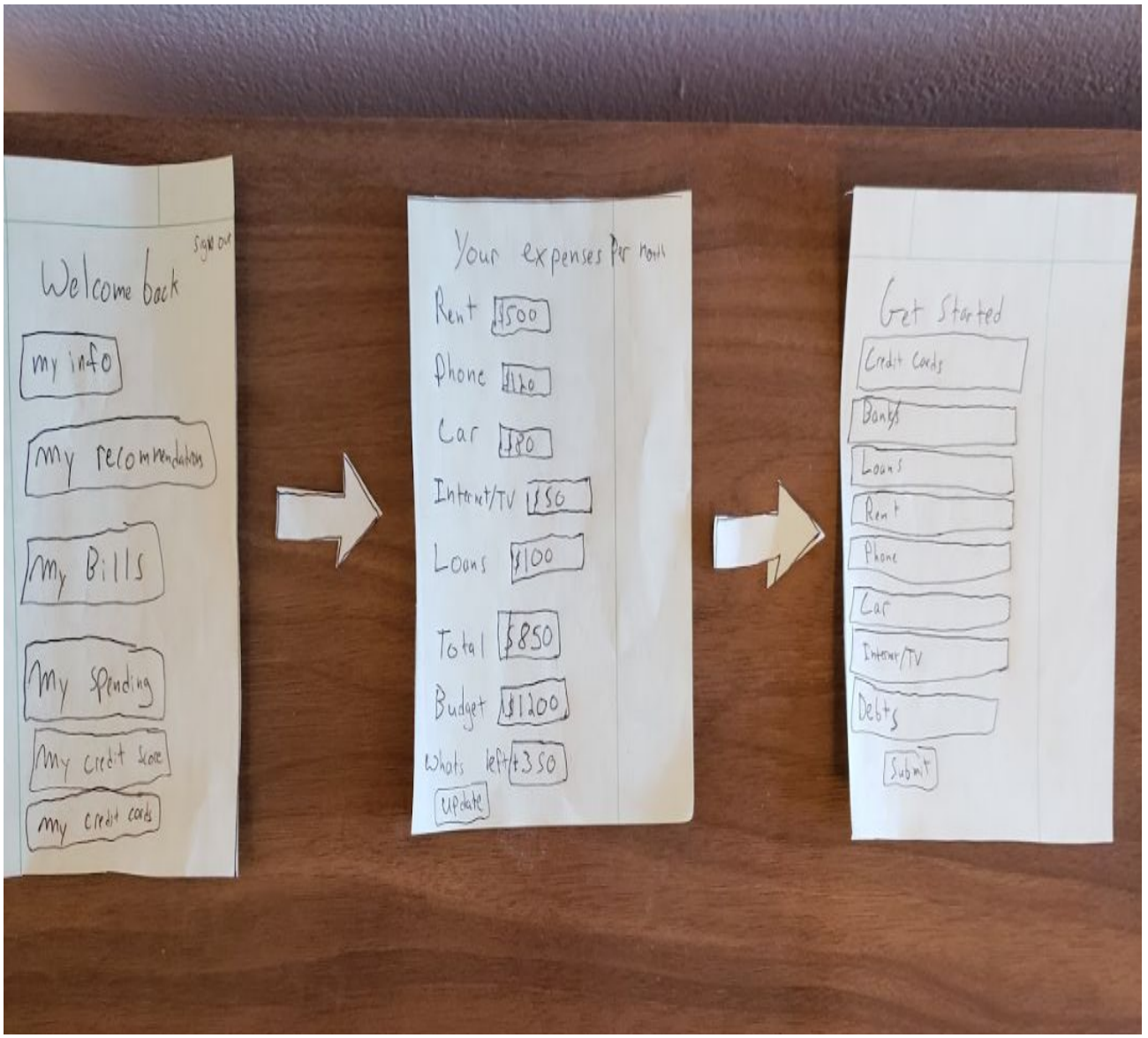


Image 1: my info

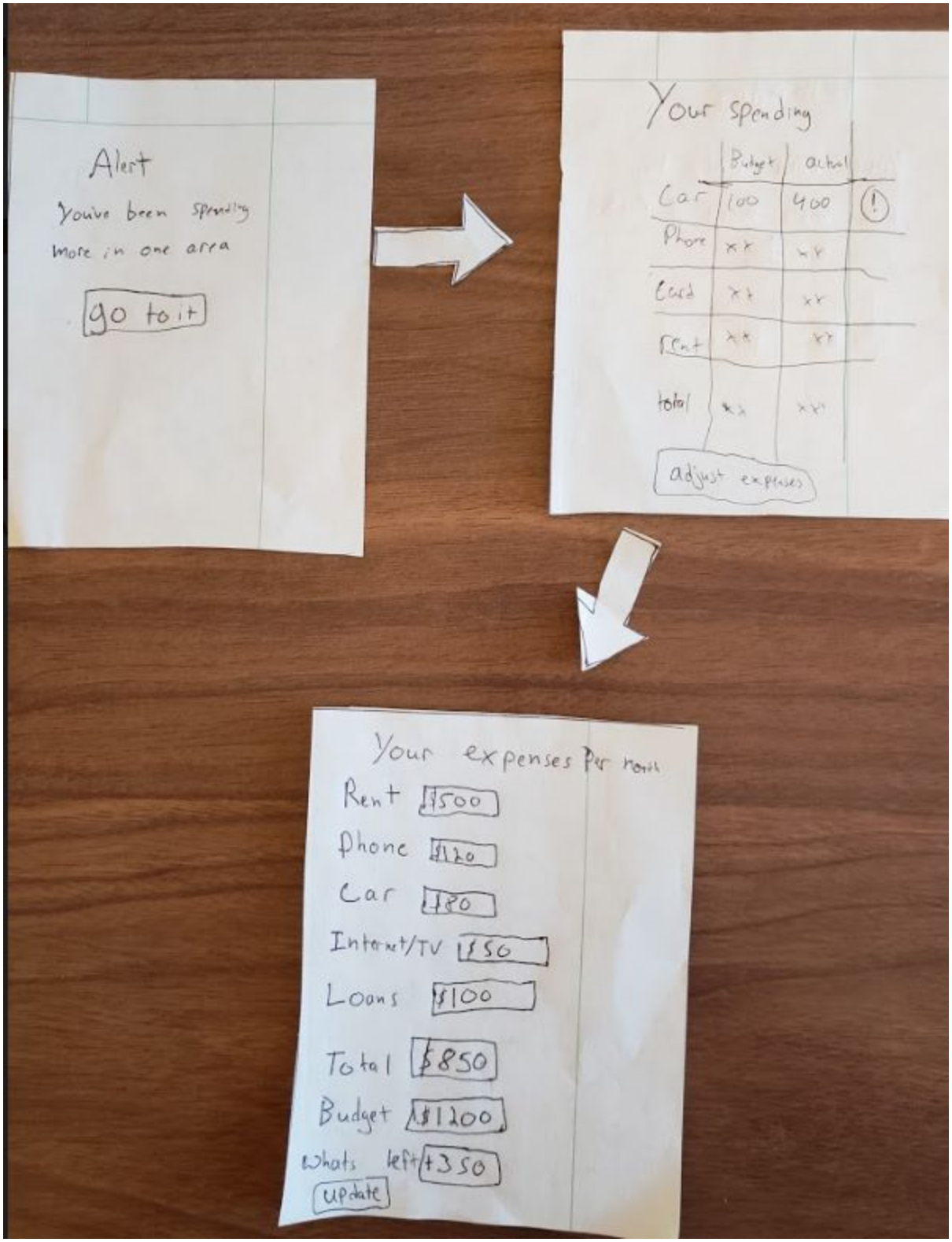


Image 2: my spending

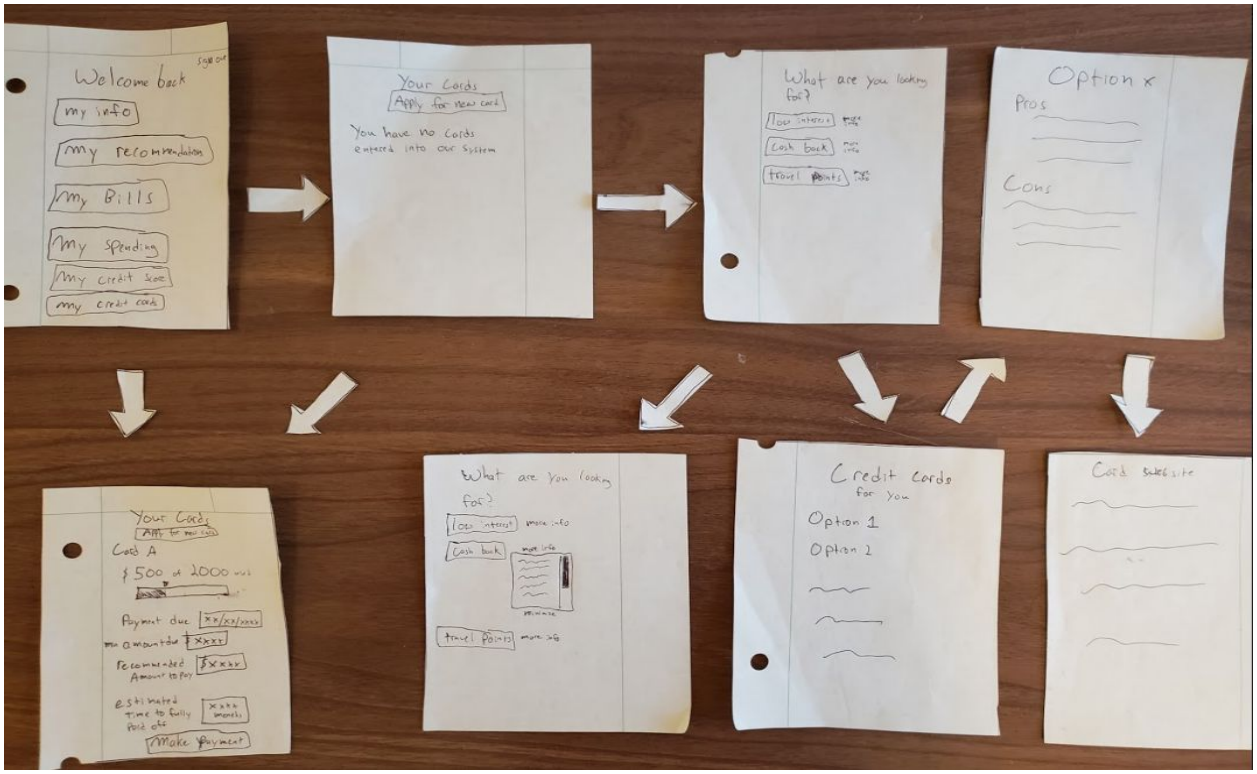


Image3: My credit card

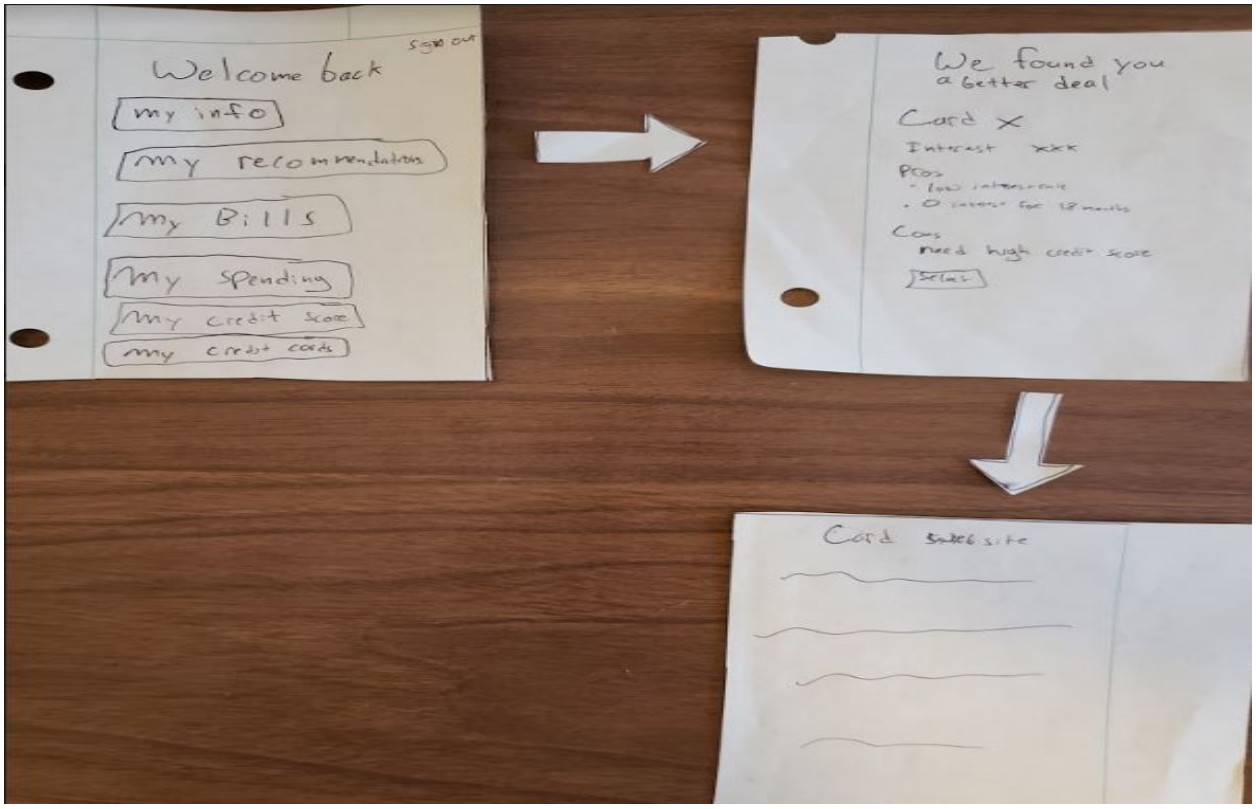


Image 4: My recommendation

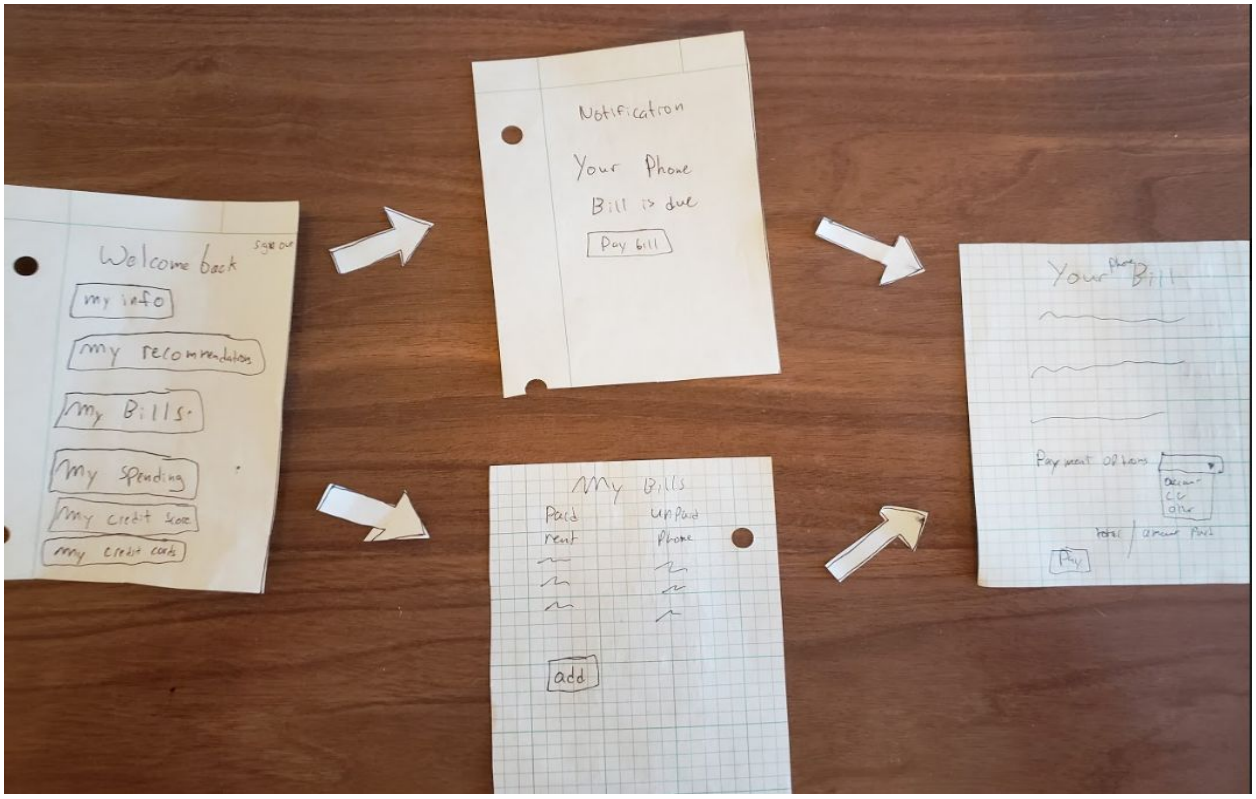


Image 5: My bills

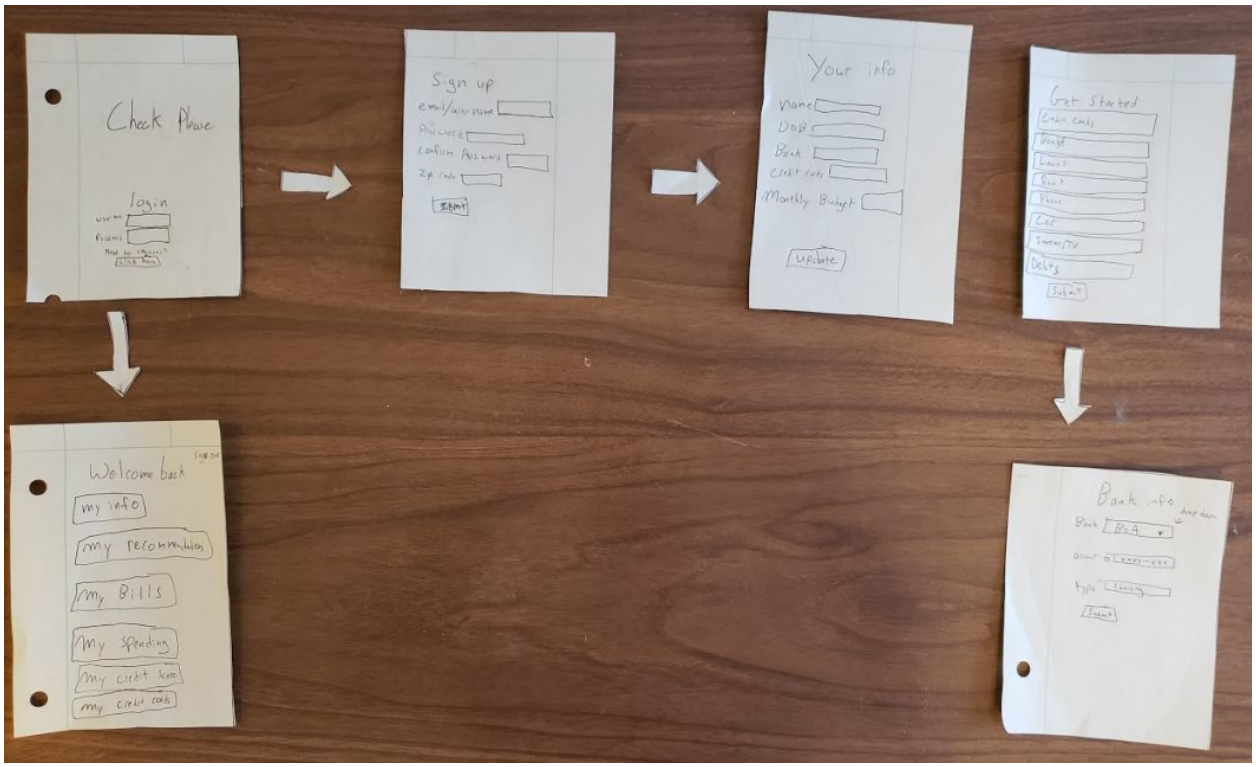


Image 6: Account creation

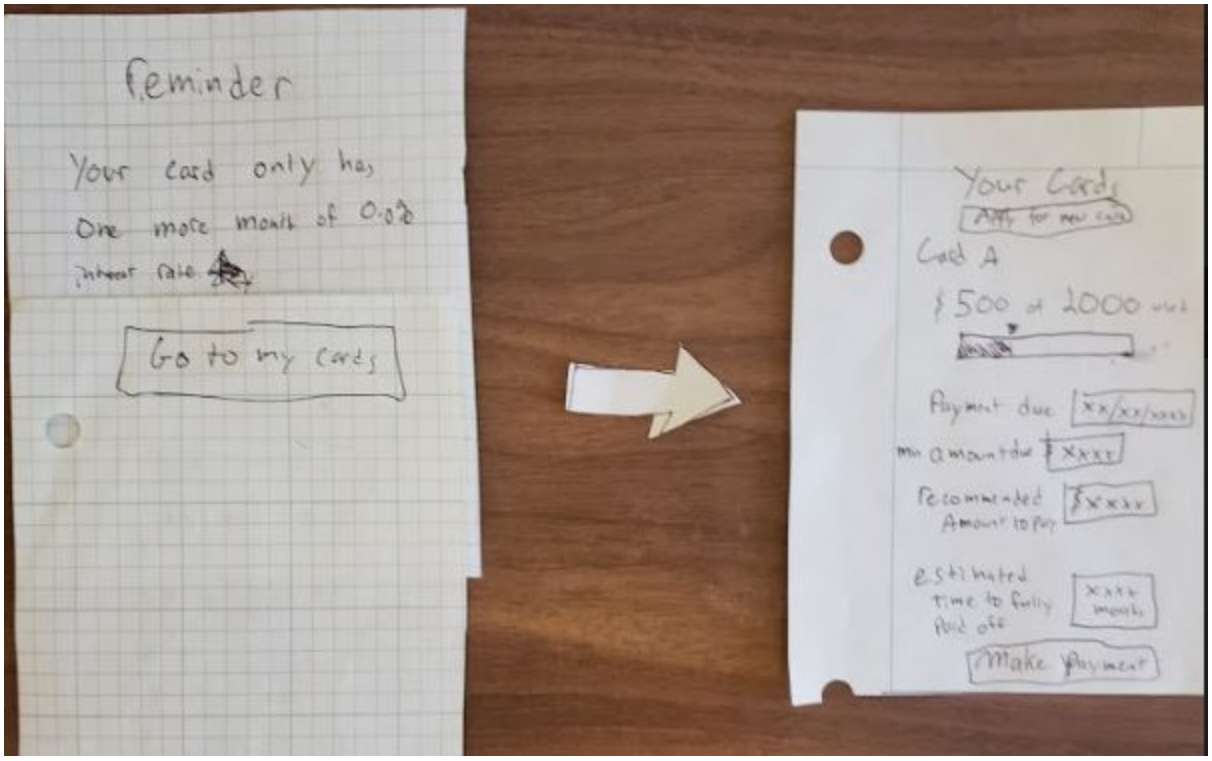


Image7: Reminders

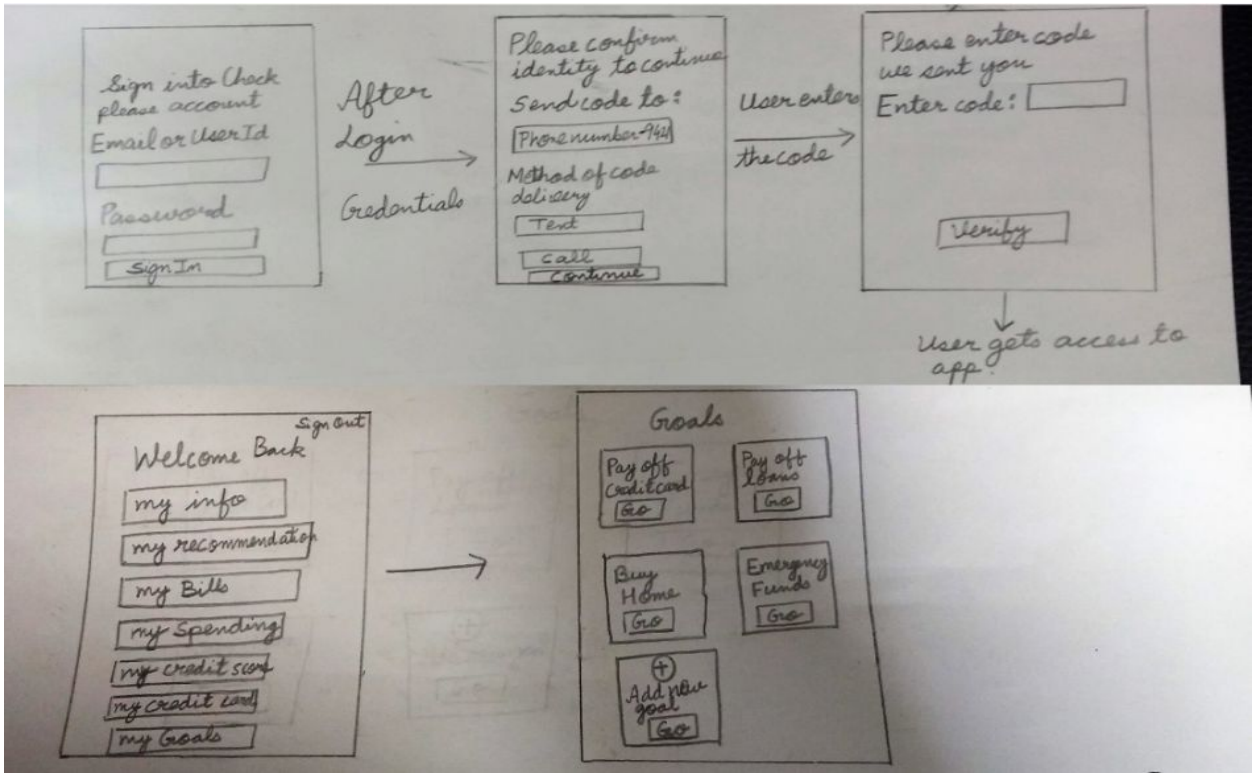


Image 8 : Alternate login and my goals section

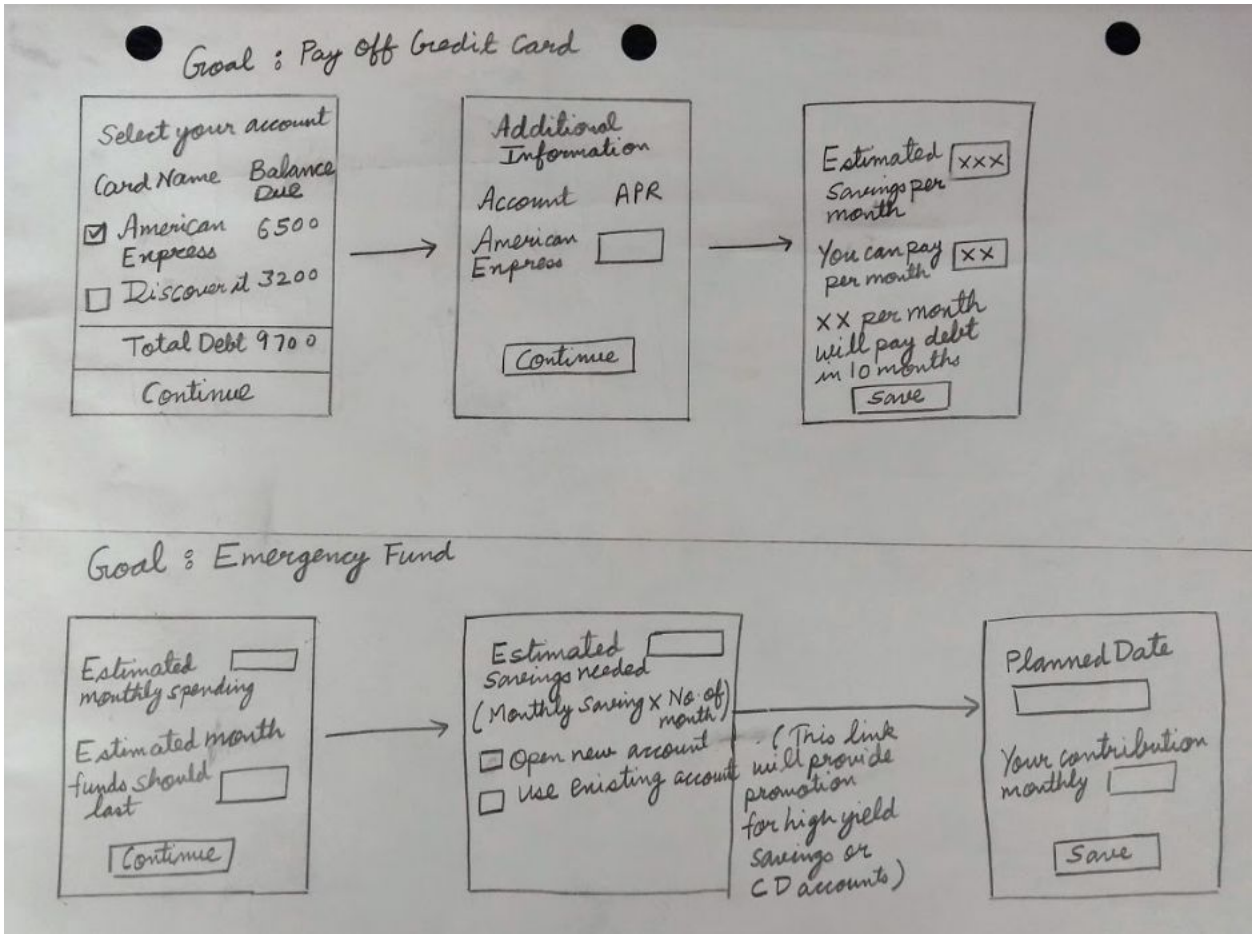


Image 9: my goals options

II. Requirements Definition:

Problem Description

People from all walks of life can find themselves in problematic financial situations. Debt is an easy thing to incur, and can be very challenging to pay off completely. High interest rates and minimum payments lead to greater debt load, which can ultimately result in a default, which leads to a series of long-term negative credit repercussions.

Our Solution

Check Please will help users pay off high-interest debt, and do it as quickly as possible given the user's particular income and expenses. Our tool does this by finding and analyzing available credit options that are most appropriate for a individual user's needs.

Functional Overview

Users will each be required to create a profile (including a username and password, along with a verified email address) which will be used for a secured login.

- This screen will be easy to navigate and display the options of logging into an existing account or registering a new account. Password fields should have privacy input.
- If the user logs in, the data will be sent to the client and will check the database to ensure that the information matches and verifies the account and password. If successful, the user should go to a new screen displaying their options within their account. If not, the user will see an error expressing that the combination is incorrect or does not exists in the database.
- If the user registers a new account, they will fill information out in each field that will be sent to the client server database with the objective to add new account information to it. If the email/username already exists, the software will prompt the user this information and provide alternatives like recovering password or using a different email/username. Additional, one-time access, verification would be needed with either email, text confirmation, or call to confirm the information with an access code.

