Group 2: Tara Knutsen, Lola Howell,
Chris Kubec, Audrey Chavarria Calderon

Deliverable 2

Competitive and Comparative Analysis: Usability

UMPQUA Bank Mobile App

Tara Knutsen

1. Visibility of System Status - PASS/ FAIL

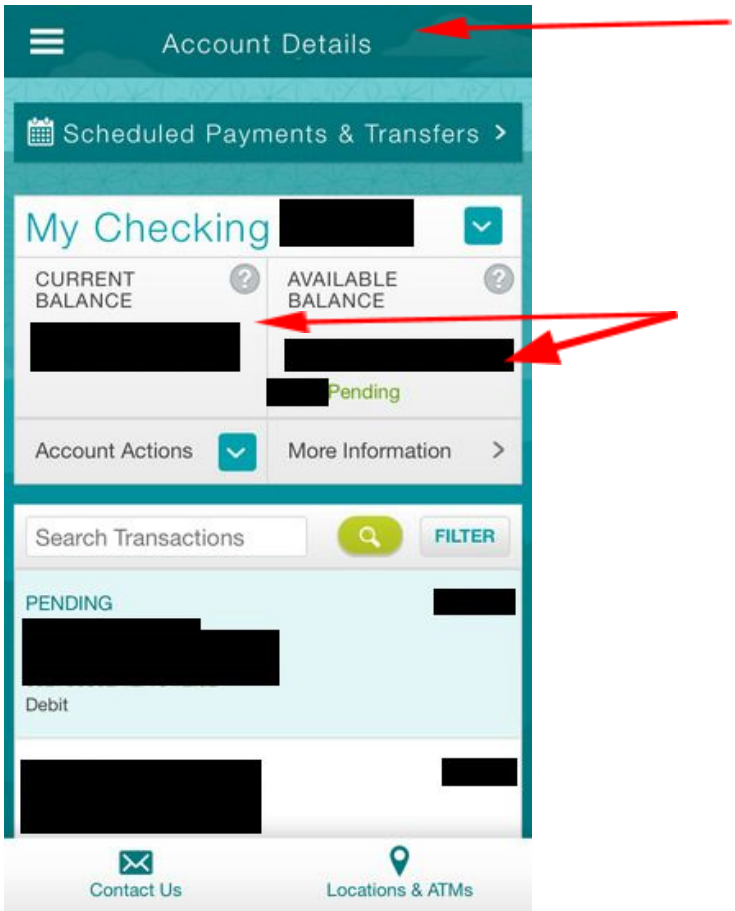
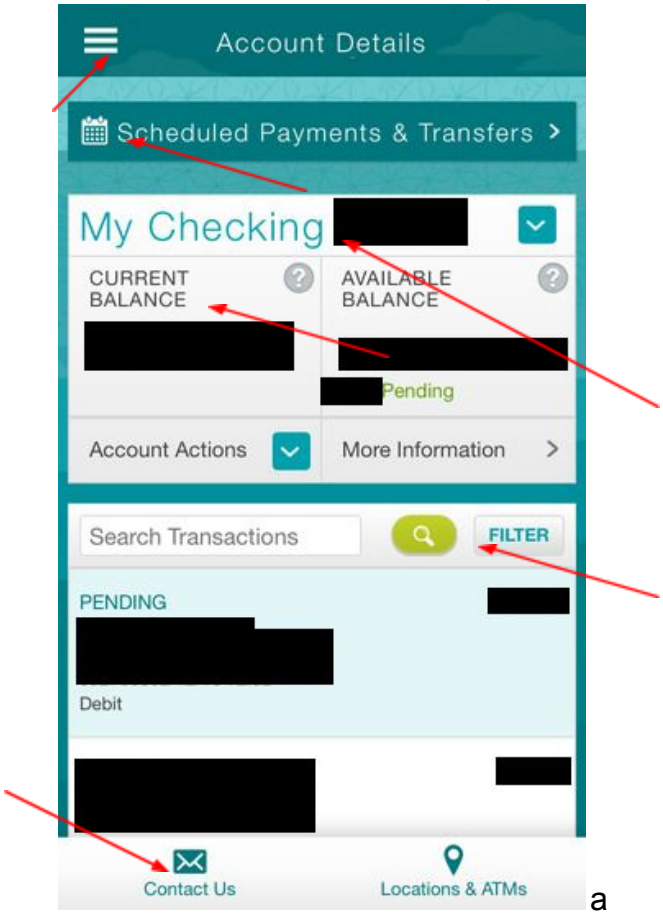


Figure 1 - Homepage Interface and Visibility

Pass: App shows the user that they are looking at their 'Account Details'. Subsequently, their balances are shown to give the users a sense of place.

Fail: The header that shows the users location uses the same color that is present throughout the rest of the body of app, making the user's location less obvious.

2. Match Between System and the Real World - PASS



a

Figure 2 - Homepage

Pass: All language used in the app is familiar to users such as transfer, transactions, search, current balance, etc. Icons used to convey these message also are commonly used such as the search icon, calendar icon, and hamburger menu. This app avoids using jargon.

3. User Control and Freedom - PASS/ FAIL

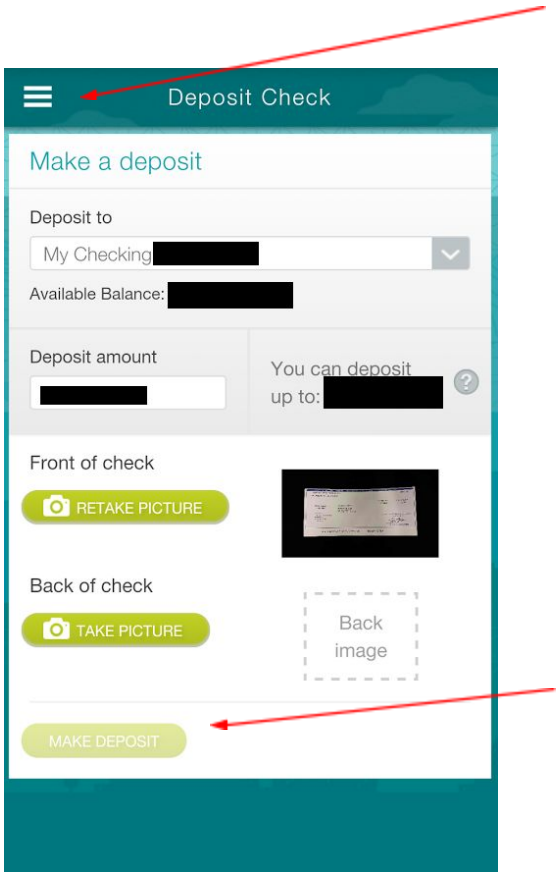


Figure 3 - Depositing a check

Pass: The hamburger menu allows quick access to the account homepage as an "emergency exit" from any page on the app.

Fail: There is no obvious home button that users typically look for in order to quickly leave a page. Using the hamburger menu require an extra step to open the menu.

4. Consistency and Standards - PASS

Pass: As shown in figures 1-3 above, the app uses consistent language to express actions. The keywords used in the app are transaction, check balance, deposit, and account.

5. Error Prevention - FAIL

Fail: When the user goes to deposit a check, they have the option to take a picture for both the front and back of the check. Both images are needed for the check to deposit, but there is no visual cue to signify this. The 'Make Deposit' button is opaque until the user uploads both images, but no warning message appears. This can be noted in Figure 3.

6. Recognition Rather than Recall - PASS

Pass: As noted in both Figures 1 and 3, the app has a dropdown menu of available accounts and shows the user the total balance of each account. This makes depositing a check simple for the user since they don't have to look around for all their account details. In figure 1, the user is presented with their main account balance and a list of recent transactions. This allows the user to make transactions while viewing all pertinent information related to their accounts.

7. Flexibility and Efficiency of Use - PASS

Pass: Reflecting on both Figures 1 and 3, the app displays the user's account and transaction history on the homepage. This allows the user to display all related account information at once rather than stumbling between pages within the app.

8. Aesthetic and Minimalist Design - FAIL

Fail: As depicted in Figure 3, the app contains extra information. Extra details such as "amount left to deposit" and the two check image submissions bloat the page. The check image submission could be combined into one button as a two step process.

9. Help Users Recognize, Diagnose, and Recover from Errors - FAIL

Fail: As shown in Figure 3, depositing a check doesn't provide the user with enough information if they only upload one image. Rather than receiving an error message for only uploading one check image, the deposit button is grayed out. This makes the user have to guess why they are unable to make the transaction.

10. Help and Documentation - PASS

Pass: On the homepage, a "Contact Us" button is present at the bottom of the page. This allows for users to contact UMPQUA with their questions related to either the app or their account. This can be seen in both Figures 1 and 2.

TAPCO Bank Mobile App

Tara Knutsen

1. Visibility of System Status - PASS

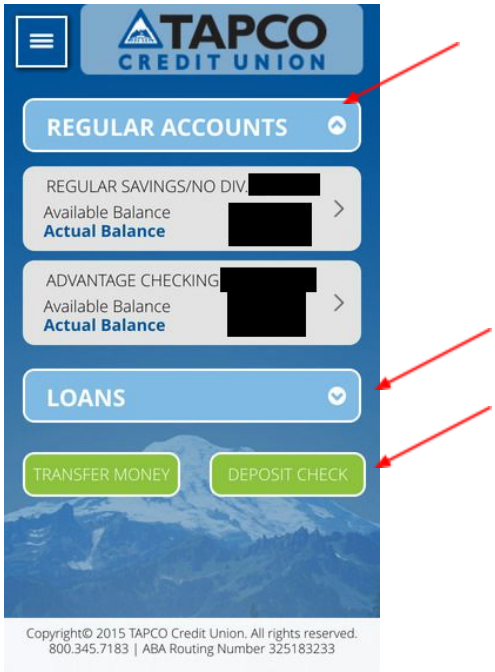


Figure 1 - Homepage Interface and Visibility

Pass: App shows the user that they are looking at all of their account overviews. Subsequently, their balances are shown to give the users a sense of place. The app uses variation in colors to show the user task actions as green buttons and accounts as pale blue banners.

2. Match Between System and the Real World - PASS

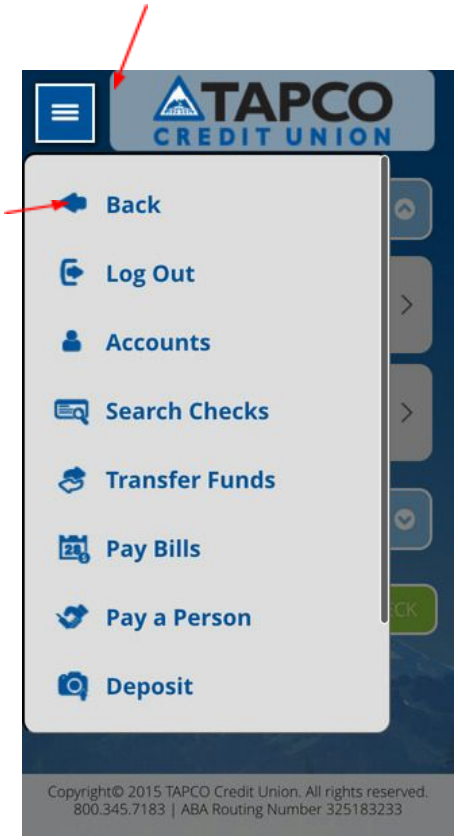


Figure 2 -Hamburger quick access menu

PASS: The language used throughout the app has real world equivalents. "Pay Bills", "Pay a Person", "Deposit", and "Transfer Funds" are not system oriented. Instead, they are typically used throughout varying mobile banking apps. These are also phrases that are used at physical banks.

3. User Control and Freedom - PASS

Pass: Also noted in Figure 2, the hamburger menu is accessible from any page within the app. This quick access menu contains a back button which functions as an emergency exit for the user throughout the app.

4. Consistency and Standards - PASS

Pass: The language used throughout the app is common language that users can understand. As depicted in Figure 2, the hamburger menu contains actions that aren't written in jargon. These actions are consistent throughout the app without any variance.

5. Error Prevention - FAIL

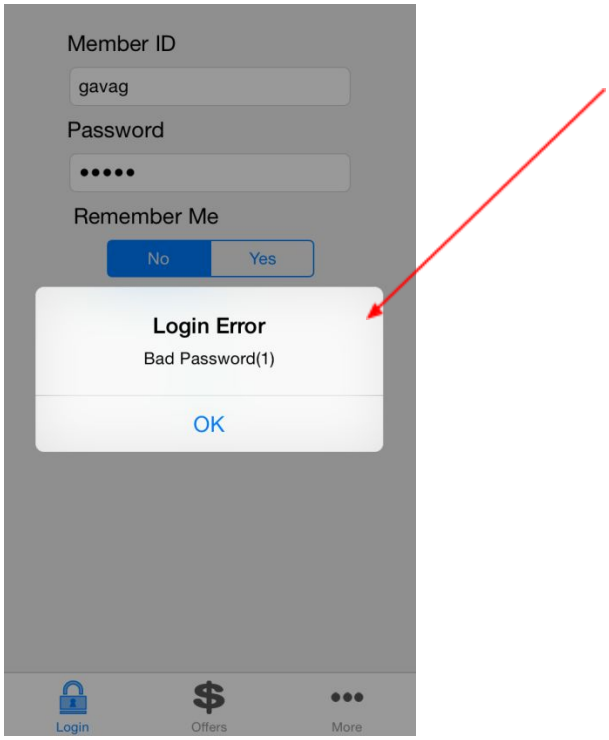


Figure 3 - Bad Password

Fail: When the user enters both an incorrect user ID and password, an error message pops up as shown in Figure 3. This message is cryptic and gives an error number. This is also difficult because if the user inputs an incorrect user ID, then they only receive one error message at a time.

6. Recognition Rather than Recall - PASS

Pass: As noted in Figure 1, the app immediately brings up the user's accounts with both their ID number and balance. This allows the user to quickly access their information without having to find their accounts and recall their information in order to do so.

7. Flexibility and Efficiency of Use - PASS

Pass: The overall ease of use of the app can be noted from the actions present in the hamburger menu. Since the hamburger menu is such a design commonality throughout mobile apps, it is an easy feature for user to access actions that they need or want to complete. As noted in Figure 2, the hamburger menu contains all relevant account actions such as "deposit", "logout", and "transfer funds".

8. Aesthetic and Minimalist Design - PASS

Pass: As indicated in Figures 1-3, the overall design and aesthetics of the app are minimalist. Additionally, the app uses minimal language in order to express ideas or actions completed by the user. Figure 2 is of the hamburger menu and only has actions that are relevant to the user. None of these actions detract from the others which prevents the content from overwhelming the user.

9. Help Users Recognize, Diagnose, and Recover from Errors - FAIL

Fail: Reflecting back on Figure 3, if the user inputs both an incorrect username and password, the error message will only inform the user that their password is bad. This also has a number (1) error which makes it more obscure for the user to understand even though it's just a bad password.

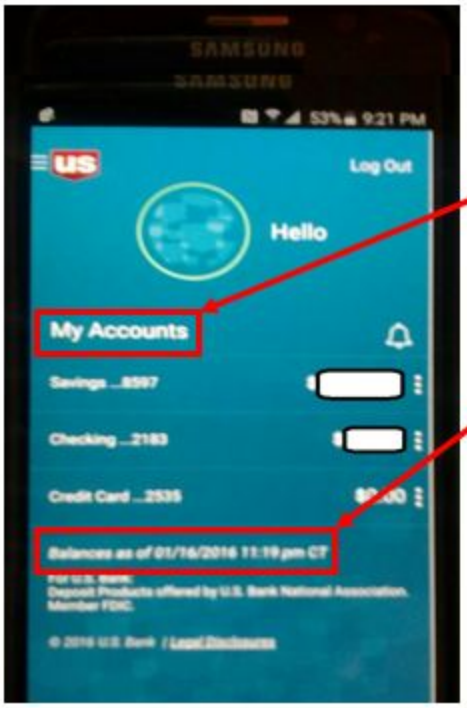
10. Help and Documentation - FAIL

Fail: There is no FAQ or help documentation for the user to refer to. There is also no help or contact us links on any part of the app. Error messages also do not provide additional information for users to reference. The lack of documentation is visible in Figures 1-3.

Audrey Chavarria

Product: US Bank mobile App

1 Visibility of system status – PASS



Page user is looking at

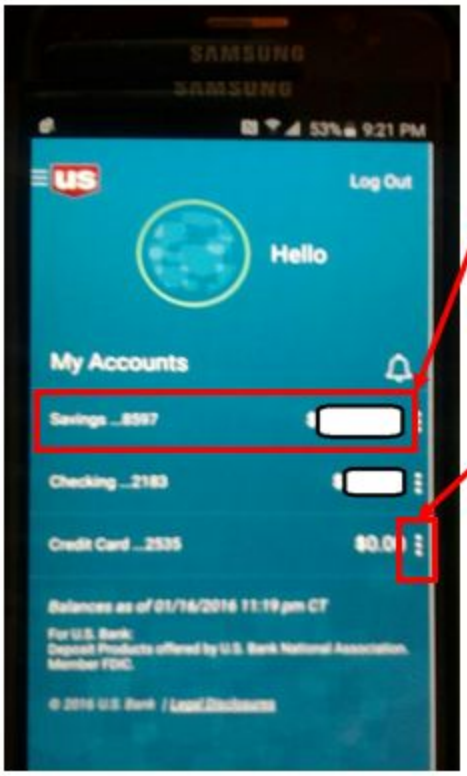
Time info was posted

Fig 1

The page on which the user is, is clearly labeled. The time at which the latest banking information was posted is labeled at the bottom. (See fig 1)

---

2 Match between system and the real world - FAIL



Area is not labeled like a button

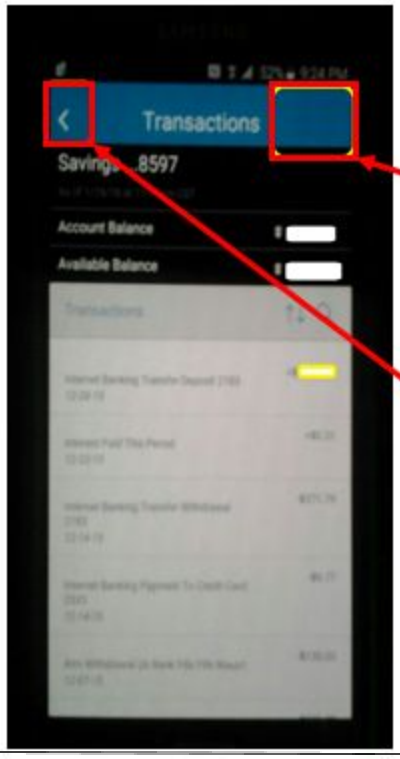
Too small and when clicked it slides a menu from the right

Fig 2

Problem: There is no clear way to let the user know that if they were to press on top of their accounts value amount that they would be taken to see more information. (See fig 2)

Problem: The three little dots are too small and can be hard to reach for some users. They also do not look like a button the user could press. And when they are pressed they slide to the left, which can be misleading or annoying to the user. (See fig 2)

3 User control and freedom – Fail



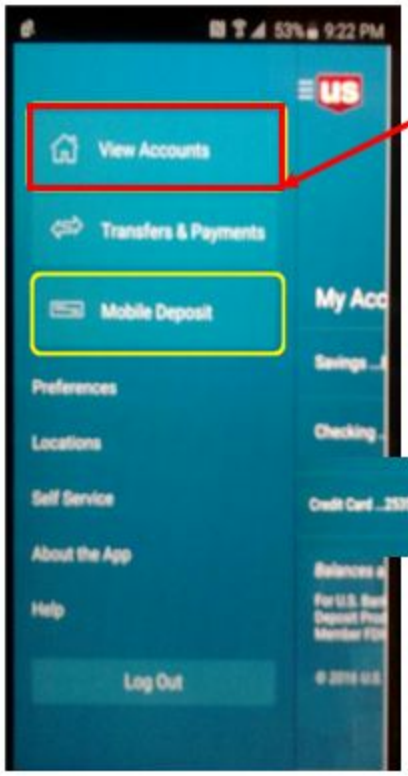
Doesn't have a quick exit button

Doesn't have a home page button

Fig 3

Problem: Transactions page doesn't have a home button or quick exit button. This will mean the user would have to go back through the previous pages he clicked on to get back to the home page and or to log out. (See fig 3)

4 Consistency and standards - FAIL



Home Icon not normally associated with word accounts

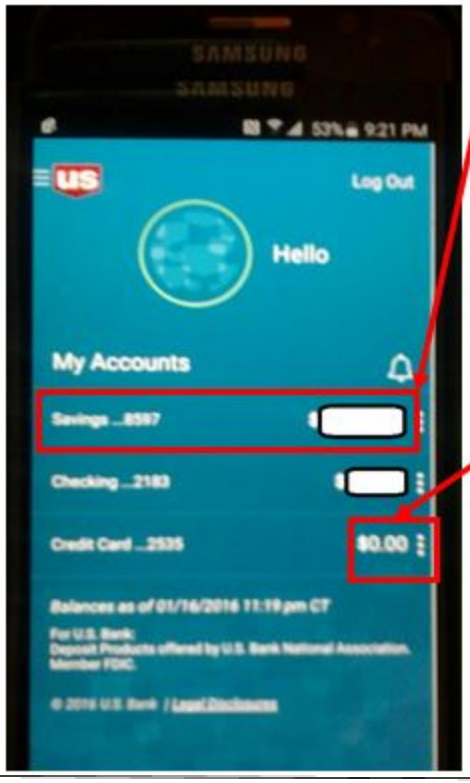
Buttons slide when pressed

Fig 4

Problem: When users see the home icon they don't associate the word Accounts with it. This can lead to confusion and can annoy the user for possibly calling home Accounts. (See fig 4)

Problem: The three little dots usually represent a drop down menu. In this app, when pressed, they move to the left and show more options. This is annoying as the user doesn't expect the dots to move. A better choice would be to put a "<" symbol to indicate more things to the right. (See fig 4)

5 Error prevention – Fail



Accidental click can take user away from screen

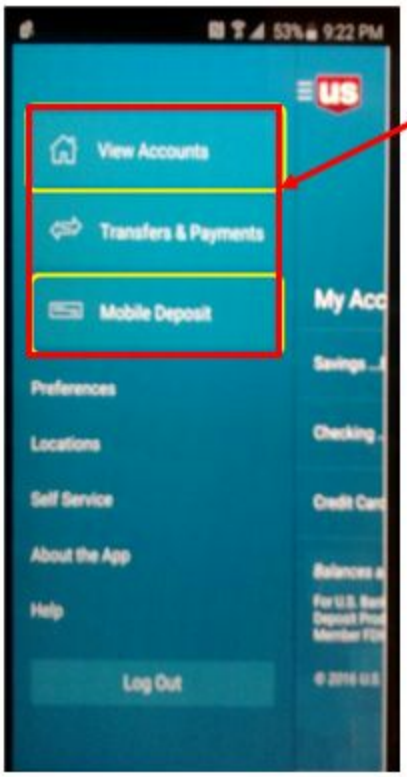
Dots are too small and user could accidentally click on numbers instead of dots

Fig 5

Problem: Since amount is not labeled in the form of a button, it could accidentally be clicked on and unexpectedly take the user to more info about that amount. (See fig 5)

Problem: Neither the 3 dots or the amount show button boundaries, therefore is hard for the user to judge where their finger will press the buttons or the amount. This is also complicated as the two clickable areas are very close to each other. (See fig 5)

6 Recognition rather than recall - Pass

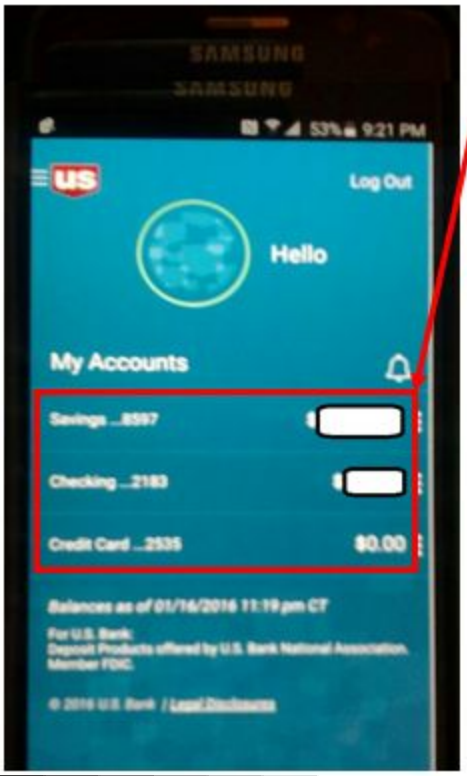


Icons let users recognize what they are looking for more easily

Fig 6

Icons on the left and words on the right help the users remember what they mean so next time they see them they will be able to recognize the symbols instantly rather than recall what they mean. (See fig 6)

7 Flexibility and efficiency of use – Pass

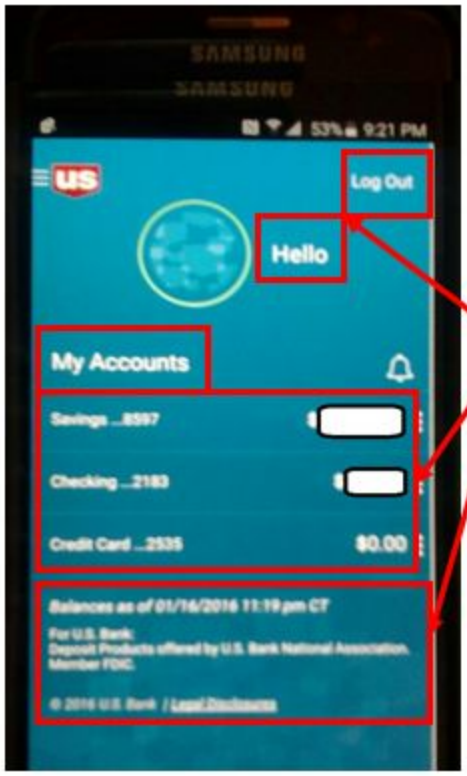


Main accounts are easy to access

Fig 7

Main accounts are the first thing the users sees for ease of access.(See fig 7)

8 Aesthetic and minimalist design - Fail



Font throughout app is white and almost same size

Fig 8

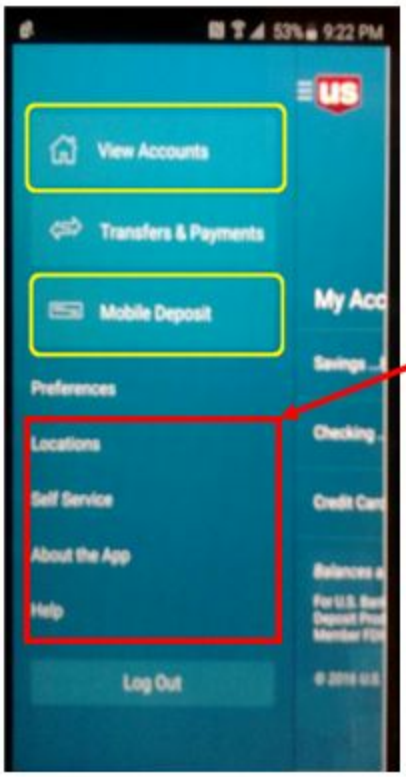
Problem: The app should let the user quickly scan and identify the dollar amount they have on their accounts. Here the app fails as it has the same white color for all the text and the font is the same and the size about the same. The user may take a while to scan throughout the interface to find and make sure they are clicking on the right thing. (See fig 8)

9 Help users recognize, diagnose, and recover from errors – Pass

No errors were able to be produced artificially.

---

10 Help and documentation - Neutral



All help is summarized in one location

Fig 9

The documentation and help for this app is all under one area.

Problem: more of this information could be distributed throughout the app in case users had more questions in other places. (See fig 9)

Audrey Chavarria

Product: Bank of America mobile App

1 Visibility of system status – PASS

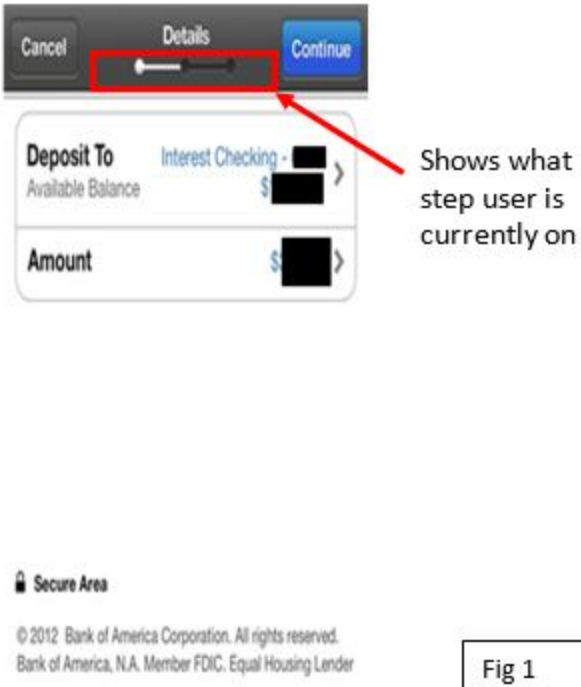


Fig 1

The page on which the user is, is clearly labeled. The user is shown what step they are currently on. Throughout the app at different scenarios this pattern appears which really helps the user figure out where in a process they are. (See fig 1)

---

2 Match between system and the real world - Pass

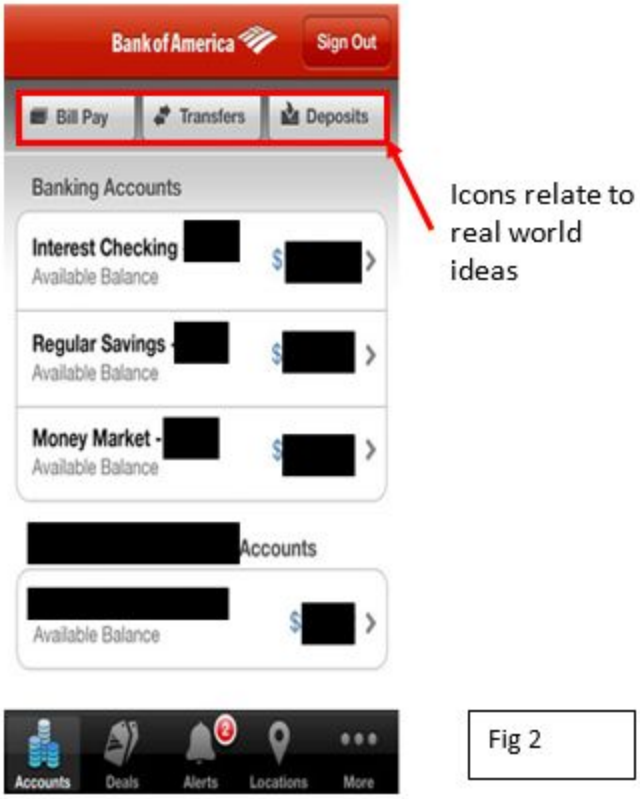


Fig 2

Icons help the user see something familiar to the real world. (See fig 2)

3 User control and freedom – Pass

Fig 3

Throughout the app there are options to leave or move to another screen. This lets the user be in control of their interaction. (See fig 3)

4 Consistency and standards - Pass

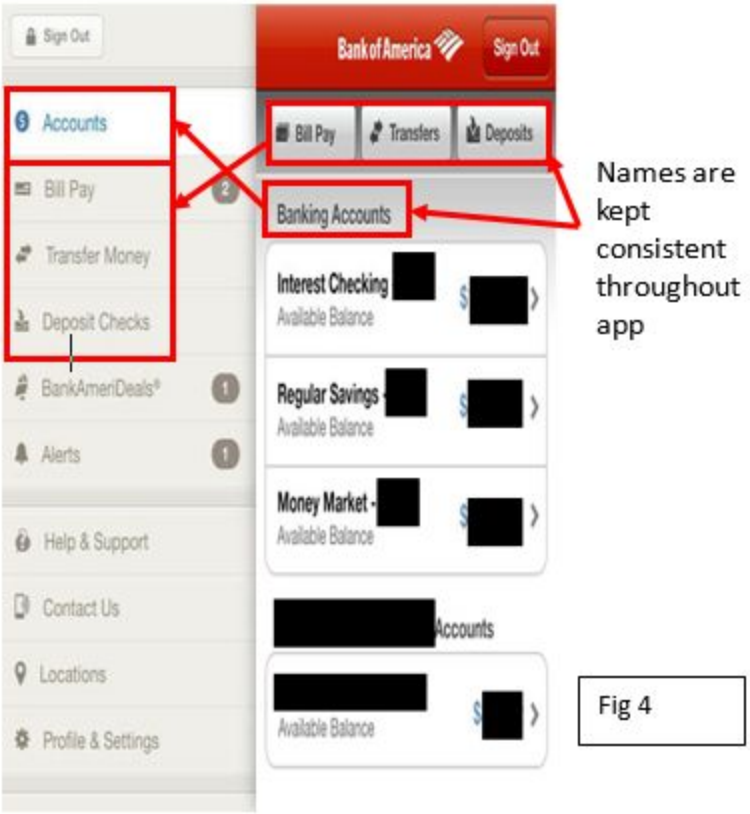


Fig 4

Names are kept consistent throughout the app. This prevents the user from seeing two things and wondering if they do the same thing. (See fig 4)

5 Error prevention – Pass

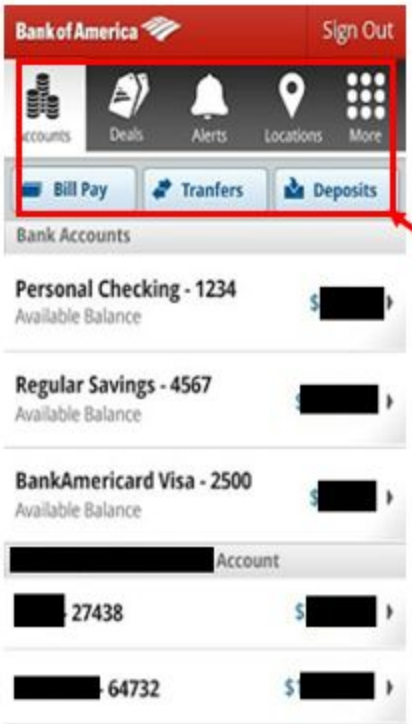
Helps the user figure out if they are on the right direction to accomplish their goal

Fig 5

In a way, the bar at the top that signals the step in the process the user is on helps the user not make mistakes by letting them move through the given scenario and filling up the bar. If the user were to go wrong somewhere and not be able to continue on this would be reflected on the bar. (See fig 5)

---

6 Recognition rather than recall - Pass

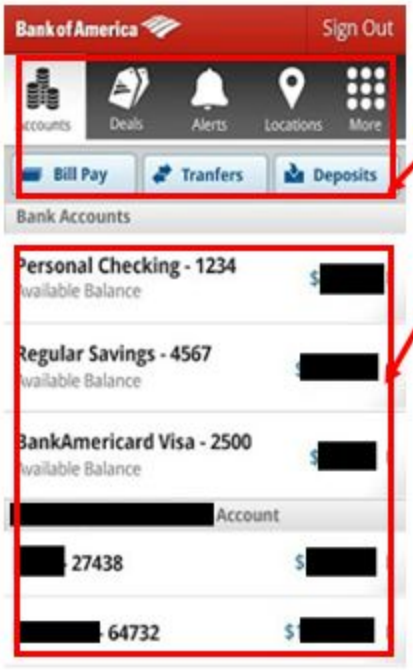


All the icons let the user quickly remember what their associated action is

Fig 6

Icons and a word describing them help the users remember what they mean so next time they see them, they will be able to recognize the symbols instantly rather than recall what they mean. (See fig 6)

7 Flexibility and efficiency of use – Pass



Secondary scenarios can be reached quite easily

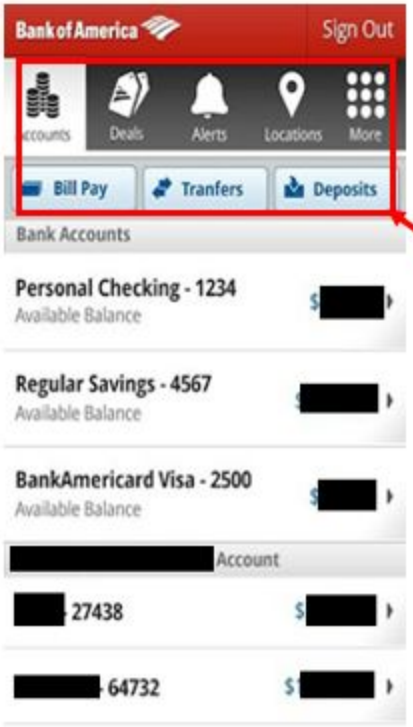
Core scenarios is verv visible

Fig 7

Core scenario takes a big portion of the screen and secondary scenarios are easily accessible. (See fig 7)

---

8 Aesthetic and minimalist design – Neutral - leaning to Fail



Too many icons shown all at once

Fig 8

Problem: While is great to see that the user can perform a wide range of actions, the user may also become overwhelmed or confused by the amount of options. These secondary scenarios could be hidden from the users view to focus on the core scenarios. (See fig 8)

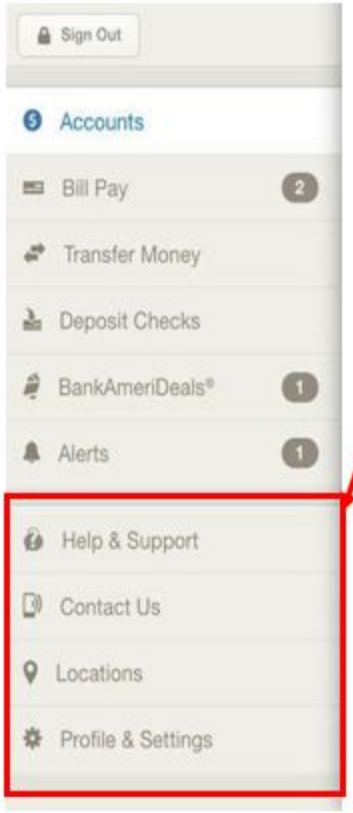
9 Help users recognize, diagnose, and recover from errors – Fail

User can see flow, but not help on solving an issue

Fig 9

Problem: The user can see their progress but if they encounter an issue, no dialog or help links is offered to find answers or more information about an issue or topic of interest. (see fig 9)

10 Help and documentation – Neutral – leaning towards Fail



Help and documentation is offered in one place

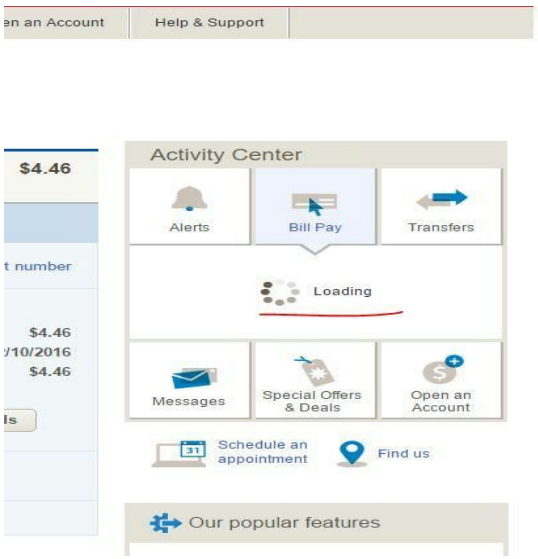
Fig 10

The documentation and help for this app is all under one area.