Users will enter data regarding their regular expenses and income.

- This should display a list of fields and should have predetermined categorical definitions:
    - Rent/mortgage
    - Auto loans
    - Food expenses (groceries/restaurant)
    - Bills (internet/cable/electric/gas/water/etc.)
    - Commute expenses
    - Extracurricular expenses
    - Miscellaneous
    - Income from primary salary/work and typical period of payment IE bi/weekly.

- Indirect income – users should be able to specify how consistent this may be and the software should average out an amount if necessary.

Bank and credit information will be necessary for accurate and reliable data to be used - users could either enter this data manually, or the application could connect to the financial institution (with the user's login credentials) and pull the data directly.

- Since the option to connect directly to the financial institution is present, there must be an alert notifying the user that the software will need permission to access and store their account information to create a secure connection to the institution. Any other warnings must be displayed in the event like if a credit score must be pulled and will affect it. Security is a must here as this is highly private information.
- The data gathered must interact with the server from the financial institution with the database within the software to allow for accurate collection of the data to be displayed to the user. If the user wants to enter this manually, then the information will strictly be stored just on the client's database server instead.

Spending data will first be broken down into discretionary and non-discretionary categories, and then further divided into common spending categories.

- Data will be manually input into fields on this screen that can be very specific to reflect accurate information. With the accuracy of this data, the user will be able to see where they can improve their spending and spending habits. The software will have suggestions on purchases like groceries that can scan local ads or databases for lower prices and display them to the user.
- On the screen, there will be a button to calculate the information and using visualization like a bar graph or chart. This will be used to show the user the savings.