Problem: more of this information could be distributed throughout the app in case users had more questions in other places. (See Heuristic 9 & 10)

Chris Kubec

Bank of America Website



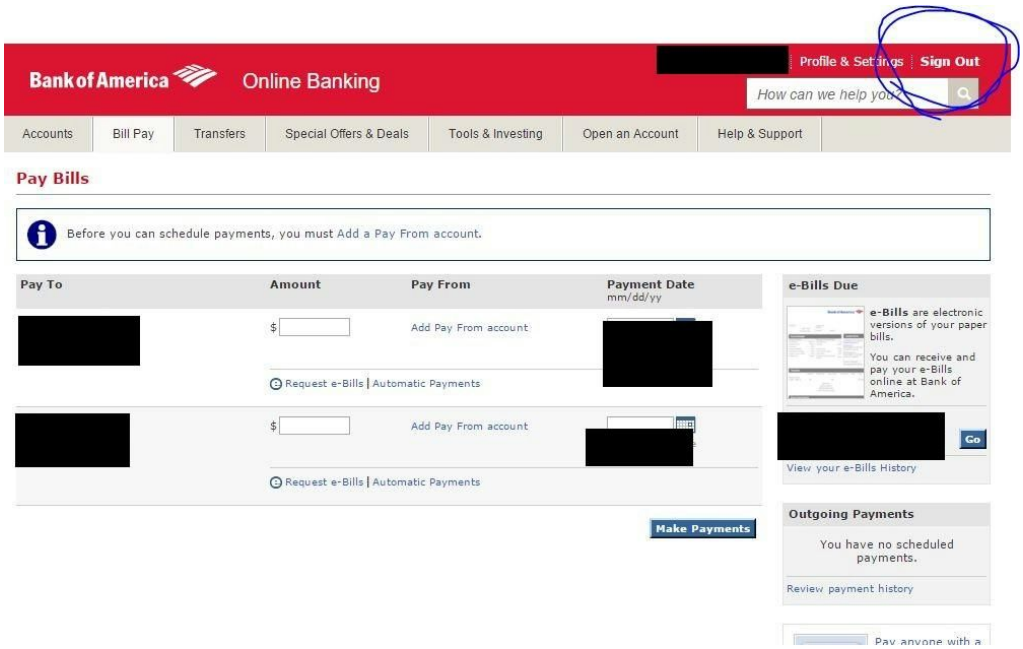
1. **Visibility of system status** Pass

When using the system and sending requests the site would give a loading wheel showing that the site was retrieving information giving feedback to a user rather than a screen that was frozen while the request completed.

---

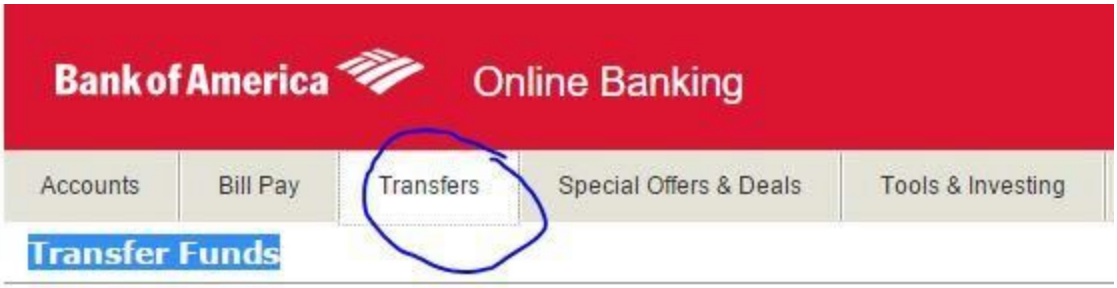
2. **Match between system and the real world** PASS

Looking at the different buttons things used in the real world of banking for example Transfer or Bill Pay are clear tasks associated with the buttons, the arrows for transfering show clearly you want to move money around accounts.



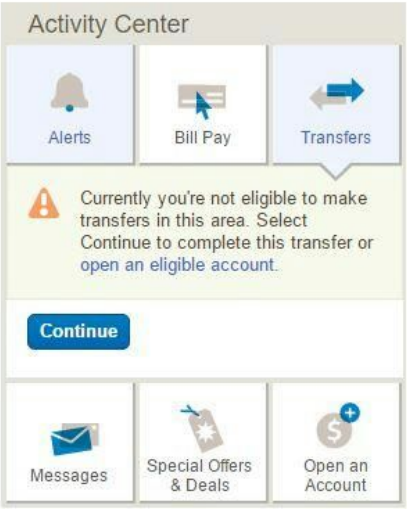
3. **User control and freedom** FAIL

In regards to moving back if you remember which tab was accessed before you can click above from accounts bill pay or etc. However the site has no backstep besides the browser based back button which sometimes works however sometimes fails to load the old page.



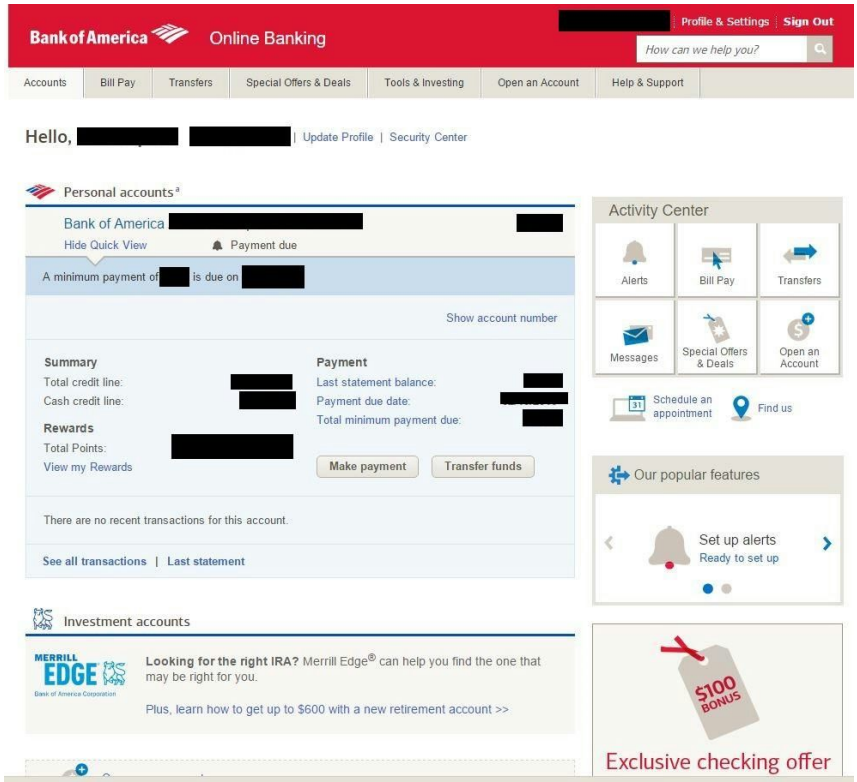
4. **Consistency and standards** FAIL

Across the site whether it is the transfer example above or the bill payer screenshot from image 3 in the previous example. The wording from the tab changes clicking transfer you get the wording Transfer Funds. Where Bill Pay the words swap to Pay Bills not a major change however could confuse some users.



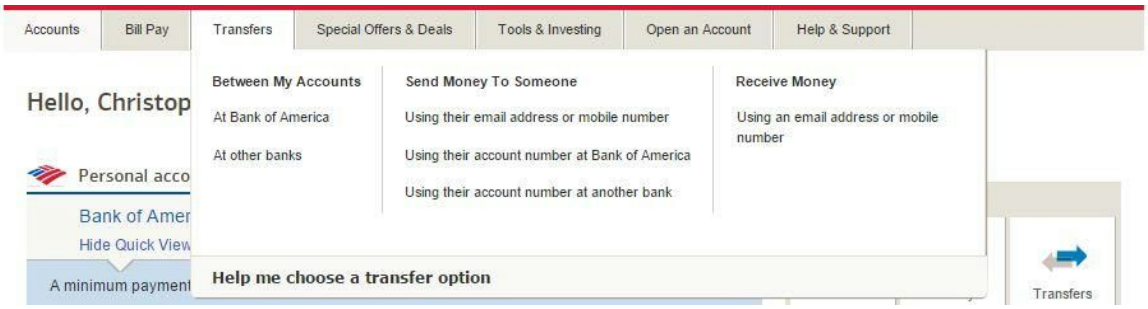
5. **Error prevention** PASS

No error messages could be found besides this when asking to transfer money giving steps to fix the scenario of transferring money by allowing the user to try and open a new account. Since I only have Credit cards at Bank of America I can't transfer money but they wish to solve that problem by letting me open a new account.



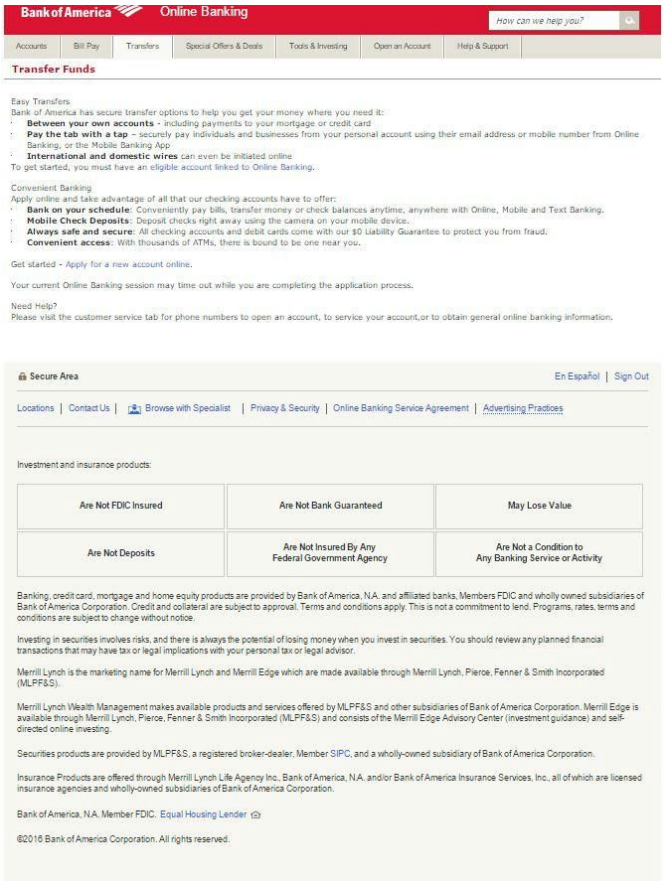
6. **Recognition rather than recall** PASS

Account information is pulled up quickly and present across the website where needed. Going into bill pay or transfer you are aware of how much is in each of the accounts in question or what the bill exactly is and when its due.



7. **Flexibility and efficiency of use** PASS

Overall usage the frontpage gives the users the utilities to complete tasks a new user might use. While the drop down menus at the top of the page allow a returning user to jump to a certain function they need.



Bank of America Online Banking

How can we help you?

Accounts | Bill Pay | Transfers | Special Offers & Deals | Tools & Investing | Open an Account | Help & Support

Transfer Funds

Easy Transfers
Bank of America has secure transfer options to help you get your money where you need it:

- **Between your own accounts** - including payments to your mortgage or credit card
- **Pay the tab with a tap** – securely pay individuals and businesses from your personal account using their email address or mobile number from Online Banking, or the Mobile Banking App
- **International and domestic wires** can even be initiated online

To get started, you must have an eligible account linked to Online Banking.

Convenient Banking
Apply online and take advantage of all that our checking accounts have to offer:

- **Bank on your schedule**: Conveniently pay bills, transfer money or check balances anytime, anywhere with Online, Mobile and Text Banking.
- **Mobile Check Deposits**: Deposit checks right away using the camera on your mobile device.
- **Always safe and secure**: All checking accounts and debit cards come with our $0 Liability Guarantee to protect you from fraud.
- **Convenient access**: With thousands of ATMs, there is bound to be one near you.

Get started - Apply for a new account online.

Your current Online Banking session may time out while you are completing the application process.

Need Help?
Please visit the customer service tab for phone numbers to open an account, to service your account,or to obtain general online banking information.

Secure Area | En Español | Sign Out

Locations | Contact Us | Browse with Specialist | Privacy & Security | Online Banking Service Agreement | Advertising Practices

Investment and insurance products:

Are Not FDIC Insured	Are Not Bank Guaranteed	May Lose Value
Are Not Deposits	Are Not Insured By Any Federal Government Agency	Are Not a Condition to Any Banking Service or Activity

Banking, credit card, mortgage and home equity products are provided by Bank of America, N.A. and affiliated banks, Members FDIC and wholly owned subsidiaries of Bank of America Corporation. Credit and collateral are subject to approval. Terms and conditions apply. This is not a commitment to lend. Programs, rates, terms and conditions are subject to change without notice.

Investing in securities involves risks, and there is always the potential of losing money when you invest in securities. You should review any planned financial transactions that may have tax or legal implications with your personal tax or legal advisor.

Merrill Lynch is the marketing name for Merrill Lynch and Merrill Edge which are made available through Merrill Lynch, Pierce, Fenner & Smith Incorporated (MLPF&S).

Merrill Lynch Wealth Management makes available products and services offered by MLPF&S and other subsidiaries of Bank of America Corporation. Merrill Edge is available through Merrill Lynch, Pierce, Fenner & Smith Incorporated (MLPF&S) and consists of the Merrill Edge Advisory Center (investment guidance) and self-directed online investing.

Securities products are provided by MLPF&S, a registered broker-dealer, Member SIPC, and a wholly-owned subsidiary of Bank of America Corporation.

Insurance Products are offered through Merrill Lynch Life Agency Inc., Bank of America, N.A. and/or Bank of America Insurance Services, Inc., all of which are licensed insurance agencies and wholly-owned subsidiaries of Bank of America Corporation.

Bank of America, N.A. Member FDIC. Equal Housing Lender

©2016 Bank of America Corporation. All rights reserved.

8. **Aesthetic and minimalist design** FAIL

Lots of text everywhere. Clicking on any page will give similar paragraph reading. The information at the bottom remains across each page the body text above is different but lengthy to the point every page is cluttered and boring.

---

9. **Help users recognize, diagnose, and recover from errors** PASS

When typing in an incorrect username and password for example this error helps point a user to a password and user recovery scenario helping the user into their account while showing this error.

---

10. **Help and documentation** PASS

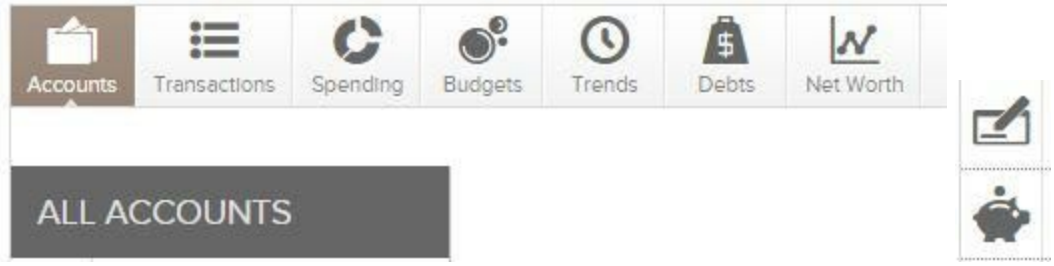
Clearly across the site along the way you can use the search box to find a solution or go through the tedious manual to find an answer to a question.

Chris Kubec

BECU Website

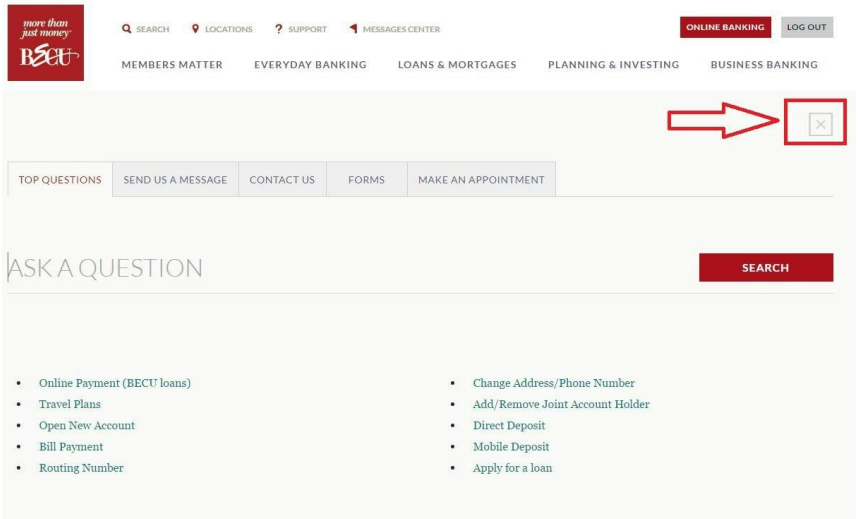
1. **Visibility of system status** PASS / FAIL

When loading large amounts of data from the account money manager overview tab we get a initializing spinning load pinwheel. However this does not give us overall progress of the information loading just basic if it is spinning it is working if not it has failed or crashed.



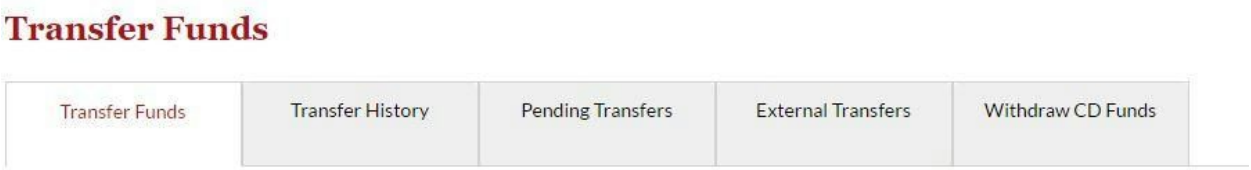
2. **Match between system and the real world** PASS

Provides real world context with symbols from the real world. Accounts tab looks like a wallet while for example under accounts a piggy bank references a savings account and a check and pen as a checking account which you use similar to how we use to use checks.



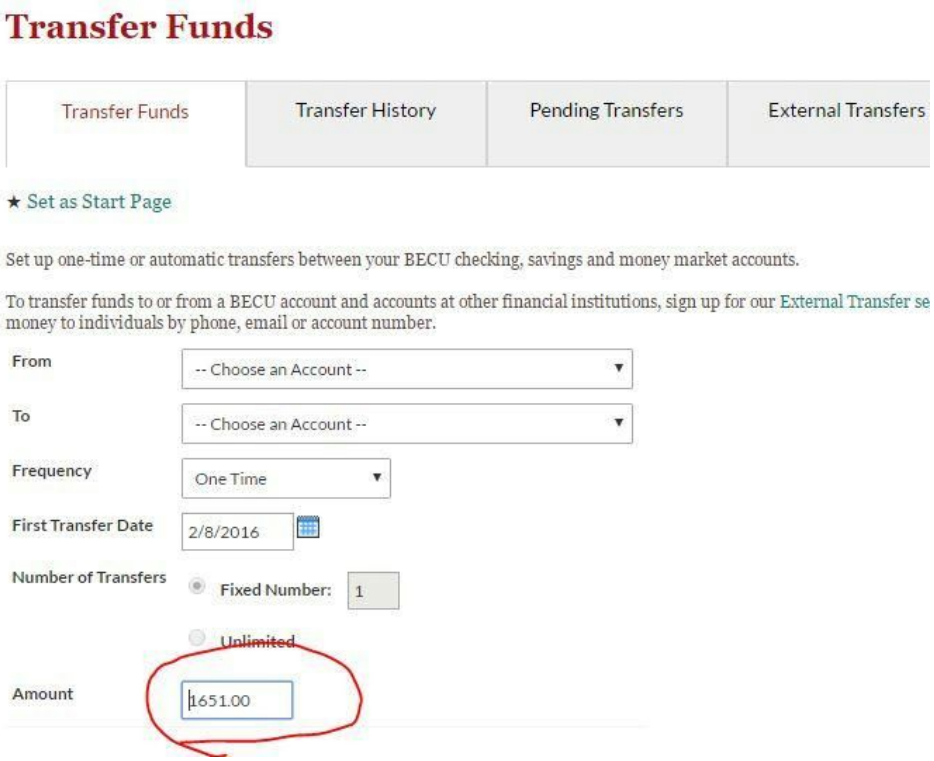
3. **User control and freedom** PASS

The website has several locations where if you move away from the accounts area clicking the big X in the top right corner will bring you back to the account screen or whatever was pulled up before whether that was transfers or account activity views. Also a red button at the top right that will take you back to the accounts summary page the first page you visit upon logging in.



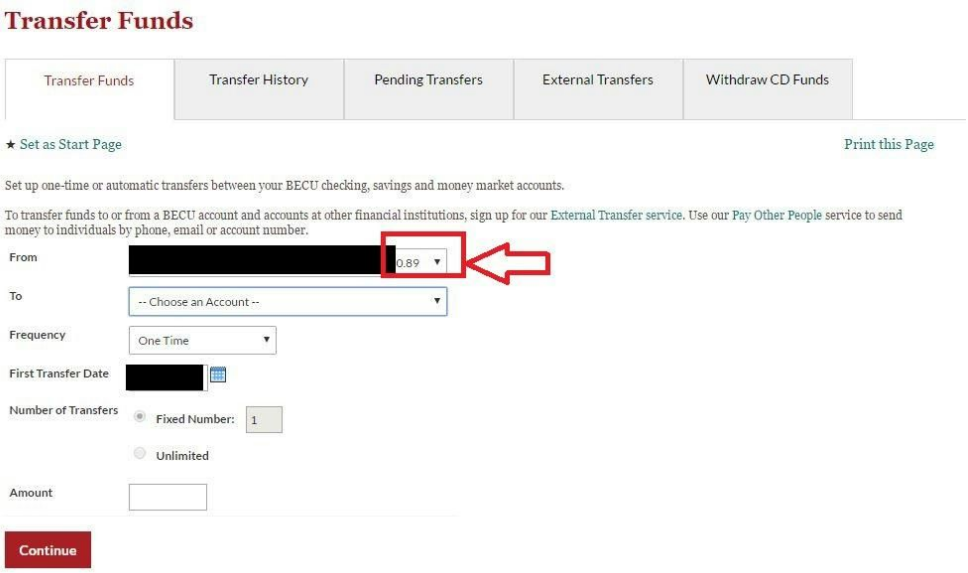
4. **Consistency and standards** PASS

Consistent naming conventions across site with little confusion of what the provider is intending for the user to see and do. Transfer Funds is bold across the top of the browser while the sub tab heading also highlights the action of transferring of funds occuring.



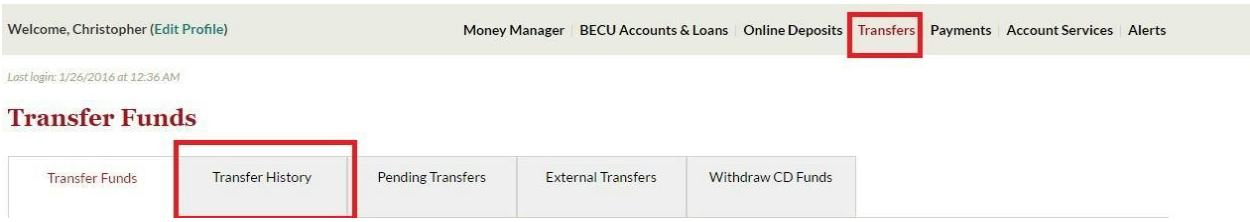
5. **Error prevention** PASS

The site protects the user from typing characters of any kind in the transfer amount box and only allows for positive integers or doubles with 2 decimal precision. Meaning instead of taking bad input the site handles mistyping errors by the users.



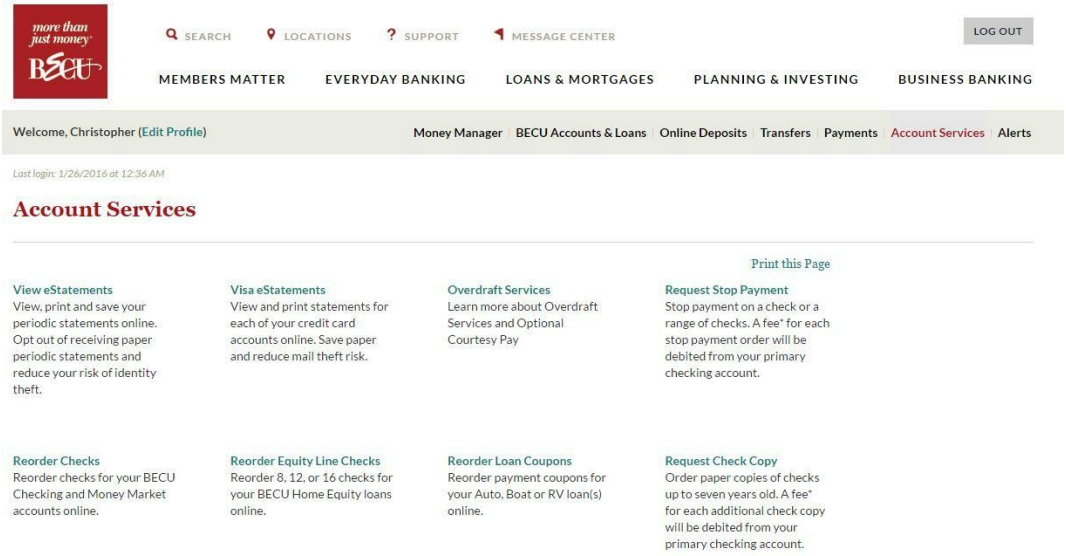
6. **Recognition rather than recall** PASS

Site retains information pertinent to the user at the time of contextual need of use. An example being when a user needs to transfer money in the drop down selection the accounts provided also include amounts of available funds to transfer.



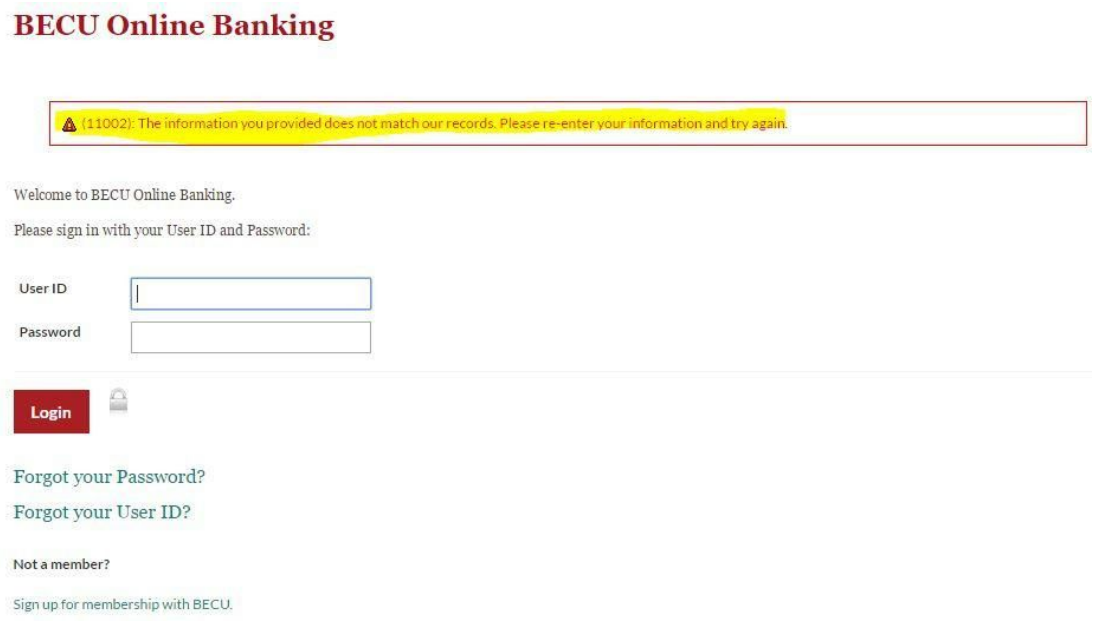
7. **Flexibility and efficiency of use** FAIL

The system caters to more novice users with little feature for advanced users to skip past certain steps. To look at past transfer history a user must first click transfer at the top then Transfer History in the sub heading, where the site could have implemented a drop down at the top. Novice users can click the same Transfers dropdown menu at the top and go to transfer while the experienced user can go directly through the dropdown to Transfer History.



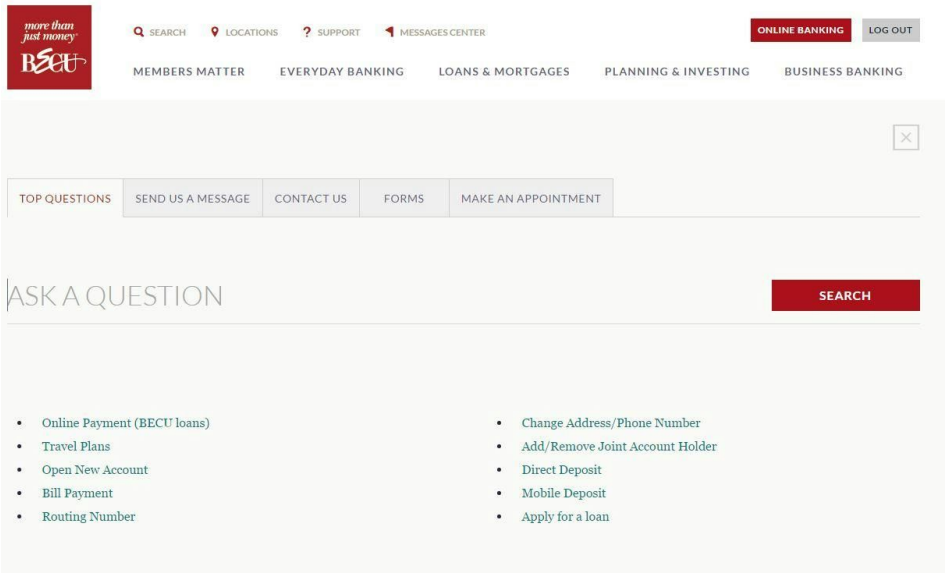
8. **Aesthetic and minimalist design** PASS

The site has a very minimalistic design clean and white with a few grey bars here and there to differentiate appearance. Minimal text across the entire site had to dig through the site to find this page with quite a bit of text yet this text is neat and organized with headings and only brief descriptions of the service provided.



9. **Help users recognize, diagnose, and recover from errors** FAIL

Provides a error message with a code and asks the user to try their information again however does not refer them to the forgot password or user id section as a solution.



10. **Help and documentation** PASS

When clicking the support button atop the screen we're lead to a search bar to ask any questions or help needed. The screen is responsive and gives results right away giving documentation in needed bursts rather than just a giant manual.

Credit Union 1 Bank Mobile Application

1. **Visibility of system status – PASS**

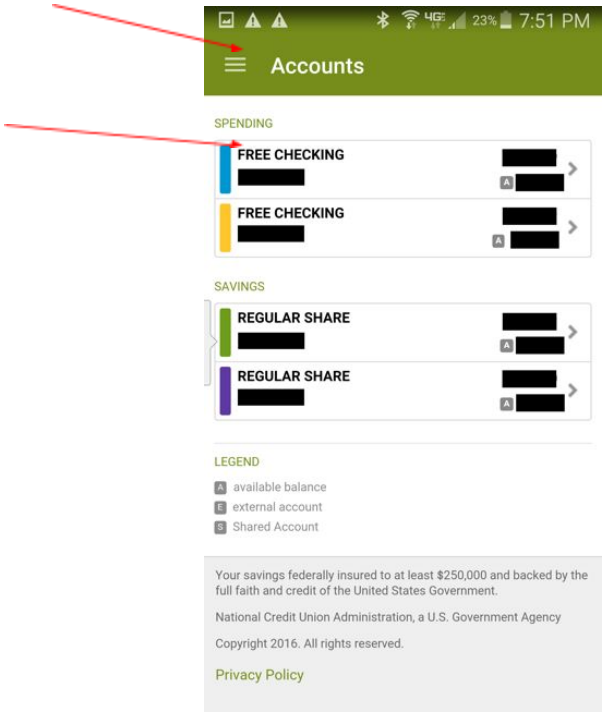


Figure 1. Account Balances.

Pass: The app shows the user that they are viewing the account balances, also it distinguishes between the savings and spending accounts. The app uses different colors to let user know that they are looking at different accounts. (Figure 1)

2. **Match between system and the real world – PASS**

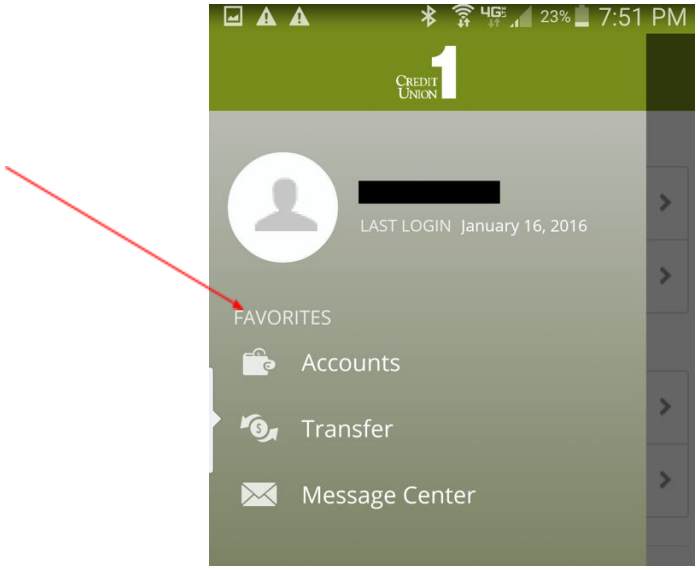


Figure 2. Menu

Pass: The words and concepts are familiar to the user. The flow of the tasks is appearing in the logical order. (Figure 2)

3. User control and freedom – Pass

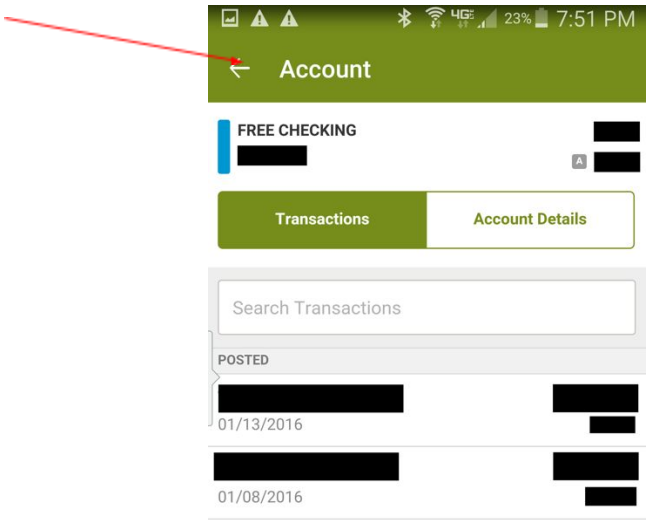


Figure 3. Back to Accounts

Pass: If the user made mistake by going to the transactions, the app supports emergency exit, which allows the user to go back to the previous screen.

4. Consistency and standards – PASS

The language used through out the app is something user is familiar with and means the same thing, as seen in Figure 2, 3. The Hamburger menu is placed in the expected location at the left top corner (Figure 5).

5. Error prevention – PASS

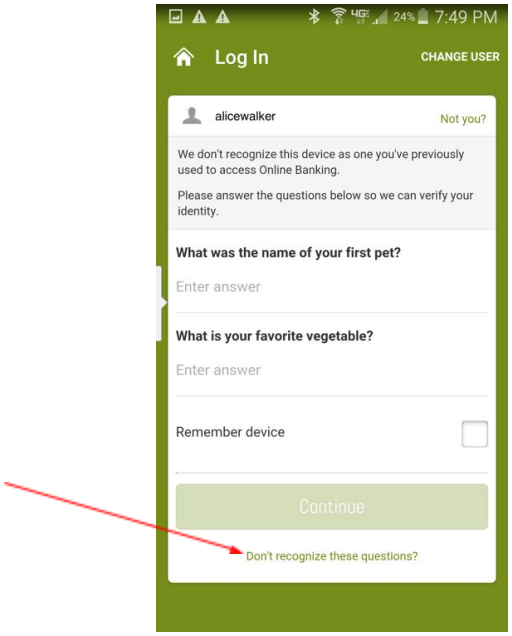


Figure 4. Log-in: Security Questions

Pass: The application prevents the user from trying to put wrong answers to questions by asking if user recognizes the security questions (Figure 4).