Income data will be broken down into direct and indirect income streams. These can be annualized for a more long-term analysis. Trends can also be taken into account; as an example, if a person's rent payments are expected to increase 5% each year, this can be included to adjust for future spending. The same should be available for utilities, taxes, and other related expenses.

The result of the above analysis will be a budget profile, which includes (ideally) a surplus between the total net income and the total expenses each month. This surplus will be a base-line suggestion that the application will offer the user as a monthly payment amount for applying to the debt in question. This surplus might change each month, but it will be a good estimate for an available surplus to pay down the user's debt.

The tool will also (likely) need to establish an estimated credit score for the user. If desired, this could be pulled directly, entered manually, or estimated with a series of questions.

- A calculator to express potential credit gains could help estimate the future scores and rates that could assist in the goals set by the user or recommendations by the software. For instance, if a user has a good credit score their interest rate for a car loan may fall under a certain bracket opposed to an excellent credit score. This could calculate the difference between the rates at X amount of years to show the amount spent/saved.
- This calculator should specify current/potential credit situations to allow a broader spectrum of not only the benefits of better credit but also display the opposite if credit declines below the user's score. Showing both gains and losses and having them in display would be useful information for both the software and user.

The user provides his/her financial goals based on that criteria credit card offers and personal loans option is provided to user. The app also provides reminders for upcoming bills. Every month as per the spending report if spending goes up drastically in any of the categories the user is provided notifications for the same to keep a check on their spending habits.In addition, the user is able to check the status and balances of all the accounts with one application rather than checking individual accounts.

An alternative prototype option was created. There were 2 key additions for this prototype:

1. Additional verification steps while logging the user into the application.
   The app will allow the user to login using username and password. But, to make our app more secure the user is taken to additional verification steps.The user is prompted to provide prefer mode of receiving one time access either by text or call to cellphone. After the access code is verified user is allowed access to the application.

   a. The user cell phone information is stored during initial signup. The user can also edit their preferred contact information in case they want to change the phone where they want the access code to be sent or called.

   b. The one time access code need to be used within 5 min interval. Otherwise , the code will get expired and the user will be be prompted to get the code again.

   c.. Once user enter the verification code. The system verifies the information and user can proceed with the application.

2. Within the home screen an additional option provided has been provided for the user's specific financial goals. The goals option is used to provide additional functionality to set financial goals for the user. Some key default options provided are in goals are:

1. Paying off one or more credit cards:
   In this option the user is prompted to select the credit cards they want to payoff debt.
   Once user select the credit cards they want they are prompted to provide the APR information. The credit card debt information is auto filled from the apps database.
   The user is then asked how much time they plan to pay off loan. Then the app computes how much monthly payment would be needed to payoff debt. If the amount of savings is okay for the user they can save the goal or add more time frame to get lower payments.

2. Paying off other types of loans:
   This option will follow a similar approach. The user provides interest rate. The debt remaining is autofilled. The user can provide timeframe they want to payoff the loan. If the computed monthly payment is appropriate per user needs they can save the goals.

3. Emergency Funds:
   In this option user can save money for emergency funds to save for unexpected life events. The user is prompted to provide information for monthly savings. Also. how long the emergency funds should last if without income.
   The app then calculates how much monthly savings the user needs to make and estimated time frame to achieve the goal.