6. Recognition rather than recall – PASS

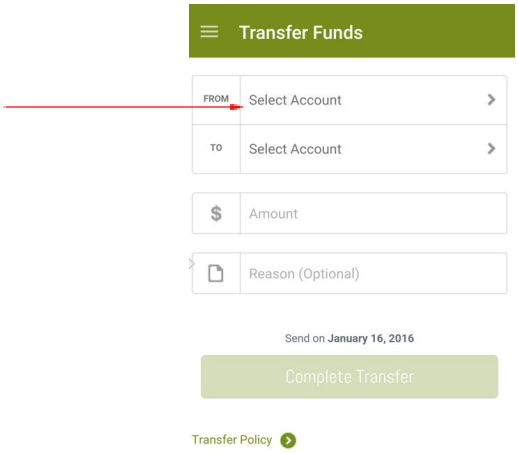


Figure 5. Transfer

Pass: The option of the Select the Account is given so that user doesn't have to manually type in the account numbers. As a result, minimizes the user's memory load (Figure 5).

7. **Flexibility and efficiency of use – PASS**

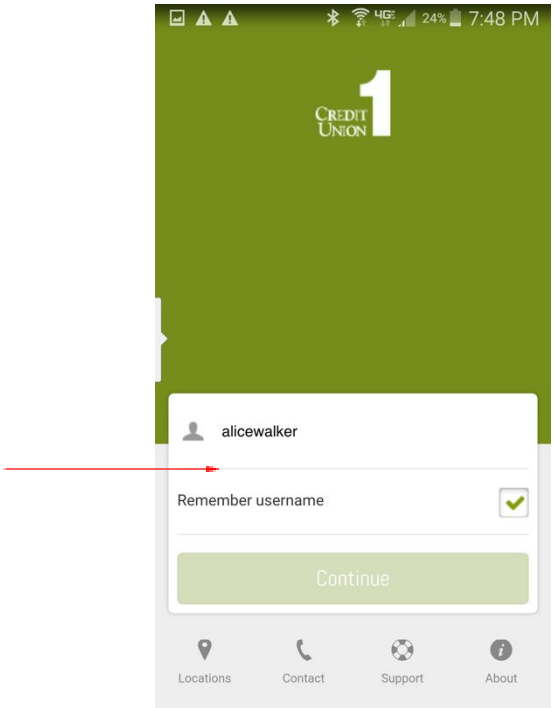


Figure 6. Log-in: Remember Username

Pass: The app lets the user to tailor the frequent action such as logging in to the application, by providing the Remember Username option. As the result it speeds up the the interaction for the expert user (Figure 6).

8. **Aesthetic and minimalist design – FAIL**

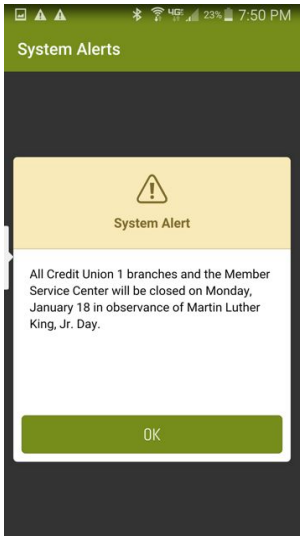


Figure 7. Alert Message

Fail: the information such as the hours of operation as a pop-up as soon user logs in is unnecessary and time consuming. Also the name such as System Alert is irrelevant to the message itself (Figure 7).

9. Help users recognize, diagnose, and recover from errors – PASS

The system allows the user to recover from the mistake when they passed through the username, but don't recognize the security questions, by asking them at the bottom of the screen and leading them to the solution (Figure 4).

10. Help and documentation – PASS

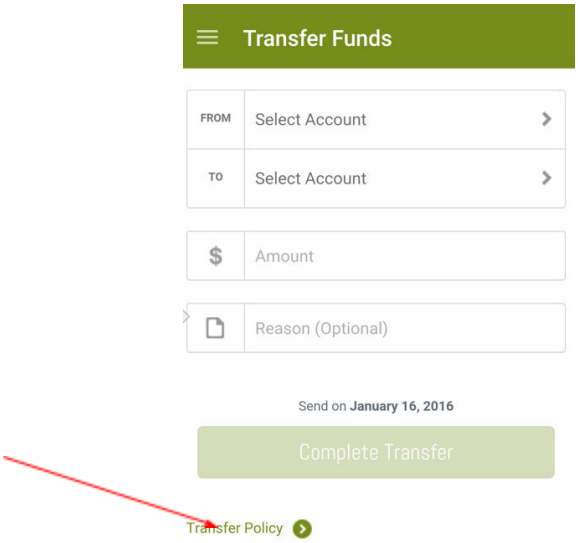


Figure 8. Transfer Policy

Pass: The necessary documentation for transfer policy is provided in a visible place and in the right location, which is on the Transfer screen (Figure 8).

Wells Fargo Bank Website

Visibility of system status – PASS

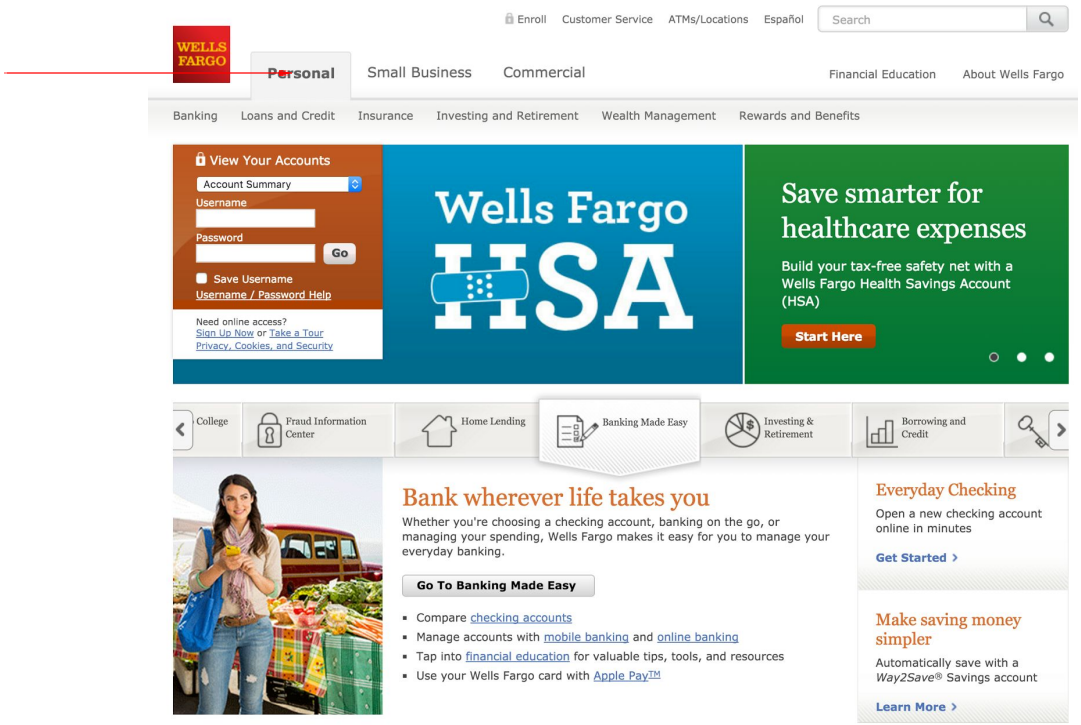


Figure 1. Wells Fargo Website Home Page

Pass: The website lets the user know where they are located by using tabs such as Personal, Small Business and Commercial (Figure 1). It's easy to see where you need to go for your specific needs and easy to accomplish this task.

Match between system and the real world – PASS

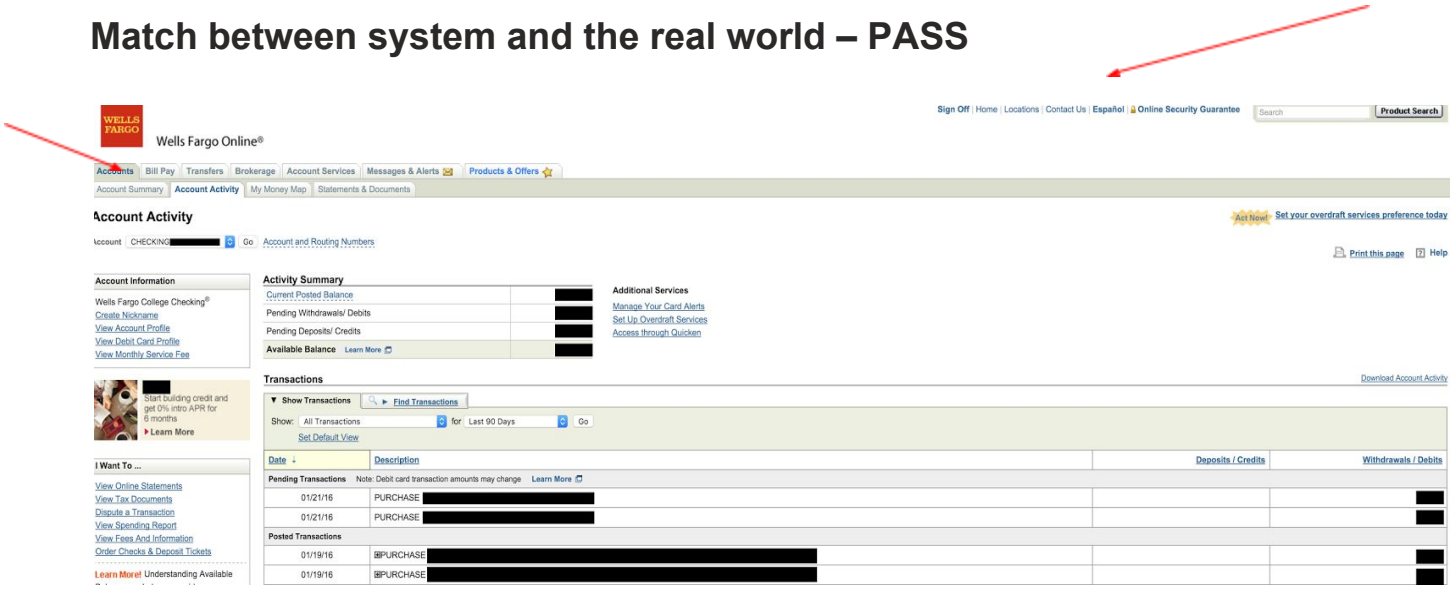


Figure 2. Wells Fargo View Checking Account Transactions

Pass: The words that are used to describe certain tasks user might need to accomplish are familiar and common. The flow is in logical order, for example Account Summary is followed by Account Activity and so forth (Figure 2).

User control and freedom – PASS
Pass: If user made a mistake it is easy to recover. By providing many tabs with common tasks as the description, user can go back and forth without any frustration (Figure 2).

Consistency and standards – PASS
Pass: The language used through out the app is something user is familiar with and means the same thing, as seen in Figure 1, 2. The locations of sign on/off and contacts us are in the familiar place at the right top corner, as well as the account related tasks at the left corner.

Error prevention – PASS

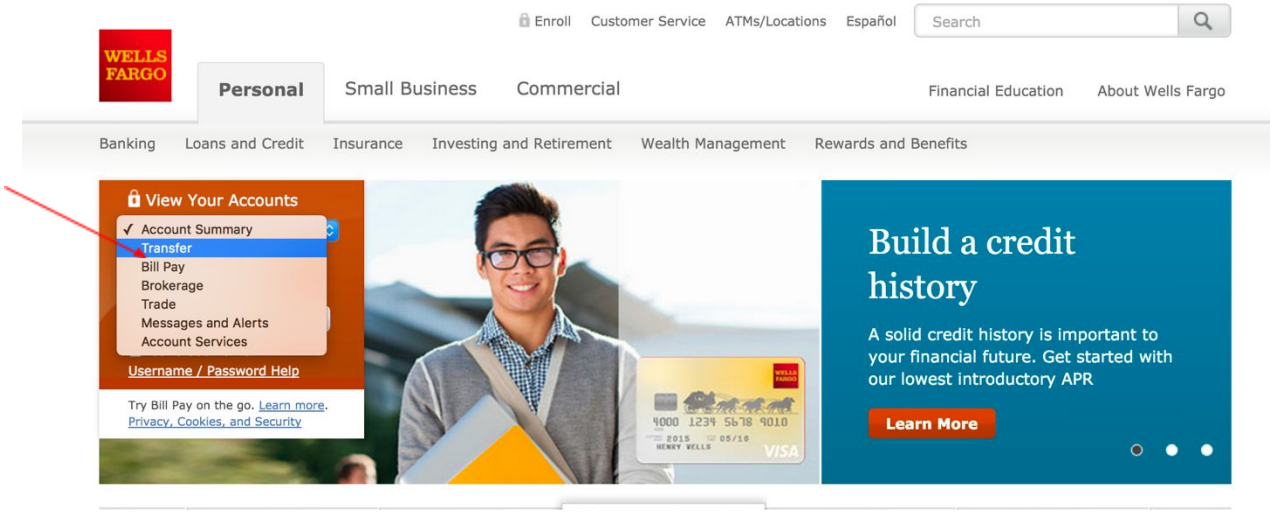


Figure 3. Before Logging In

Pass: The system lets you to pick which task you would like to accomplish before you even log in, resulting in an error prevention. If you have certain task in mind you will be able to accomplish it as soon as you log in without navigating through the website searching for the task and possibly ending up in the wrong place (Figure 3).

Recognition rather than recall – PASS

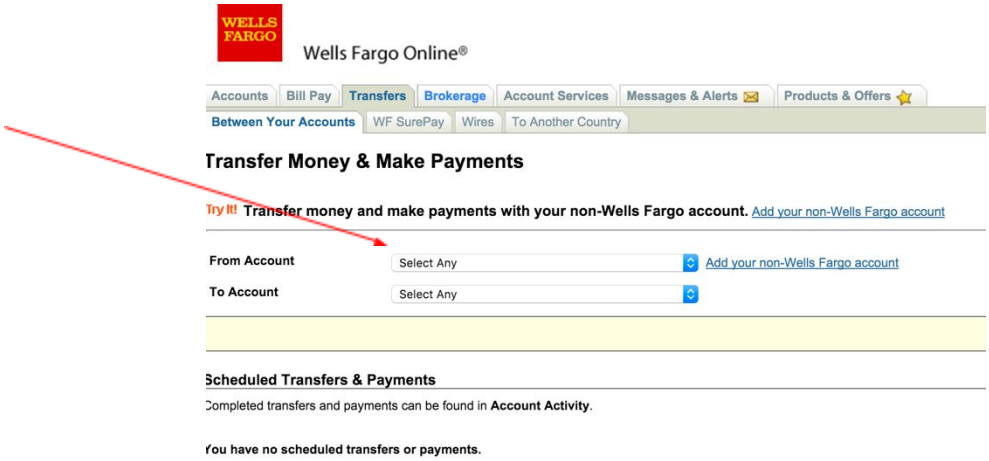


Figure 4. Transfer Select Account

Pass: The option of the Select the Account is given so that user doesn't have to manually type in the account numbers. As a result, minimizes the user's memory load (Figure 4).

Flexibility and efficiency of use – PASS

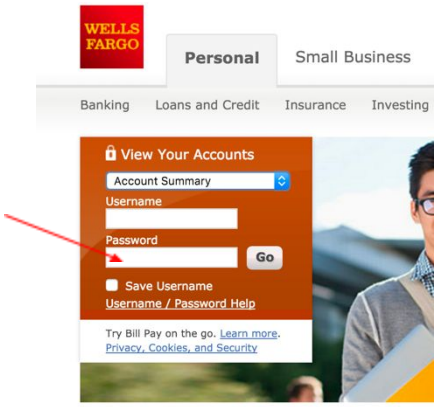


Figure 4. Save Username

Pass: The system lets the user to tailor the frequent action such as logging in to the application, by providing the Remember Username option. As the result it speeds up the the interaction for the expert user (Figure 4).

Aesthetic and minimalist design – FAIL

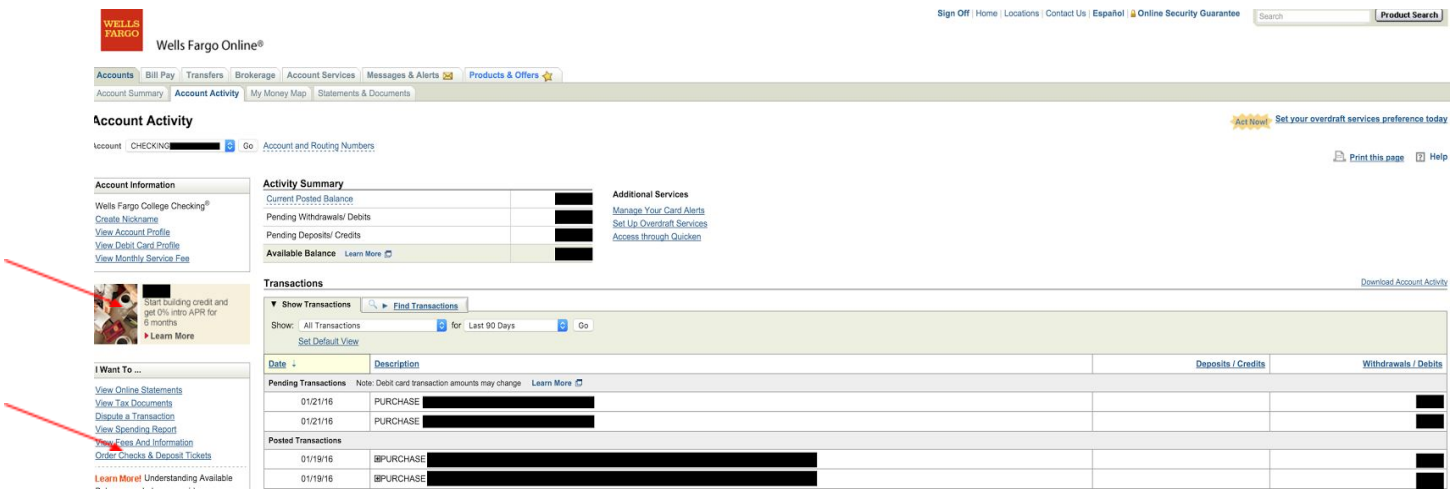


Image 5. Advertisement and Learn More on the left

Fail: The website seems cluttered with a lot of information once you log in, for example the unnecessary advertisement on the left side of the website or Learn More below (Figure 5).

Help users recognize, diagnose, and recover from errors – PASS

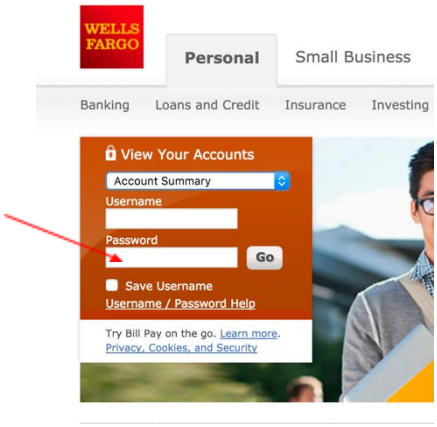


Figure 6. Username/Password Help

Pass: The website provides help and necessary steps in order to recover from mistake of putting the wrong username or password (Figure 6).