4. Purchasing a Vehicle:
   In this option the user can estimate (given current vehicle loan rates) what they can afford to purchase in a vehicle. The user is given information based on their monthly expenses and the current market rate for auto loans. Included in this will be suggestions for auto loans based on the user's profile, or the user can enter data manually (if they, for example, expect to receive funding through a bank or credit union).

5. Purchasing a Home:
   In this option the user can save money to buy house. The user is provided information based on his monthly expenditure the fields for prevailing rate of interest based on his/her credit score the user is provided the information what's the price of house they can afford.
   Also, to save for downpayment of 20% the user again provides estimated savings and the app provides information how much time will be needed to save for the down payment.

6. Add a custom financial goal
   Using this option user can create a custom financial goal to better serve their needs.

Use Cases

Use Case #1: First year college student first credit card

Actor: "traditional" first year college student meaning that they are fresh out of high school heading to university.

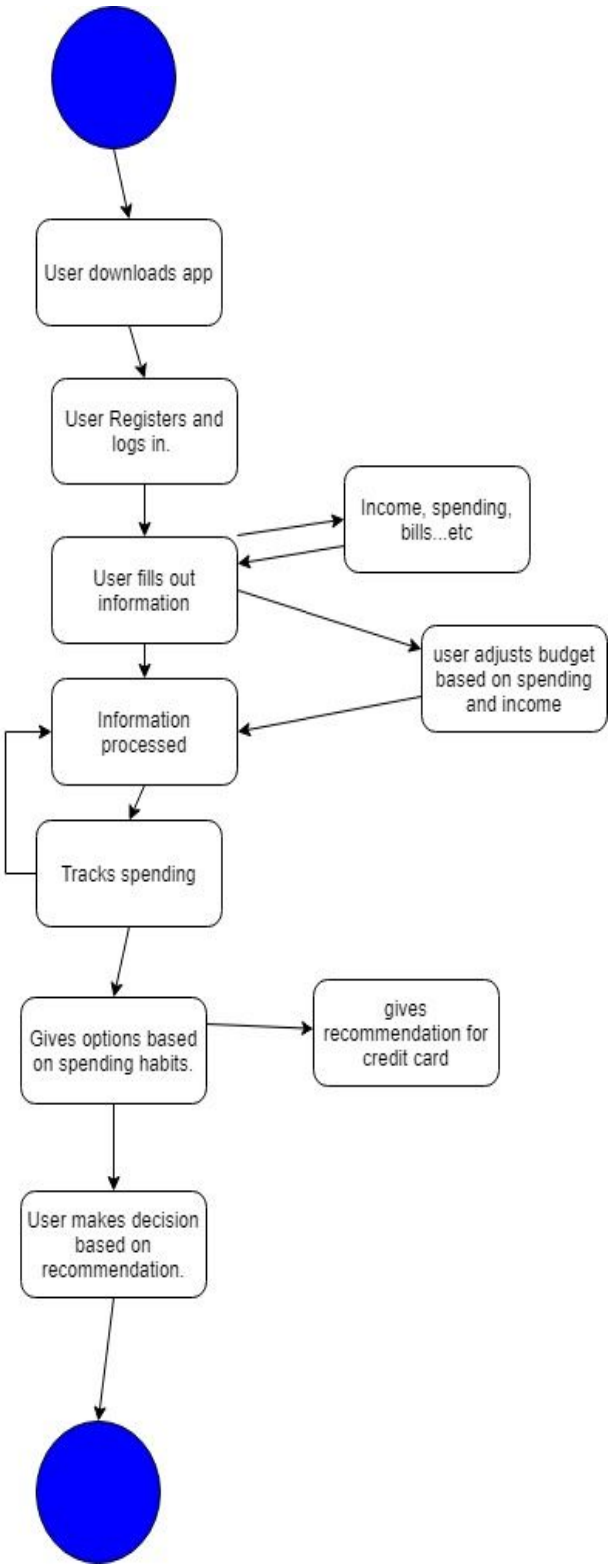
Pre-Conditions: We assume that the user has a smartphone. More than 80% of college undergraduates have a smartphone. They have a part-time job to help pay for expenses like: car insurance, phone bill, books, and food…...etc which they would like to put on the credit card. This student has also taken out loans for tuition and has never owned a credit card.

Post-Conditions: The student is able to set a monthly budget in order to balance cost of living and fun expenses based on how much they work. They are able to obtain a credit card and begin to build good credit while also having the option to find the best card for them.

Flow of events: The student wants to get a strong start on their finances so they hear that there is a mobile app that will aid them in better budgeting. **(1)**They download the app onto their phone and are prompted to sign up with a username and password. **(2)**They register and login. Once logged in they begin to **(3)** enter their information such as name, age, bank they use, and expenses each month. **(4)** The information is sent to the software and processed. **(5)**The app asks further questions to get a better idea of what the user wants as a credit card. The user decides that they want cash back as money is tight for them while in school so they **(6)** follow the prompts so it can be sent back to the app.**(7)** The app gives them a list of cards with the pros and cons of each one. **(8)**The user selects the card based on these recommendations. Because the app is linked to their bank account, it can track the spending over time. **(9)**The app gives them a recommended amount each month that they should use to payoff the their card based on the following data: Expenses, income, minimum payment, and interest rate. In the app it shows if the amount to pay off every month is greater or less than the balance on the card If the amount to be paid is less than the recommended amount the software will adjust it so it equals zero. In the event that the user needs to adjust their expenses, **(9a)** the app will give them the option to add or remove items. The student needed tires and put them on the card. The app adjusts the amount needed and the time frame to pay off the balance.

The user has now used the app for a few months and **(10)** Check Please has discovered that they user is not spending enough to get the cash rewards they need. Although the cash back is great, they do not spend enough to make it worth it. Their interest rate is also close to 20%, nearly 3% higher than the national average. However, the user has been very good about paying off their debt and has a strong credit score which the app give them for free. **(11)**The app gives them options for different cards with lower interest rates and no cash rewards based on the credit score they have. The user decides on one and is linked to the site where they can apply for the card.

Use Case #1 State Chart:



Use Case #2: First year out of college.

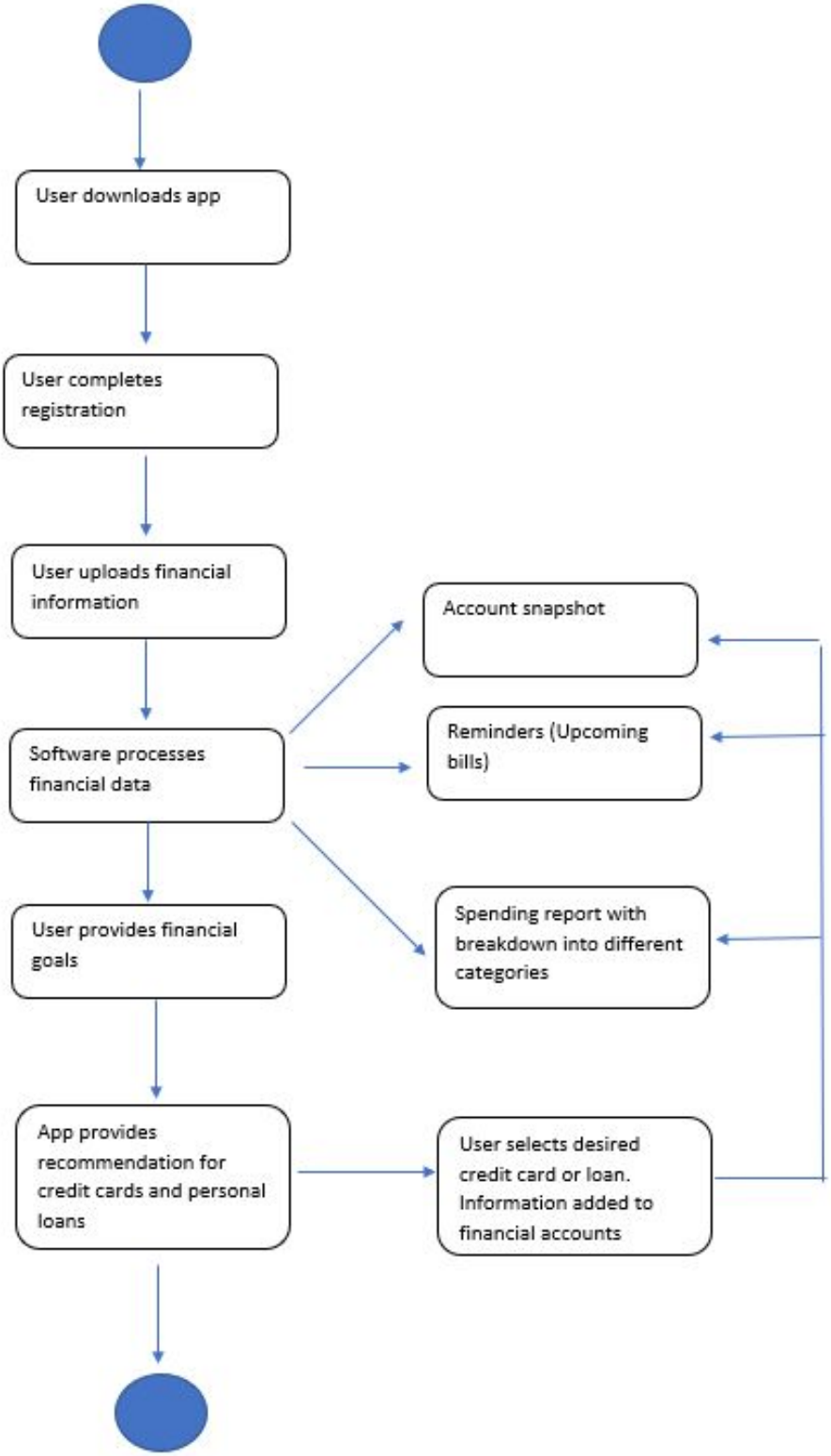
Actor: A young professional working in an MNC . He is starting his professional career and wants a comfortable lifestyle.