Help and documentation – PASS

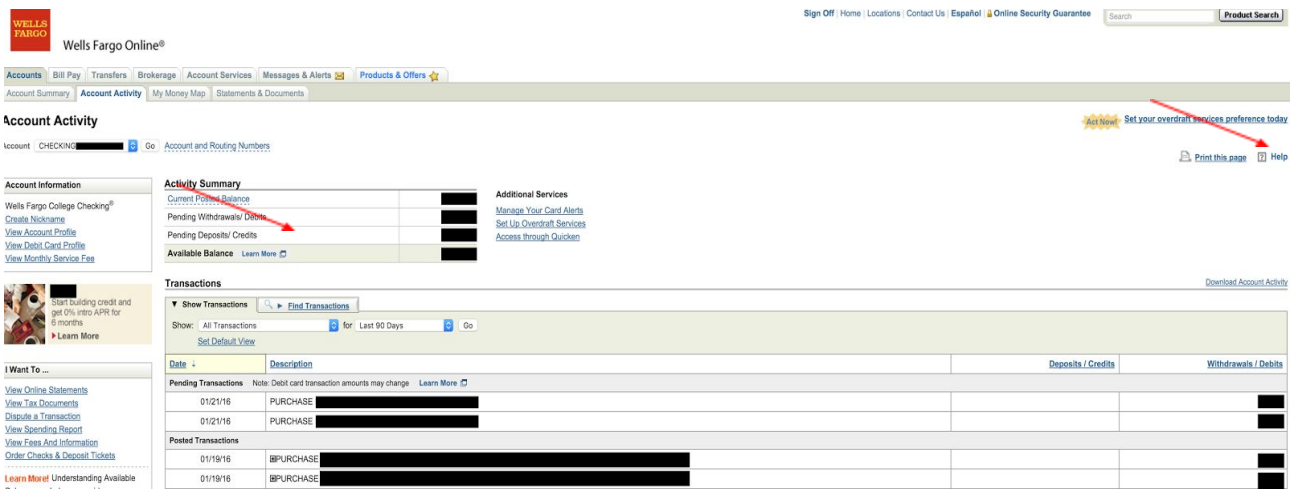


Image 5. Help is readily available

Pass: The help is readily available through the website, at each task. There are several names such as “Help” or “Learn More” which provides help on certain topics (Figure 7).

Group Competitive and comparative analysis Table

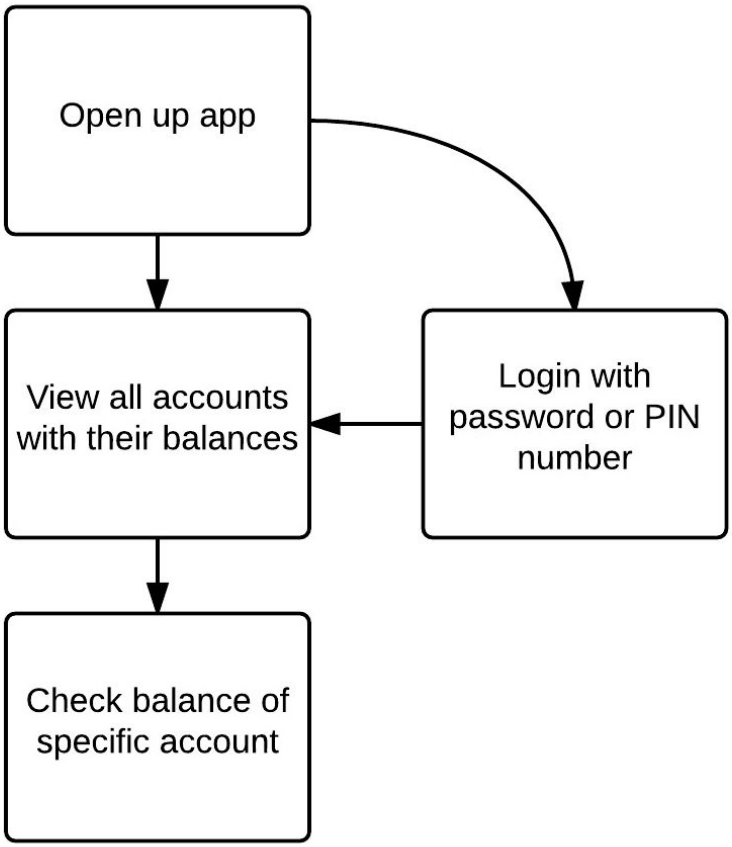
Product name	**URL**	**Key usability strengths**	**Key usability weaknesses**
UMPQUA Mobile Banking App	https://www.umpquabank.com/personal-banking/digital-banking/	• Match Between System and the Real World • Consistency and Standards • Recognition Rather than Recall	• Error Prevention • Aesthetic and Minimalist Design • Help Users Recognize, Diagnose, and Recover from Errors
TAPCO Mobile Banking App	https://itunes.apple.com/us/app/tapco-on-the-go/id811574685?mt=8	• Visibility of System Status • Match Between System and the Real World • Flexibility and Efficiency of Use	• Error Prevention • Help Users Recognize, Diagnose, and Recover from Errors • Help and Documentation

US Bank Mobile App	https://www.usbank.com/mobile/index.html?ecid=VU_6253&WT.mc_id=r6253&original_ref=https%3A%2F%2Fwww%2Egoogle%2Ecom%2F	• Visibility of System Status • Recognition Rather than Recall	• Match Between System and the Real World • User control and freedom • Consistency and standards • Aesthetic and Minimalist Design • Help and documentation
Bank of America Mobile App	https://www.bankofamerica.com/online-banking/iphone-banking-app.go	• Visibility of System Status • Match Between System and the Real World • User control and freedom • Consistency and standards • Error Prevention • Recognition Rather than Recall • Flexibility and efficiency of use	• Aesthetic and minimalist design • Help Users Recognize, Diagnose, and Recover from Errors • Help and documentation •
BECU Desktop Website	https://www.becu.org/	• Visibility of system status • Match between system and the real world • User control and freedom • Consistency and standards • Error prevention • Recognition rather than recall • Aesthetic and minimalist design • Help and documentation	• Flexibility and efficiency of use • Help users recognize, diagnose, and recover from errors
Bank of America	https://www.bankofamerica.com/	• Visibility of system status	• User control and freedom

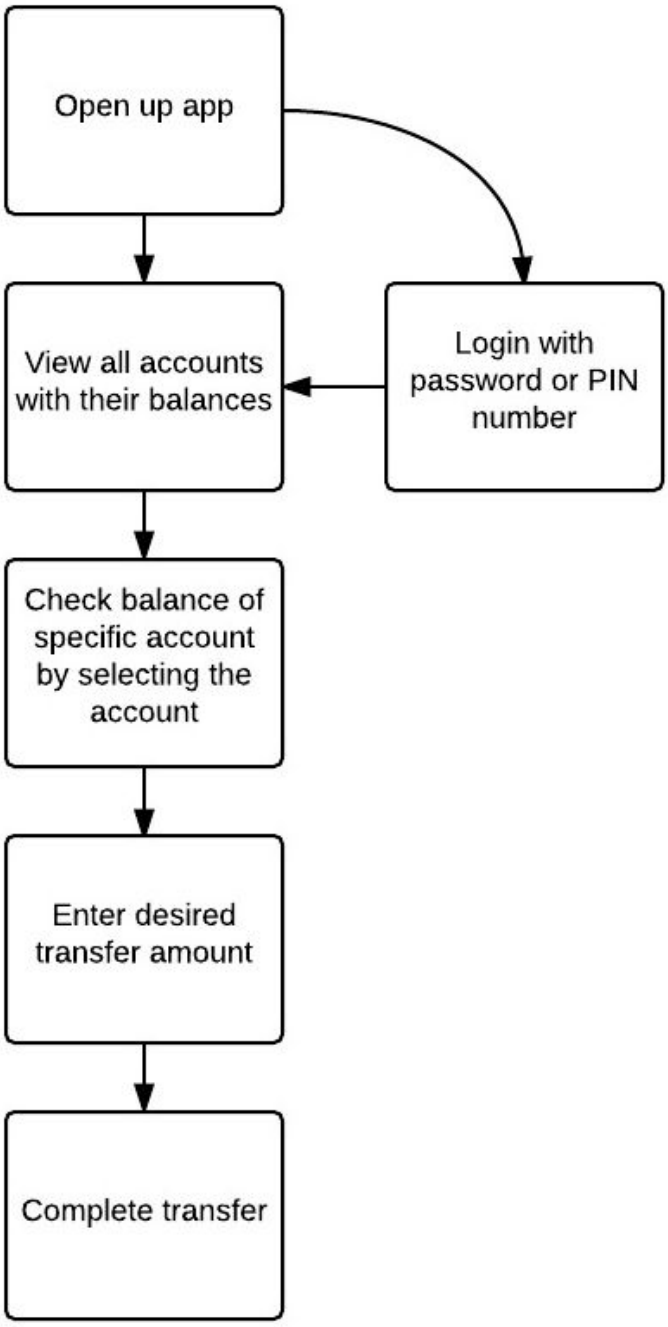
Desktop Website		• Match between system and the real world • Error prevention • Recognition rather than recall • Flexibility and efficiency of use • Help users recognize, diagnose, and recover from errors • Help and documentation	• Consistency and standards • Aesthetic and minimalist design
Credit Union 1 Bank Mobile Application	https://www.cu1.org/online/mobile-banking.shtml	• Visibility of system status • Match between system and the real world • User control and freedom • Consistency and standards • Error prevention • Recognition rather than recall • Flexibility and efficiency of use • Help and documentation • Help users recognize, diagnose, and recover from errors	• Aesthetic and minimalist design
Wells Fargo Bank Website	https://www.wellsfargo.com/	• Visibility of system status • Match between system and the real world • User control and freedom • Consistency and standards • Error prevention • Recognition rather than recall • Flexibility and efficiency of use • Help and documentation • Help users recognize, diagnose, and recover from errors	• Aesthetic and minimalist design

Optimized Task Analysis for Core Scenarios

Check Balance

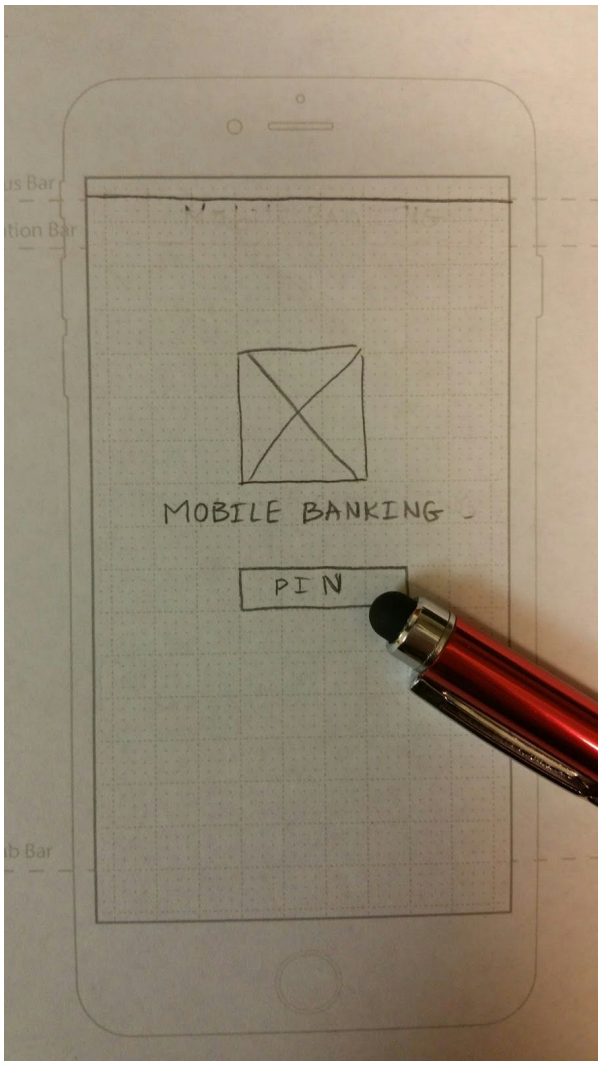
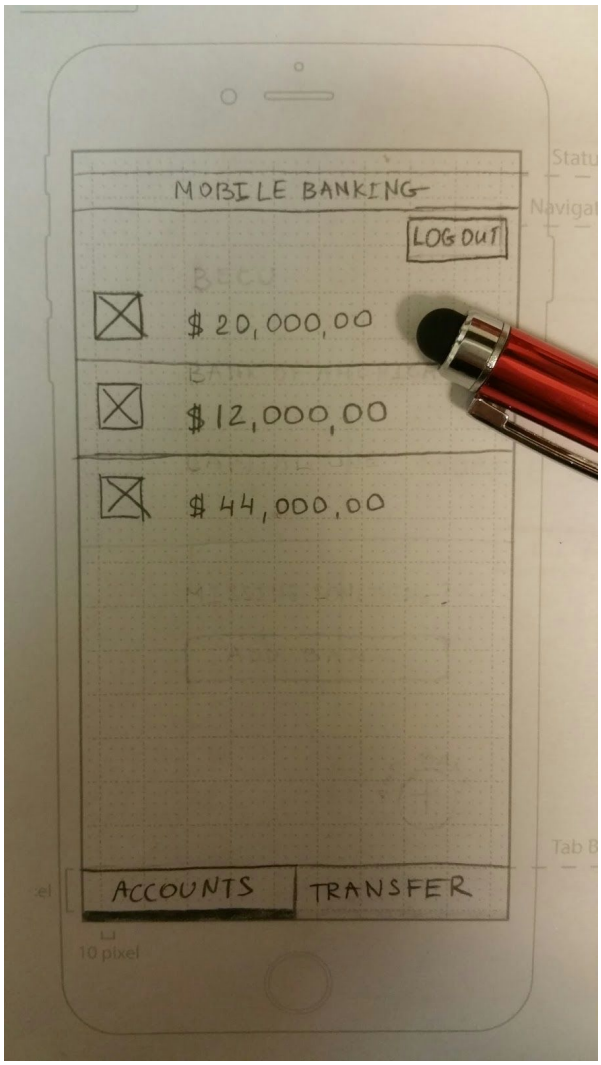


Transfer Funds

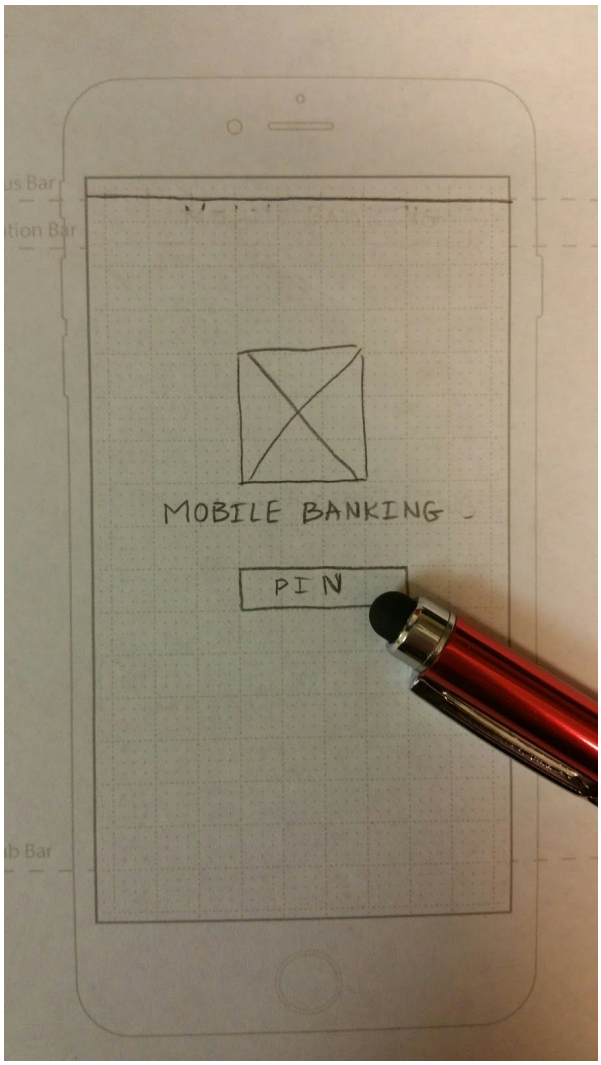
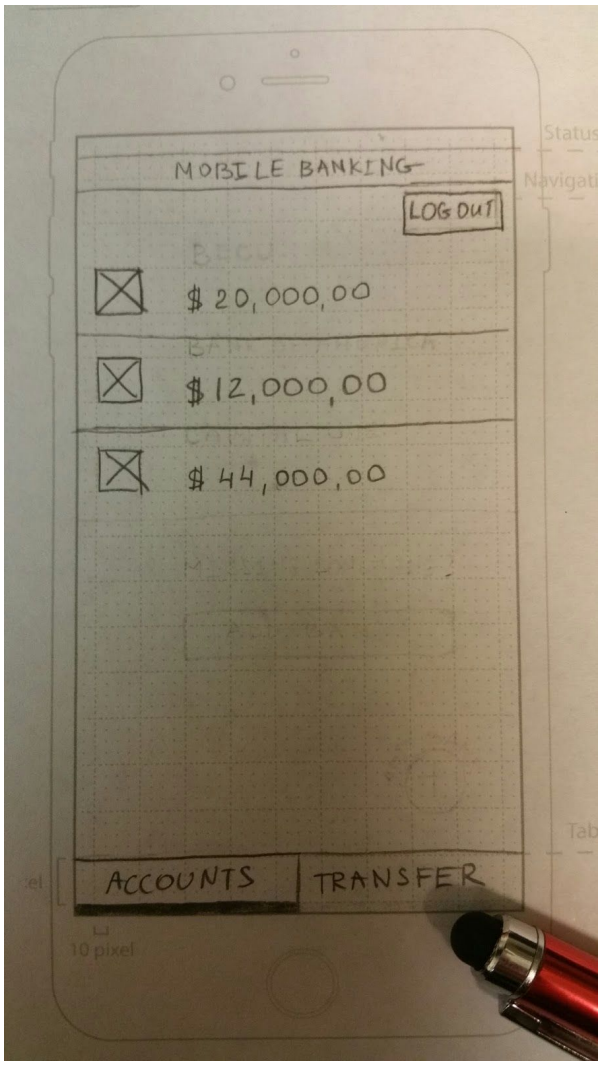


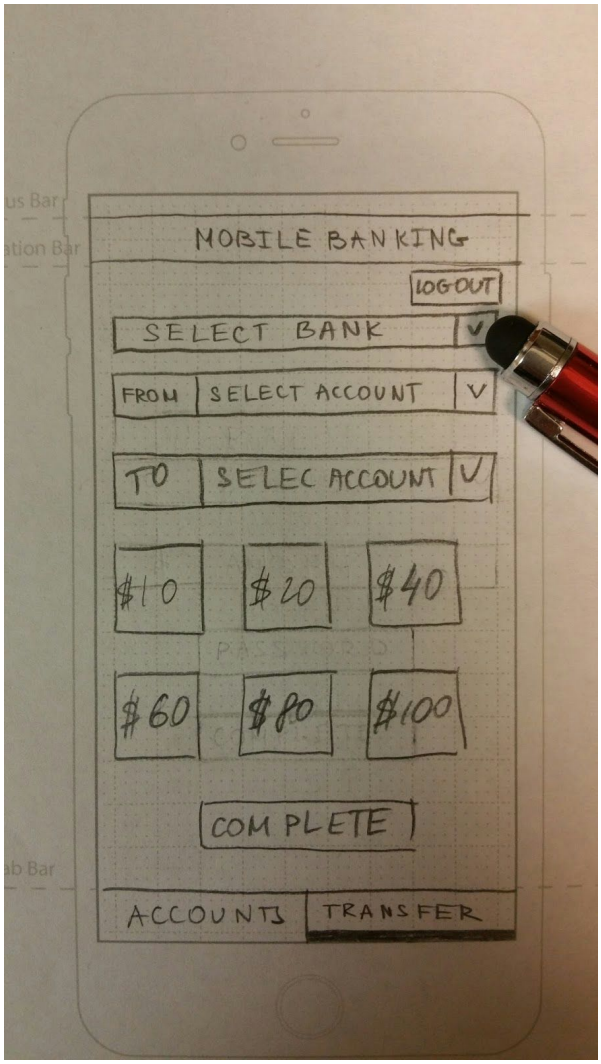
Storyboard of Paper Prototypes for Core Scenarios

Check Account Balance

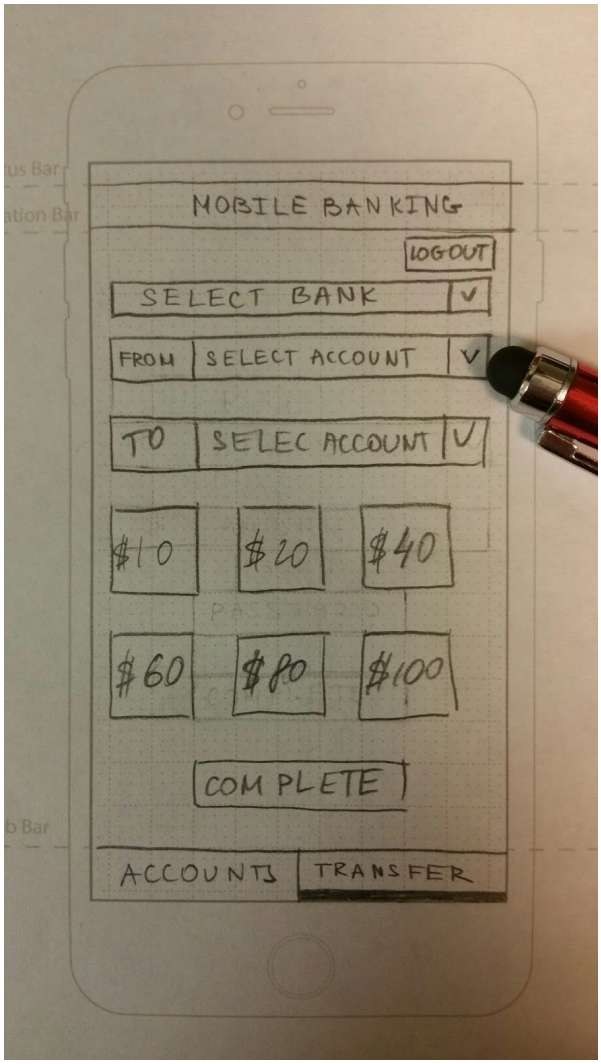
	
1. User opens an app and types in the pin	2. User scrolls up and down to look at all of his different bank balances

Transfer Funds

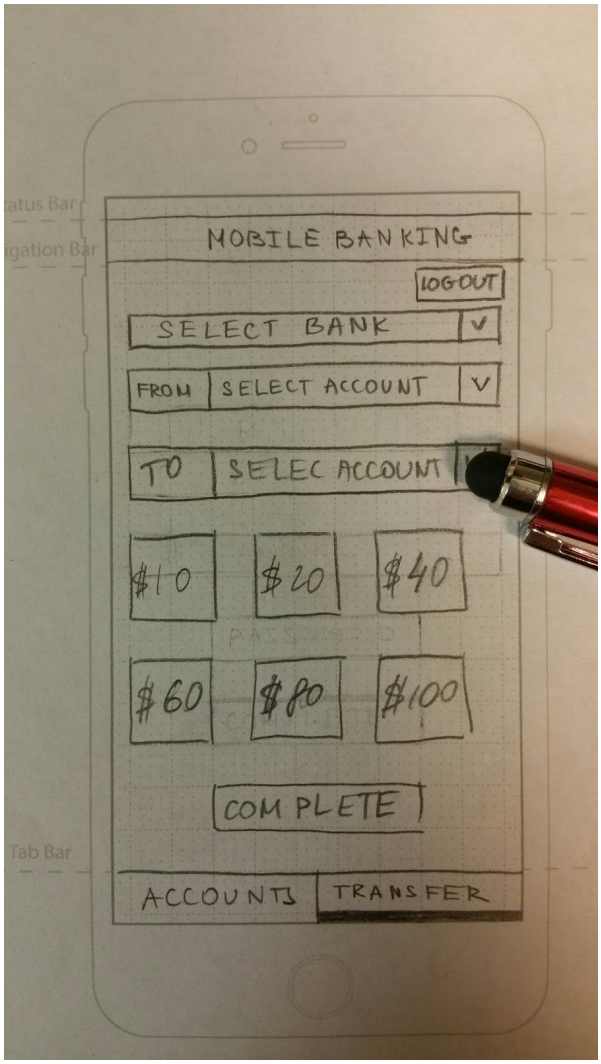
	
1. User opens an app and types in the pin	2. User presses the transfer button



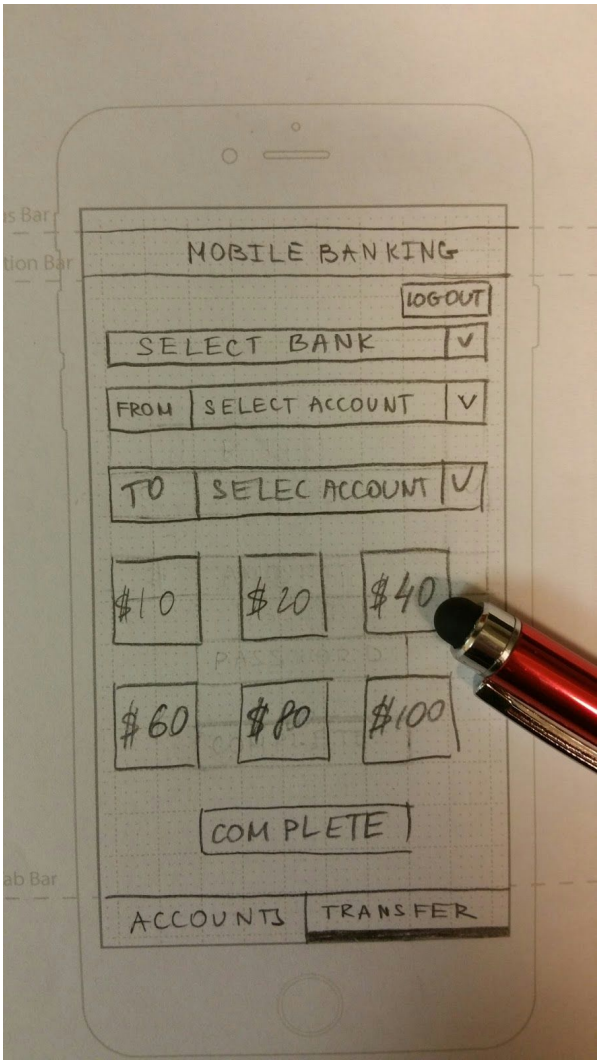
3. User presses the drop down menu and selects the bank



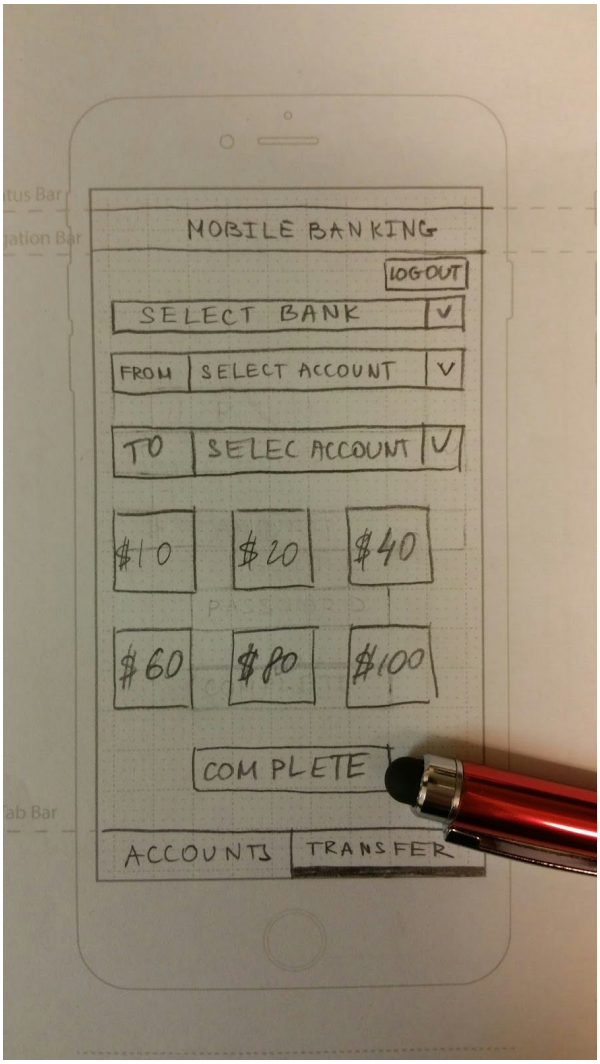
4. User presses the drop down menu and selects the account from which the transfer will be made



5. User presses the drop down menu and selects the account to which the transfer will be made



6. User selects the amount to transfer



7. User presses the complete button

Design Elements Borrowed From our Competitors

We borrowed the following design conventions from the following apps:

- BECU and TAPCO:
    - Login PIN page
- Credit Union 1:
    - Accounts homepage
- Bank of America:
    - Transfer funds between accounts
    - Let customers see their balances right after logging in
- All applications:
    - Sign out/ logout in the top right of the screen
- ATM Machines
    - Predetermined monetary values for “quick” transactions

Group Analysis of Heuristic Evaluations

Notes from Other Groups:

1. Display the overall status of the system
2. Inform user if the transfer was successful - confirmation messages
3. Not Displaying account name or number showing in that page, which is confusing which account the user is logging in.
4. The prototype doesn’t show what happens after you transfer money but I assume the balance view would reflect the changes made.
5. There is no Cancel button.It will be good idea to add it in pop up confirmation message just in case the user change their mind.
6. If a user accidentally selects the TRANSFER button, they can easily leave by pressing the ACCOUNTS button (I assume).
7. In the case of a user selecting the wrong account to transfer money from or to unintentionally, I suggest adding a confirmation option before finalizing the transfer of funds.
8. When the user accidentally clicks transfer button, there is no way to fix it, there is no warning message “are you sure to transfer from XXX to XXX with $XXX, XXX?”
9. Paper prototype shows best-case scenarios but having predefined inputs to limit bad data help prevent errors. In that sense, Taking care of bad data input
10. From what is provided in the paper prototype there is no recognition if the user put the wrong pin.

11. I have to assume that there is no error message provided if a user tries to transfer more money than is in the account that they are transferring from. I suggest providing an error message for such a case, or even not allowing the user to select specific money buttons if they exceed the amount of money available in the account that they are transferring from.
12. There is no effective way to inform the user of an error. For instance, when the user transfers money from one account to another, if the user makes a mistake, the user won't know, so the error can't be diagnosed and fixed.
13. I would suggest adding a transfer amount that the user can enter own their own instead of a predefined set of amounts
14. No errors or error handling presented.
15. The system does not provide the user a Help button and supported documentation.
16. Although the app seems very straightforward, without running different scenarios on it, I will not know if there will be confusing elements that I would need help with. In that case, I would look for a Help button, which you do not add. I suggest adding one.
17. When the user has a problem, there is no help button to help the user find a way to fix the problem or error.
18. No confirmation button
19. There is no transfer history option
20. It's nice that it remembers the PIN number but someone could take out a lot of money if they lose their phone

Design Changes to Be Made:

1. Display at the top what page the user is on or change the bottom part from closed square boxes to open tabs with the top part connected to the screen depending on which page the user is on.
2. Have a pop up message to inform the user if:
    a. The transaction was successful. Highlighting it with a green color and also providing a confirmation number for users to have.
    b. The transaction could not be processed. provide error #, brief explanation, and a contact us link for user to be able to get a more detailed explanation from a customer representative.
3. Find a better way to display the account name or number on the login page.
4. Updating balances on Accounts page after a transaction was successful.
5. Determine if we want to add a cancel transaction button to be shown at all times or if simply returning to the Accounts page would cancel the transaction. If we just rely on the tabs to reset the transaction a user could accidentally press the Accounts tab and delete their current transaction. I guess we could let the user switch to their Accounts tab and if they were in the middle of a transaction a pop

up message would show up asking them that if they truly want to switch tabs they would leave the current transaction and the values would be reseted.

6. Adding a pop up message after pressing the “Complete Button” to confirm with the user that they want to proceed with the transaction.
7. Provide an error message when the user tries to put in bad data, such as transferring $1000000 to an account when they only have $100 available in their selected account.
8. Make pop up message when the user types in a wrong message.
9. Add an info circular button next to the pin to let users know what they need to input. Add info buttons throughout the app.
10. Replace predefined amounts with one single text box to let the user input dollar amounts based on their available balance, or a number spinner to select the amount.
11. Add a documentation place somewhere in the app where the user can learn more about what this app does and the benefits, QAs, and contact info.
12. Determine whether and where we may place a history log of past transfers.

Individual Usability Test Notes

Tara Knutsen

Date: February 13, 2016
Location of the study: Facilitator’s Home
Duration of the study: 30 minutes
Participant: Male, Early 20’s
Facilitator: Tara Knutsen

For my usability test, I studied a male in his early twenties. He matched our target user being that he is a novice when it comes to technology and that he uses his banking app while on the go while at the store. The location of the test was in my dining room. This gave me the ability to control the environment and remove any distractions such as other people. This person is already an acquaintance, so recruiting him was not difficult. The study took approximately 30 minutes to conduct. This study was conducted in the evening on Saturday, February 13th.

Initial Reactions to the App Before Running through Scenarios

I presented the subject with the login page of the app. I asked him to look at it for a few minutes and tell me what he thought the app was and his initial impressions. He said the following statements:

- "It's clearly a mobile banking app."
    - His reasoning:
        - There's a login page
        - It asks for a PIN number
- "The login page is plain but in a good way. It's not distracting and I know exactly what to do (login)."

Scenario 1: Check Balance of All Accounts

I asked the subject to then check all of his account balances while thinking aloud. He accomplished this task successfully and took the following path:

- Click "PIN" box
    - Enter PIN number
        - He knew to do this because his banking app has the exact same desigN
- This took him to the accounts homepage
    - Account name and balance is displayed here, so he was able to view all of his account balances
        - He said these reasons helped him accomplish his task:
            - "Accounts" tab on the bottom of the screen is a signifier
            - The layout is like other mobile banking apps
            - "It's pretty simple really. I had no struggles accomplishing this task."
                - "There aren't any extra details on the page. It's not cluttered, so I know exactly what to do."

Scenario 2: Transfer $60 from Savings to Checking Account:

I then asked the subject to transfer $60 between two of his accounts. He took the following steps and made the following comments:

- Pressed "Transfer" on the tab at the bottom of the screen
    - "The name is descriptive and tells me exactly what to do."
        - He feels that this is a design standard found in other banking apps and ATMs

- He first pressed the drop down labeled “Select a bank” and chose BECU
    - “It’s at the top, so I pressed it first”
    - “BECU is my bank, so I picked it out of familiarity.”
- He then pressed the second drop down labeled “Select Account (From)” and selected his savings account. He then selected the third drop down labeled “Select Account (To” and selected his checking account.
    - “It’s next.”
    - He felt it was a sequence to complete his actions in
- He pressed “$60”
- Then he pressed “Complete”

His Afterthoughts and Comments

I asked the subject what he found to be most challenging but he found the process to be in his exact words, “very fucking easy”. He found that he wasn’t ever fumbling around. He did say however that the “Transfer” page had more steps than the other pages, but found it to be convenient saying, “Don’t split [the transfer page] up though. It would add an extra step and make it take longer.”

His most valuable comments were aimed at the monetary amount selection step. He liked the predetermined money amounts ($10, $20, $40, $60, $80, and $100) since it worked “like an ATM”. He did however suggest removing the $10 amount because it’s “so little” and replacing it with an “other” amount that you could manually type in. He said that this would save him time, especially if he had to do a quick transfer at the store.

I asked him if this app would benefit him. He felt that it would, but also said that it seemed to target “users with multiple bank accounts”. His reasoning? “I only have one account and that’s at BECU. While their app takes slightly longer, it wouldn’t make sense for me to have another app to do the exact same thing. If I had multiple accounts, it would because I could check all balances in one place.”

Chris Kubec

Date: February 14, 2016
Location of the study: Facilitator’s Home
Duration of the study: 30 minutes
Participant: Male, Mid 30’s
Facilitator: Chris Kubec

This usability test was completed in the confines of my dinning room area, limiting the interference from outside personalities. My test subject for this test was a male in his mid 30's, who defined his occupation as a scientist who does "science stuff". Overall he uses technology about 15 hours a week, of which about 90 percent is web based and the rest app based. He mainly uses technology to check his mail, listen to podcasts, banking, and a little bit of gaming. The test subject fits our demographic quite closely as being a user of less technical background, a person who is also on the go being a parent of two younger children with busy schedules. The process of completing the usability test taking approximately 30 minutes.

Initial Reactions:

When first placing the paper prototype of our opening screen in front of the user he takes a few minutes describing what he see's. Within the first few seconds he says he believes the application is used to manage bank accounts. Also stating that he believes that the application isn't from any bank and more a 3rd party application since there isn't any bank name across the top. He stated he assumed the application was used for looking at a person's bank accounts as well transferring money. When I asked how he got to those assumption he said the box saying PIN and the fact it said mobile banking across the top.

Scenario 1 Check Balance:

Asking the user to complete the scenario of checking their accounts went relatively smoothly. The test subject pressed the PIN box and entered their 4 digit PIN making a outloud assumption it will take him to his account like how a ATM would when you type a PIN in. Entering his PIN leads him to the account page. Here the user is somewhat confused as to why he thinks he sees multiple accounts, and why they are not labeled with names of the banks. I told my user he had completed viewing his accounts and that we would move to the next scenario.

Scenario 2 Transfer 60$ from Savings to Checking Account:

For the second scenario I asked my subject to transfer 60 dollars from one account to another. The user then clicks transfer at the bottom of the screen leading him to the next tab. Interestingly the subject chose his transfer amount in the middle of the screen as his first step here. Then he noted he thought it was weird or confusing that he had to select his bank account still assuming he was in one account rather than multiple

accounts in one system. However when he selected the dropdown menu for the bank realized he was able to access multiple accounts. He then selected Wells Fargo and moved onto the From dropdown, also getting confused since he selected the bank before. Picking savings and moving onto the To dropdown and selecting Checking. The user asked why he was not able to transfer between different bank accounts that were not connected for example Wells Fargo to BECU. Finally he selected the complete button and I told him he had finished the task he stated he was disappointed in the fact there wasn't a confirmation of completion screen.