Pre-Conditions: In this scenario user has a smartphone, a full-time job, bought a new car (monthly car payments), rent, student debt,credit card bills. As any other professional luxurious lifestyle is taking a toll on his expenses and he is finding it difficult to keep credit card debt under check and keep up with car payments and student debt. He is has accumulated significant debt on his credit cards.

Post-Conditions:
Our protagonist is able to analyze which how to optimize the payments to keep the debt levels to minimum. The student loans have interest rate of 4% , car payments are at 5.6%p.a and credit cards payments are much higher at 14.99%. The suggested track is to keep credit balance at minimum to avoid high interest rate while balancing other payments. The user is able to optimize his budget to minimize unnecessary expenses.

Flow of events: Our user is looking for ways to improve his financial well-being while keeping track of the debt have incurred, and can start start investing their income into paying off. 1) Our user downloads the application onto his smartphone. 2) User is prompted with registration screen.Once registration is complete user logs in using username and password. 3)The user updates his profile which includes his personal information like social security number, financial accounts information, job and annual income etc. 4) The financial information is processed by the software. 5) The app further assesses user requirements regarding his financial goals. 6) The app tracks his expenses and provides him an analysis on how much he is spending each month in various categories like gas, groceries, supermarket, restaurants etc. 7) The user is then provided information on bank personal loans and credit cards with zero balance transfer apr for longer periods. 8) The user looks through the recommendation and based on user selection the application takes the user to the desired credit card or bank website link. 9) The user applies for the credit card or the personal loan and gets accepted. 10) He keeps track of his monthly progress with debt management through notifications as his credit score goes up the user's financial well being is in much better shape. The user is notified if during any month his credit card bill is higher than normal and apps help him track where he is spending more money. He is able to track his progress with car payments and student debt and making payments in timely fashion to improve his overall credit score. 11) The user utilizes the apps financial tool tracker to better manage his spending and avoid unnecessary debt.

Use Case 2 State Chart:



Use Case #3: Single Mother, Family of four

Actor: A single mother with three children struggles to make ends meet each month. After a layoff (and a short stint of unemployment between jobs) she has accumulated $2200 in credit card debt. She wants to pay this debt down, but needs help keeping the interest rate to a minimum. Her current credit card interest rate is 19.95%

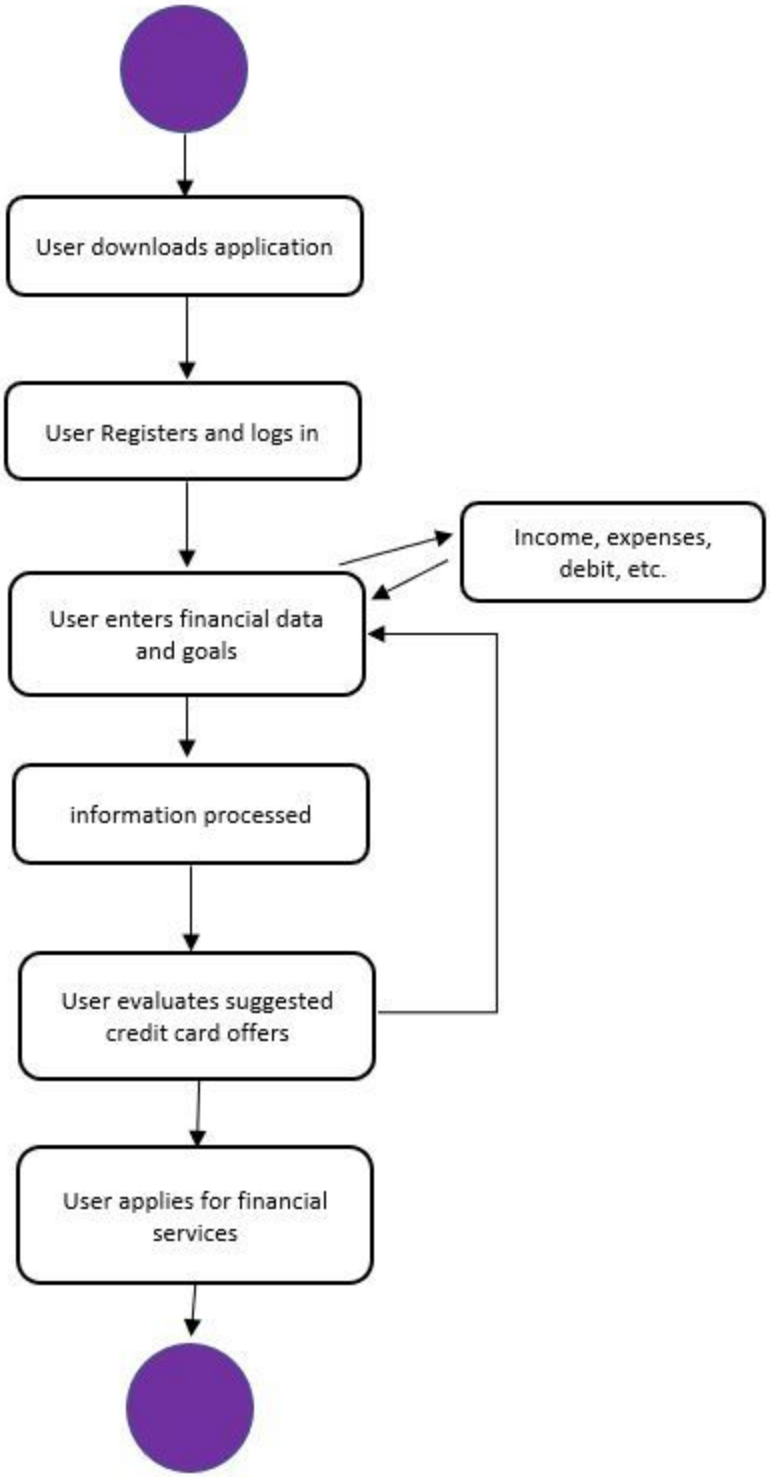
Pre-Conditions: Our user has a smartphone, a full-time job (paying a living wage), a car payment, monthly rent, utilities, phone bill, and a credit card debt after a period of unemployment

Post-Conditions: This user is able to identify a new credit opportunity that has a three-month introductory interest rate of 0% (with debt transfer). After that introductory period, the interest rate will be 12.99% - which is nearly 7 points lower than the rate she was paying originally.

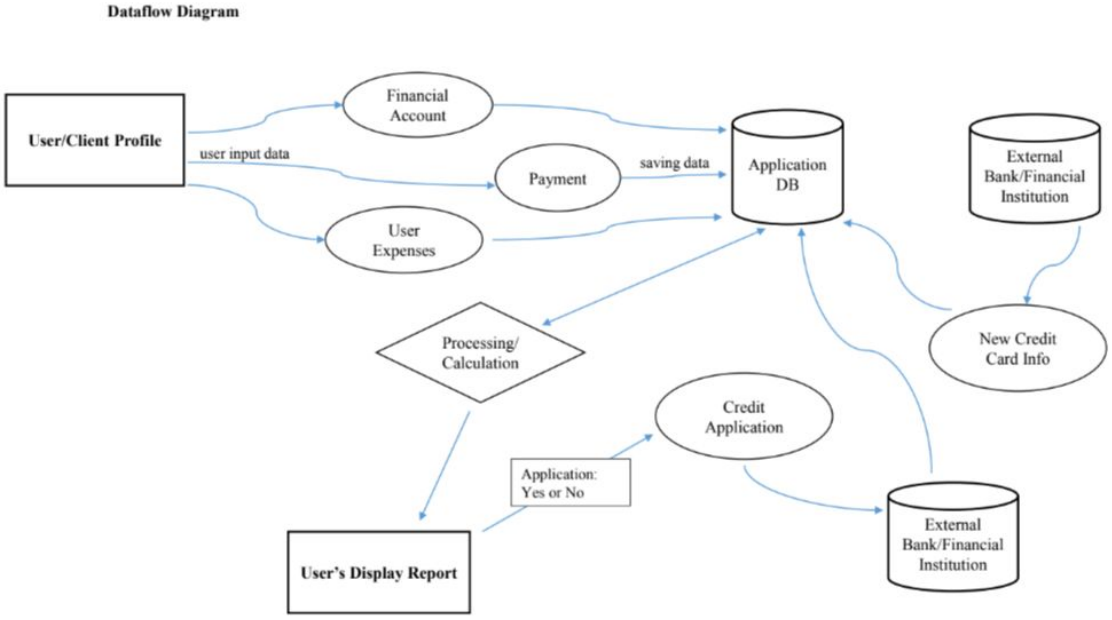
Flow of events: The single-mother is motivated to pay down her debt as much as possible. She researches modern debt-management tools, and learns that there is a hot new mobile application that can help guide people in paying down credit card debt. (1)She downloads and installs the application onto her smartphone; she is prompted to sign up with a username and password. (2)She registers, confirms her email address, and logs into the tool. Once logged in she proceeds to (3) enter her personal information such as name, age, financial institutions, monthly income and expenses. (4) The entered information is forwarded to the software and processed. (5) The application prompts the user for for information to get a better idea of the user requirements: amount of debt owed, desired time-frame for paying the debt to a zero balance. The user enters her current credit card debt, and selects that she wishes to pay the debt off as quickly as possible, and submits the information. (6) The application displays a list of possible credit cards, the terms of each, including a quick summary of the benefits of each (both pros and cons). Included is an estimate of how long it will take to pay of the debt, given the card option is selected, and that all credit card debt is transferred to the new account. (7) The use selects the offer that meets their needs, and seems most desirable financially. (8) The application then directs the user to the credit card application site (external), and saves all the user's current data and selections for future reference. (9) From the credit card's site, the user applies for the account and is accepted.