Concluding Thoughts:

Once finishing the initial scenarios I turned into getting direct feedback of his experience with the application. First I answered any questions he had throughout the experience about certain security concerns. He stated that security was a relatively low concern for him when it came to someone stealing his phone and getting his account, as it would be no different from someone stealing his debit card and going to an ATM if they had his PIN. From his experience he said the application was "enjoyable" in "simplifying viewing the accounts", that all the applications he's used in the past have many useless features he found pointless to be on a mobile device "showing interest". A few things he believed should be included in the application were in the dropdowns in the transfer window should show amounts in the accounts in both the From and To so a user does not have to go back to the account page. He also stated a user should be able to transfer between other users and other bank accounts at other companies. I asked if it would bother him to transfer between different banks since it would most likely take more time than it does between the same bank and he stated "No maybe their could be a pending transfer display" showing the transfers going through. On a final note one line stuck out particularly from what my test subject said about selling or marketing the app was "Sell it as a pocket ATM".

Lola Howell

Date: February 15, 2016
Location of the study: Participant's Apartment, Tacoma, WA
Duration of the study: 30 minutes
Participant: Female, 50's
Facilitator: Lola Howell

The person I interviewed for the use of banking mobile application is female in her 50's and she is not very tech savvy. She uses her bank's mobile banking app

primarily when out of the house, to check balances or complete transfers. She uses iPhone and uses the Mac to complete most of her tasks when she is at the house, because as she pointed out “The bigger screen is easier on the eyes.” She is my acquaintance and was sincerely interested in participating in the usability test.

Initial Feedback

I have laid the prototype of the initial screen once the applications opens. I asked her to look at it and tell me what are her first impression, what does she think the application is for and what does she anticipate to see on the next screen. She provided me with following answers:

- “It’s a mobile banking application, it seems like it would be easy to use. I asked her why does she think that and her answer was: “To get in all you have to do is type in the PIN.”
- “On the next screen I should see the accounts and balances.”

First Scenario - Check the balance of all your bank accounts.

I asked her to accomplish the task of checking the bank accounts and think out loud while doing so. The task was accomplished as follows:

- She clicked on “PIN” area and typed in the pin. Then she wanted to click “Enter” button, she said “There should be the enter button.”
- It took her to the next screen with account balances. She said that it was confusing which one is Checking, Savings or Credit account. She wasn’t sure. She said there should be clear distinction and instant recognition, which could be accomplished by labeling.

Second Scenario - Transfer $60 from Savings to Checking Account.

As previously I asked her to accomplish the task of the transferring money while thinking out loud. The task was accomplished as follows:

- She tapped on the “Transfer” at the bottom of the balance screen. She said that she is expecting the form that she can fill to show up on the next screen.
- On the next screen she disregarded the option of picking the bank and pressed the drop down menu for the “From” option, picked the Checking account. Then she pressed on the drop down menu for the “To” option, picked “Savings” account. Then she tapped on “$60” and “Complete”. She commented that predetermined amount to transfer was limiting and wished there was another option of where she “could type in any amount” she would want to transfer. She

said that she was expecting the confirmation page, letting her know that the transaction was successful. Our prototype was lacking that step. Then she said she would tap on the accounts page again to see the new balance after the transaction.

Q&A after the Usability Test

I explained to her the concept of the universal mobile banking application. The idea that different bank accounts could be on one place. She commented that it was too complicated of an idea. I asked why she disregarded the “Choose Bank” option and the answer was that she knows exactly which bank she is going for and so many different banks in one place is too much of unnecessary information. When I asked about overall experience, she commented that it was easy and fast and she would like to see her bank to adopt something like this. She also liked the convenience of the predetermined amounts, in her opinion it speeds up the process.

Audrey Chavarria Calderon

Date: February 14, 2016
Location of the study: Participant's Home
Duration of the study: 45 minutes
Participant: Female, Mid 40’s
Facilitator: Audrey Chavarria Calderon

The person I decided to ask to do the usability test was a female on her 40s. She doesn’t know a lot about how to do the advanced stuff on her phone but she does uses it for messaging, calling, surfing the internet, checking Facebook and checking her banking on the go. The testing took place at the dining room of the person. The person is a family friend. She was told that she should be as honest as possible and that my feelings would not be hurt from honest feedback. The study took about 45 minutes and took place on Sunday, February 14 afternoon.

Initial Reactions to the App before Running through Scenarios

The first thing I did, after discussing the script with the subject, was to ask her what was her initial reaction to the paper prototype in front of her.

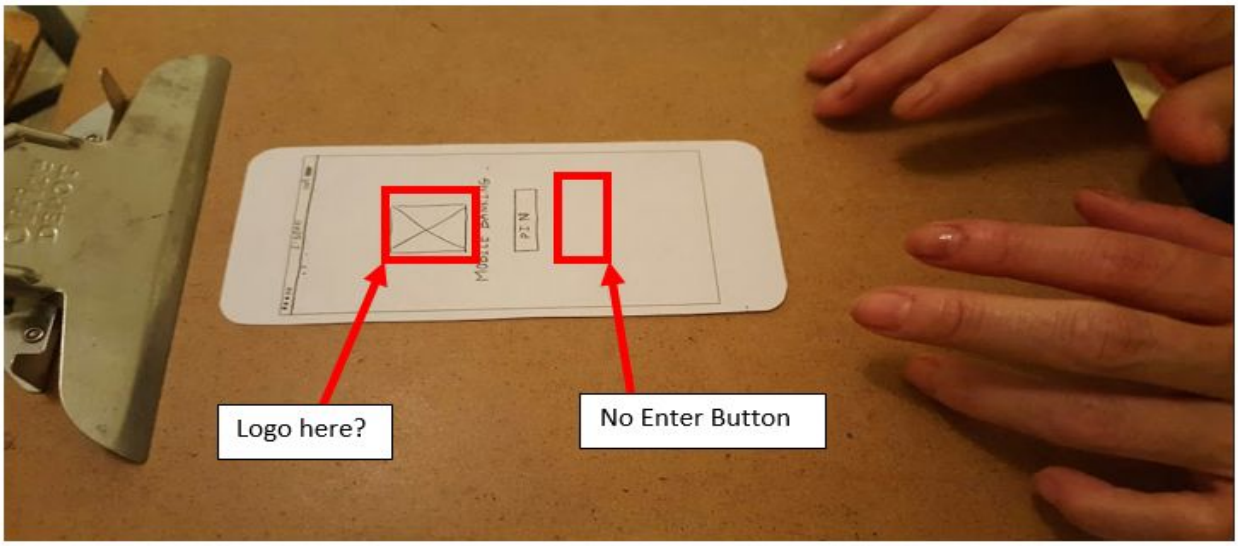
· She said this looked like an “app for banking” that showed a logo and that she would need to put in her pin.

· She described that after she clicked on the pin box and typed in her pin automatically the screen would change to reflect her account balances. I noticed she didn’t mention anything about pressing a button to go from the login screen to the next screen.

Scenario 1: Check Balance of All Accounts

After getting her initial reactions to the app I read the first scenario to the user and asked to do it and talk her mind out as she went through it.

- Click “PIN” box
    - Enter PIN number
    - She was able to figure out how to enter her pin.
- This took her to the accounts homepage
    - She said she would press on the numbers of the first account to see al transactions. And when she wanted to come back she would probably press where the Accounts tab is showing now, but she called it “Back Button”.

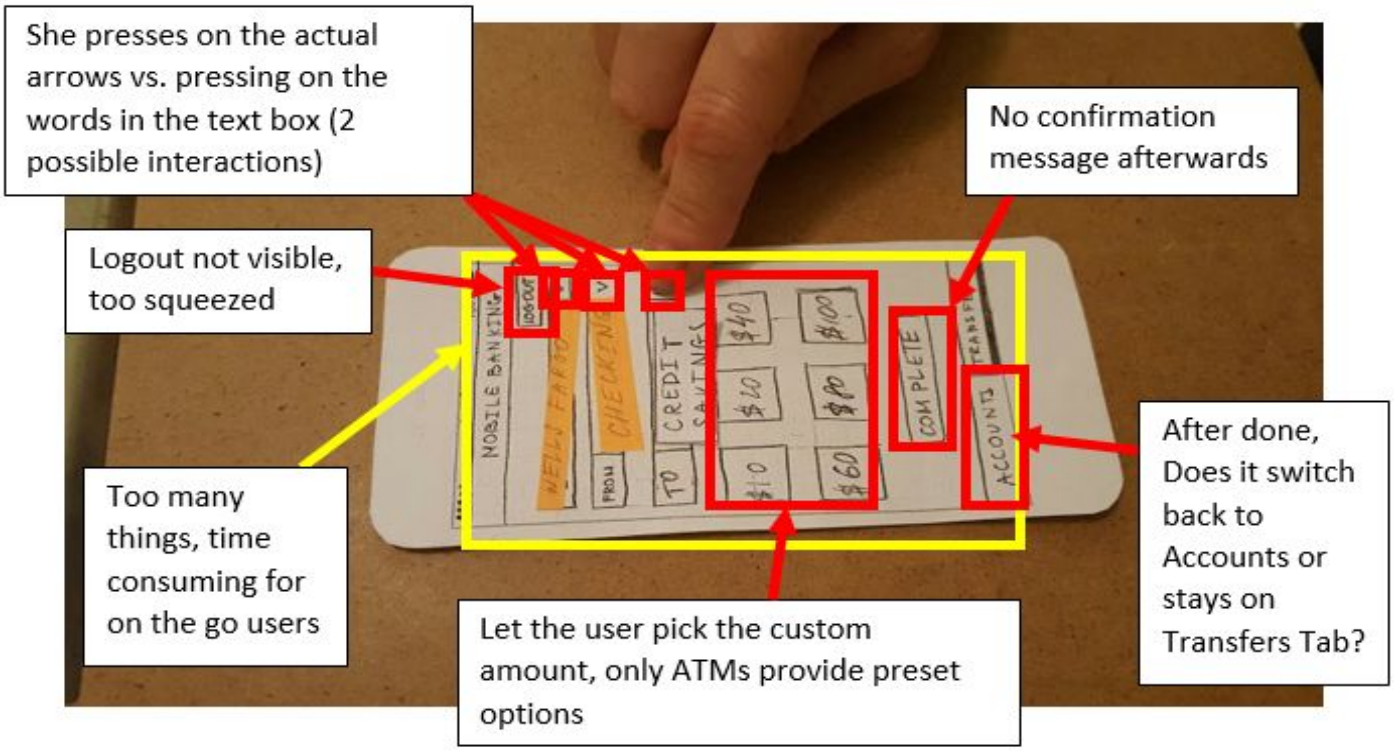


    - She noticed the logout button at the top.
    - She likes that she can see the transfers button for later use.

Scenario 2: Transfer $60 from Savings to Checking Account

I then asked the subject to transfer $60 between two of her accounts.

- Pressed “Transfer” on the tab at the bottom of the screen
    - She spends the longest time on this screen.
        - She scans everything from top to bottom trying to process and figure out what she needs to do. She spent about 45 seconds scanning through.
- She first pressed the drop down button on the right of the text box labeled “Select a bank” and chose Well Fargo
    - “I always start from the top”
    - “I picked Wells Fargo, because that’s my current bank”
- She then pressed the second drop down button next to the “Select Account (From)” and selected her checking account. He then selected the third drop down button on the right of “Select Account (To” and selected her credit account.



- She pressed “$60”
- Then she pressed “Complete”

- She said that after pressing the “Complete” button she thinks that the screen stayed on that same transfers screen as opposed to switching back to the Accounts page.
- She also asked that if she “was going to be shown a confirmation message?”

Her Afterthoughts and Comments

After the testing was over I asked for her impression of the app. She said that an app like this “saves her time from going to the bank and making payments and also lets her check her balances wherever she goes”.

She said she liked how simple the app looked. She said she just wasn’t sure about how to move from screen to screen. And that the transfers screen seemed a little too full. She also didn’t see an option for letting her input an exact amount of money as sometimes she would need to pay an exact quantity with cents and this wouldn’t be possible with preselected amounts. She also said she didn’t see any confirmation or option to cancel or leave the transfer process.

Usability Test Script

Hi, _____. My name is _____, and I’m going to be walking you through this session today. Before we begin, I have some information for you, and I’m going to read it to make sure that I cover everything. You probably already have a good idea of why we asked you here, but let me go over it again briefly. We’re asking people to try using a mobile phone app that we’re working on so we can see whether it works as intended. The session should take about an hour.

The first thing I want to make clear right away is that we’re testing the app, not you. You can’t do anything wrong here. In fact, this is probably the one place today where you don’t have to worry about making mistakes. As you use the app, I’m going to ask you as much as possible to try to think out loud: to say what you’re looking at, what you’re trying to do, and what you’re thinking. This will be a big help to us. Also, please don’t worry that you’re going to hurt our feelings. We’re doing this to improve the app, so we need to hear your honest reactions.

If you have any questions as we go along, just ask them. I may not be able to answer them right away, since we're interested in how people do when they don't have someone sitting next to them to help. But if you still have any questions when we're done I'll try to answer them then. And if you need to take a break at any point, just let me know.

I may record and/or document this session via video or audio capture, so don't be alarmed. And it helps me, because I don't have to take as many notes.

Do you have any questions so far? OK. Before we look at the app, I'd like to ask you just a few quick questions.

First, what's your occupation? What do you do all day? Now, roughly how many hours a week altogether—just a ballpark estimate— would you say you spend using the Internet, including Web browsing and apps, at work and at home? And what's the split between app use and browsing—a rough percentage?

What kinds of apps do you typically use? Do you have any favorite Web sitesapps? OK, great. We're done with the questions, and we can start looking at things.

Bring the user to the homepage of the app.

First, I'm going to ask you to look at this page and tell me what you make of it: what strikes you about it, whose app you think it is, what you can do here, and what it's for. Just look around and do a little narrative. You can scroll if you want to, but don't click on anything yet.

Allow this to continue for three or four minutes, at most.

Thanks. Now I'm going to ask you to try doing some specific tasks. I'm going to read each one out loud and give you a printed copy. I'm also going to ask you to do these tasks without using Search. We'll learn a lot more about how well the app works that way. And again, as much as possible, it will help us if you can try to think out loud as you go along.

Hand the participant the first scenario, and read it aloud:

You are on the run and are at the grocery store. You are unsure of the current balance of your bank account as you bought a gift for your son's birthday earlier that day. How would you check your bank balance? **Check the balance of all your bank accounts.**

Allow the user to proceed until you don't feel like it's producing any value or the user becomes very frustrated. Repeat for each task or until time runs out. Thanks, that was very helpful. Now we are going to move on to the other task.

Hand the participant the second scenario, and read it aloud:

You are at the local flower shop and need to buy an extreme amount of flowers for Valentine's Day. Your bank account is 60 dollars short of the total cost and need to transfer that amount between your several accounts. How would you perform this task? **Transfer $60 between two accounts.**

Allow the user to proceed until you don't feel like it's producing any value or the user becomes very frustrated. Repeat for each task or until time runs out. Thanks, that was very helpful. Now we are going to move on to the other task.

Do you have any questions for me, now that we're done?

Thank you for your time.

Script adapted from Krug.

Report of Usability Tests

Date of Report: 2/15/2016
Prepared by: Tara Knutsen, Lola Howell, Chris Kubec, Audrey Chavarria Calderon

Location of Tests: Tacoma, WA

Executive Summary

The main goal of the usability tests that we conducted is to see if the mobile banking application is being used as expected. It was our intention to recognise user's pain points when using our mobile banking application during usability tests. We have asked four individual participants to complete two main scenarios, check bank account balances and to transfer $60 between two accounts, using our mobile application. Each session took between 30- 45 minutes and two of them were completed at the participants' homes, while the other two occurred at the facilitators' homes. Two of the participants were male and the other two were female, ages ranged from 20's to 50's. All four participants were 100% able to complete both scenarios. Below is a report of the findings and recommendations as well as the statistics of the participants.

Methodology

Who we tested

Our mobile banking application was evaluated by four participants, who are non-tech savvy users who mainly use their mobile banking applications outside of the their homes.

Age	
18-25	1
26-39	1
40-59	2
TOTAL (participants)	**4**

Gender	
Women	2
Men	2
TOTAL (participants)	**4**

What participants did

Each session took between 30-45 minutes and both of the scenarios were completed in all four usability tests. Participants also asked and answered several questions. Each individual gave generous feedback and outsider insight into how our general design decisions are perceived by an outside force.

What data we collected

Data collected from users included but wasn't limited to:

- Paths selected during the two main scenarios.
- Verbal feedback while completing the scenarios.
- Satisfaction with the overall experience of the application while completing the scenarios.
- Improvements and considerations in further iterations.

Major findings and recommendations

Major issues:

- “Enter” button missing on the first screen after the “PIN” button.
- Confirmation page is missing after the transfer is completed.
- The account balances next to the “To” and “From” accounts on the “transfer” page is missing.
- The identifiers for different accounts are missing on the “accounts” page.
- The predetermined amount to transfer felt to some users “limiting”. Users wanted to see another option where the amount could be typed in or dialed in using a dial or wheel.

Solutions:

- “Enter” button should be added below the “PIN” on the first screen.
- Confirmation screen should be added after the the “transfer” is completed.
- The identifiers next to each of the bank accounts should be added.
- The account balances next to the “To” and “From” accounts options should be added to minimize the user's memory load.
- The option for user to customize(type in) the amount to transfer should be added.

Detailed findings and Recommendations

Introductory Questions & Tasks

Questions	Responses
Do you use any mobile banking apps?	All participants use or have used mobile banking apps.
Just from looking at this site, what kinds of information do you think you could get from this app? Please be specific.	All participants correctly defined the purpose of the site. Participants used phrases from major headers and labels to describe the information on the site. The login PIN screen was the main signifier for participants.
Who do you think this site is designed for?	Participants correctly identified people who bank and don’t have a lot of time.

Scenario 1 - Checking Balance

You are on the run and are at the grocery store. You are unsure of the current balance of your bank account as you bought a gift for your son’s birthday earlier that day. How would you check your bank balance?

Number of participants	4
Percent successful	100%

Findings	Recommendations
4 participants completed the task with ease (score of “2”) by checking their balance. 0 participants needed prompting or had significant difficulty completing the task (score of “1”) 0 participants did not complete the task (score of “0”).	N/A

Scenario 2 – Transfer $60 between the two accounts

You are at the local flower shop and need to buy an extreme amount of flowers for Valentine’s Day. Your bank account is 60 dollars short of the total cost and need to transfer that amount between your several accounts. How would you perform this task?

Number of participants	4
Percent successful	100%

Findings	Recommendations
4 participants completed the task with ease (score of “2”) by finding the [target]. 0 participants needed prompting or had significant difficulty completing the task (score of “1”) 0 participants did not complete the task (score of “0”).	N/A

Exit Questions/User Impressions

Questions	Responses
What is your overall impression of the mobile application?	Participants liked having all their account located in the same place. They also felt that it was fast and easy to use.
What is your impression of the initial login PIN page?	It’s fast and efficient. Users felt that it was conventional and matched ATMs and other bank login pages.
Do you feel this app is current? Why?	Yes because it displays the current account balances and updates with the new account balance after transactions.
What did you like best about the app?	The amount of steps was simple. The predetermined account was also fast to use.
What did you like least about the app?	No way to confirm transfer and no way to input another monetary amount.
Is there anything that you feel is missing on this app?	There should be a way to view account account history and confirm transactions,

Do you have any other final comments or questions?	Needs images and color.