After a few months, the user returns to the application to check on progress, the application will (10) link directly to these accounts to refresh the current balance and adjust the expected payoff amount given the same (original) target date. (11) The tool reminds the user that she only has one more month of introductory 0.0% interest rate, and reminds the user that she should pay off as much as possible to get the maximum benefit.

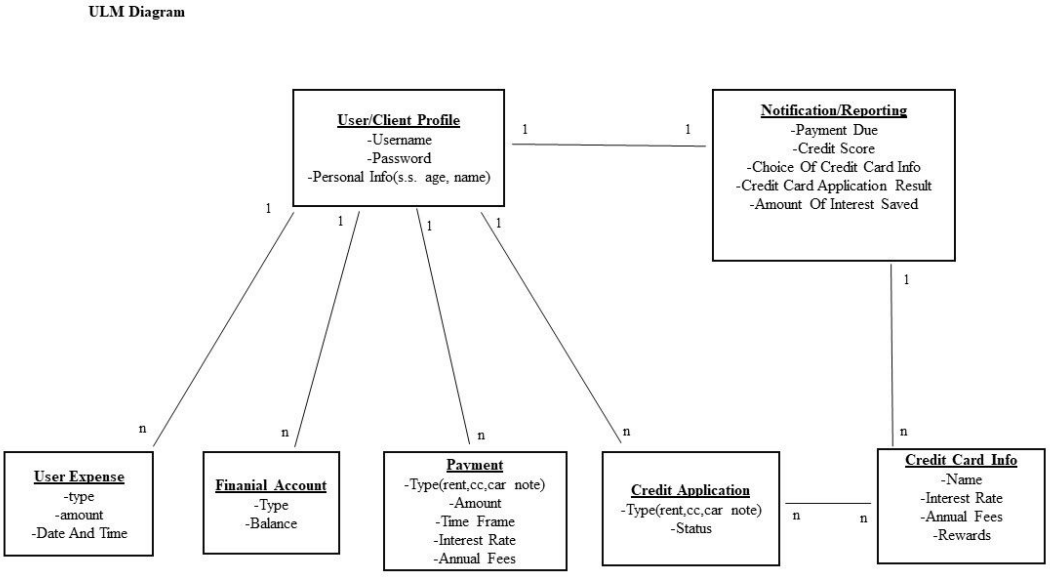
Use Case 3 State Chart:



Data flow Diagram



ULM Diagram



III. Requirements Specification:

Users will first download the application and install it on their internet connected computing device.

Sign up screen:

User must have a valid email address. All forms/box must be filled out; Username/Email, Password, Confirm Password, with the exception of Zip Code which can be null. Internally in the system there will be a logic check for any null values on any of the forms. After the null values logic cleared, individual logic check on each of the form will be performed. The system will parsed through the email form to check for any missing characters that should be present in the form, i.e. "@" and or ".", null value after the "@" character, null value after "." character. If any of those logic fails, the system then create an alert and show it on the screen for the User to see. The User must input the valid characters in order to move forward. For the Password form/box, the system will generate a text in red next to the form describing the requirement for the password. The text will say "must be at least 8 characters long, must contain letter, must contain at least 1 number, must contain at least 1 special character sign i.e."@", "$", "!", cannot be same as your email address. The system will parse through the password form and check for to see if all logic requirement is passed before moving on. In the Confirm Password form/box, the system will first check to see if the length of characters entered is the same as what is in the Password form/box. If that logic pass, then it will move on to check the individual characters entered in both forms/boxes to see if it is all matches. If the system see that it matches then it will allow the User to move on, if not then it will alert the User on screen to re-enter the password to match in the Confirm Password form/box. Then the system will perform a logic check on the number of characters in the Zip Code form/box if there was any character in it, the logic will check to see if there is at least 5 characters, and also are those 5 characters entered are numeric values. The system will alert the User on the screen if any one of those logic/condition or all fails and then ask the User enter the information again. The User will hit the Submit button, the User will then receive a prompt on the screen to notify them to enter a form of verification, the User can enter a phone number which then a text or a call will be send to with a verification code or User can enter an email address to receive the verification code. Once the User have the code they will then enter it on the screen to complete the sign-up process.

After the User complete the sign-up process, the User continue on with the Your Info screen and enter the profile information.

Your Info screen:

The User will also filled out the forms/boxes that is required under the Your Info screen section. The system will perform condition check to see if the Name form is null, if so an alert will

display on the screen asking the User to enter something in the form. The system will then move on to the DOB form and check for any null values. Within the DOB form the User will enter the year of birth, then month, then the day, all of this will be preload with a drop down list of the three criteria, so the User can just choose the appropriate value. The user is required to fill out all the boxes in the your info section. The user will also add their number but this is an optional extra used for better password recovery. The system will check if the number is 10 digits in length. If it is not then an error message will show up asking for a complete number. The user will not be able to move forward until no number or a correct number is added. There will also be security questions as another option for recovery. It will be a drop down menu of questions followed by open box text answers. Most apps these days have a few methods to recover your password.

After the User complete the Your Info process, the User continue on with the Get Started screen and enter the information so that the system can collect the data for analysis/calculation do display later on at the Welcome screen. This section will not require every section to be filled but at least one will need to. This information can be changed and adjusted as the user works on better financial solutions.

Get Started screen:

The User will enter the credit cards information, a radio check box will be present for the User to choose if they have credit card or no. If User choose yes then the User must enter an account number and the name of credit card institution. The system will perform a logic/condition check on each of form/box for null value, if any condition check fails the system will alert the User on screen that the form/box cannot be empty. For the account number, the system will parse to the form and perform a condition check to see if numeric values was entered or not.

The User will then move on to entering their bank information, a radio check box will be present for the User to choose if they have bank account or no. If User choose yes then during the bank info section, the system will present a drop down list of names for banks institution, if said bank is not in the drop down list, the user will chose “Other” as an option to choose from. Once “Other” is selected a form/box will appear so that the User can enter the name of the Banking Institution. The system will then perform a logic/condition check to make sure that it is not empty, if empty then an alert will appear on the screen informing the User to enter something. The User must also enter a bank account number in the form/box as well, if not the system will again alert the User on screen to enter a numeric value. The system then will run a condition check to see if the information entered is valid by parsing the values to see if its numeric or letter, if letter the system will alert the User that they must enter numeric values.

Likewise for loans information, a radio check box will be present for the User to choose if they have any loan account or no. If User choose yes, new form/box will appear for the User to enter the loan information. A drop down list will appear for the type of loan that the user can choose,

i.e. car, mortgage, personal loan, the system will also present the option of “Other” if the type of loan does not appear for the need of the User. If the User chooses “Other”, the User must enter the information in a form/box. The system will then validate by parsing the values inside of that form/box, if empty then it will alert the User that the form/box cannot be empty. Then the User move on by entering their loan account number in the form/box. The system will perform a validation check by parsing the form/box to see if it’s empty or not, if empty the system will alert the User that it’s empty and some values must be entered. The system also will check to see if the values entered are numeric or not, if not it will alert the User to input numeric value only for the loan account. The User will also need to enter the name of the loan institution, the system will also perform validation check to see if the User enter anything or if it’s empty, and will alert the User if empty.

The User will then move on to enter the Rent information, a radio check box will be present for the User to choose if they have rental information or no. If the User chooses “yes”, new form/box will appear for the User to enter the rental information. The data must be entered by the User is the amount of rent per month in the form/box. The system will perform a validation to check and see if the form/box is empty or not, if not empty the system will then check to see if the values is numeric or lettering. If the form/box values meets the conditional check, the User can move on and if not the User will be alert on the screen to enter the numeric values for the rent amount. There will also be a drop down list for the User to choose the due date of each month, if no date was selected the system will alert the User to do so.

Cellular Phone charges will also need to be entered if the User have any, a radio check box will be present for the User to select yes or no. If the User chooses “yes” the amount per month, and the due date forms/boxes will appear for the User to fill out. The system will run the validation check to see if any of these forms/boxes are empty, if so the User must enter something. The system will check the amount per month form/box to see if numeric values are entered and nothing else besides numeric values, the system will alert if it’s a non-numeric value. The due date will be automatically present by the system in the drop down list for the user to choose the date, month, and year. The system will also run a validation check to see if it’s empty or not, if empty it will alert the User to select the values.

Like Cellular Phone, the User also can enter information about Internet and Cable TV expenses. A radio check box will be present for the User to select yes or no if they have Internet and Cable TV expenses. If User chooses “yes”, data must be entered and collected are; monthly amount, and due date. The form/box will appear for the User to enter in data. The system will validate if the form/box is empty or not and as well as for non-numeric value that is entered for the amount, if validation fails then the system will alert the User to enter some numeric value to indicates the amount of the expense. The due date will be automatically present by the system in the drop down list for the user to choose the date, month, and year as well. User must select the values in the due date section, if no selection was made the system will alert the User to do so.

Once all the information is entered and the User hit submit. All of this data will be save and store in the system's database. The system will then connect to various banking, credit card, and loan institution APIs, so that it can do verification against the User's input data. Once verification is made, the system will pull in the pertinent data; APR, annual fees, current balance, and due date to save it in the system's database.

After the User's data is collected and verified, this point marks the completion of the sign up process. Then the system will do the calculation/analysis to display on the main Welcome and Reporting screen.

Welcome/Reporting screen:

This screen will act as the main GUI and will be the first thing the User see after logging in. At this time the User will see most of the main functions that is available from the system to them. The user will see a My Info tab, this is where the User's profile information will display for them, the display will consist of Name, Date Of Birth, and Address. The User will also be able to adjust their information that they input in earlier about their phone, rent, car, internet/tv, and loans under the the My Info tab.

The My Recommendations tab will show the User new information about credit cards, loans rate, and make recommendation for the User to switch over because of better saving from their old credit cards, or loans information. The My Bill tab will display the information about all the regular expenses that the user can expect. The My Spending tab will display the User current spending. The My Credit Score tab will display a Fico credit score for the User to see. The My Credit Cards tab will provide the user a quick overview at their existing credit card accounts payment due, credit line balance remaining etc. Also, if no credit cards account are added user is given option to open a new credit card account.

Then finally we have the My Goals tab, this will let the User set the goals on what they want to do. In the goals section there will be 2 types of goals; Pay Off Credit Card and Emergency Fund. The Pay Off Credit Card goal will provide the User with some queries and functionalities that they can input and the system will help provide the earliest date that the User can pay it off. The Emergency Fund goal is where the User input the data and the system will display the available funds for the User to use in case of emergency.

A) **My Info**

Under this section the system will display the user profile information, name, date of birth, and address. There will also be an update functionality that is going to be provided to the user to make changes/update to the information that was entered earlier during the sign up stage. The user will be able to click on each of the expense category and make edit. The first expense can be updated will be Rent. The user will click on the dollar amount to enable the amount to be editable, the user must enter numeric value, the

system will not let the user move on or click out of the editable space unless numeric values is entered. Once the user is satisfied with the update they can move on. The user will then move down the list of categories and make updates as needed. If the user have no expense in any of the categories, the user must enter a numeric value of 0. The system will alert the user on screen that a 0 must be entered for no expense in the category. When the user is finished with editing and click the Update button, the system will display a pop up prompt and ask the user to confirm before the update completely goes through. This will give a chance to the user to double check for any mistakes.

B) My Recommendations

The system/app crawls the internet, especially focusing at banking, credit card, and loan institutions' websites and pulls in the pertinent data; APR, Annual Fees, Etcs. into its database. Once the system aggregate all the necessary data and calculate the differences in term of saving based on the User's current loans and credit cards information versus the new information that the system have pulled in. The system then will display the results to the User, with a list of pros and cons for each of the new cards that the system have found. During the displaying of the results for recommendation, the system will present to the User options so that the User can select on what interest them when looking for a new card. The system will have categories to filter, the User have option to filter if they are interested in a high reward cash back card, or in a low interest credit cards/loans. Once the User make their choice, the system then will recalculate/analyze and present the new information on the screen to the User in with a new list of pros and cons for each of the credit card option. The User can then make a decision on which card they want to apply for, click on the card options and the system will take them to a website to apply for the new credit card or loan.

C) My Bills

The user will be able to get information on the upcoming bills. The app will query the user financial information from the database and all the bills from different accounts will be displayed to the user.

D) My Spending

This tab will help the user to get an analysis for their monthly spending. When user clicks this tab the user is prompted with any areas where there monthly spending needs attention. Once they select a form will be displayed with the average monthly spending comparing it with the current monthly spending. The apps backend will analyze the financial transaction . The app will break-down transactions into different categories . So, basically the spending for the entire month will be displayed using a form will get filled by the analysis of transactions.

E) My Credit Cards

This tab will will pull all the credit card accounts entered by the user. If no accounts have been entered user is provided options to apply for new credit card which in turn will be connected to other relevant credit card sites which are decided by the app based on the credit score of the user. If there are existing credit card accounts information that information is pulled by the app's backend the information is displayed through a form providing information on the credit line balance remaining, payment due.

The user is also given information based on their past payments recommended amt and time needed to pay off.

F) My Goals

This tab will will pull all the credit card accounts entered by the user.If no accounts have been entered user is provided options to apply for new credit card which in turn will be connected to other relevant credit card sites which are decided by the app based on the credit score of the user. If there are existing credit card accounts information that information is pulled by the app's backend the information is displayed through a form providing information on the credit line balance remaining, payment due.

The user is also given information based on their past payments recommended amount and time needed to pay off.

Users given multiple option to create financial goals there are some inbuilt goals for which computation is done by apps backend which prompts the user to provide data like in case of paying off credit card loans.

User is prompted to check which credit cards balance they want to payoff.

User checks the relevant checkbox. Then user is prompted to provide APR information

Also, they provide estimated time frame they need to pay off. The app backend then calculates monthly payments needed to meet that objective. Based on past savings it is identified if the user can meet the objective if not user is asked to provide a longer time duration if those monthly payments will be unsustainable.

In similar manner other options like paying off loans , buying a house determines the monthly savings needed to meet their desired objectives.

IV. Summary:

Summary: Requirements Definition and Specification Changes:

Our group decided to add some additional functionality in the app. In this we added the functionality for One time password access after user logs in using his username and password credentials. Security (especially when it applies to an individual's financial information) is of the utmost importance. Even casual users are aware of the risks of their data being compromised, so gaining and maintaining user's trust is absolutely essential. With that in mind, the login process will be kept as secure as it can be made using this additional step of authentication with the One-Time access code. We expect that this will provide the additional security that will helps keep user's account secure.

We also attempted to create two different approaches in our prototype the prototype for goals section is added to increase the functionality of the application. The user can accomplish more with the application, such as like creating goals for buying a home, buying a vehicle, savings for emergency funds - all in addition to the previously determined goals of paying off personal loans and credit card debt. This will enable users to customize the application for their very specific needs. The application walks the user through a series of steps to gain monthly income and expense information to create a financial profile. Based on that financial profile the application can compute the (estimated) time frame for loan payoff, along with the payments or saving needed to achieve those targets.

We also added the capability for the user to prioritize suggestion based on characteristics that they desire in a new credit card or personal loan. Users can now select specific preferences, mix and match what they want in a credit card and search using those specific selection in the system's database. An alert feature was added into the prototype design, which will . This feature will periodically run in the background to send notifications to the user's device if the user's spending exceeds what they have indicated or budgeted for during each month.

We have also added a drop-down list feature for the user to select. This feature will save the users time, and makes the user interface more pleasant to operate versus having to type in everything.

Generally, we have focused on looking at the greater needs of what our user-base will want to accomplish. Paying off credit card loans is one very important aspect to our vision, but educating and enabling our customer to make good financial choices is critical. As such, we are really looking at this as a "personal-finance-helper" device more than just something that can simply do simple debt payment calculations. While we hope that these "foundational" function

can be very useful and help users deal with specific issues, the “big picture” is absolutely critical for an individual to not fall into the trap of repeatedly taking out large amounts of debt, and not being able to pay that debt off. Giving a user the insight into a budgeting process and an analysis of their regular expenses is absolutely critical - and often eye-opening.

Customer Meeting:

Our customer was willing, but unable to meet with us on Wednesday, October 17th. An attempt to reschedule this meeting was made but the customer was unavailable. So, during the group meeting we decided on adding additional functionality by adding goals section in the prototype. Also, we modified our login page to secure the financial data by prompting user to enter an access code to login. We plan to present these features to our customer at our next meeting.

Team Member Contributions:

Aseem Prashar: login and goals prototype, requirements definition.
Forrest Allen: prototype pages
Thach Vo: Requirement specification and definition
Khoa Phan: Requirement definition and specification
Michael Volz: Customer communication, requirements definition expansion, general revisions