

Visual Numbers

A supplemental case study for Money Jars

A deeper dive into UI and effective visual elements to best depict numerical values for visual users

- 2020 -

Introduction

This was a supplemental case study into one of the solutions for the development of my project Money Jars. The problem was that users were not numbers people. Therefore one of the features required visualizing money. This case study explores which visual elements makes the most effective visual elements for users that are not great with numbers.

Process



Research



Identify



Test

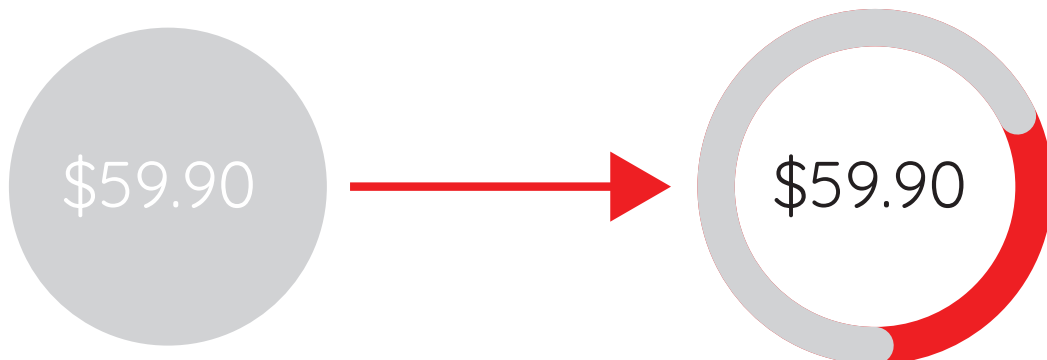


Validate

Visualizing Money

For this particular project the numerical value depicted for the user is money.

Goal: Provide a visual solution depicting numerical values



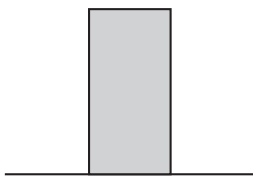
Objectives:

1. Visual impact whenever a transaction occurs
2. A visuals for balance spending over time
3. A visuals for current/remaining balance

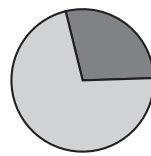
Competitive Analysis

The research started off with competitive analysis of existing tools and apps that explore visual solutions for monetary values. Below shows the four most common ways to depict money visually.

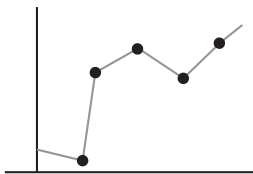
TYPE OF VISUALS USED IN APPS RESEARCHED



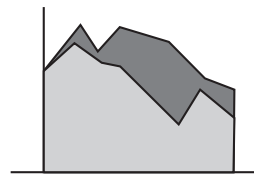
Bar 100%



Circular 87.5%



Line 25%

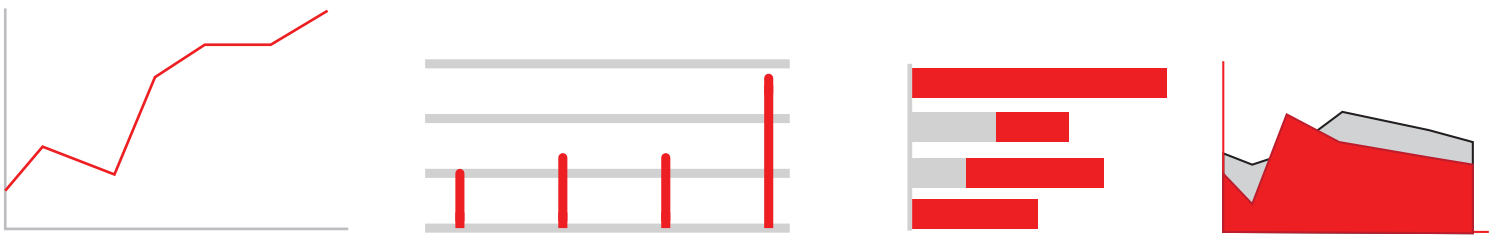


Area 25%

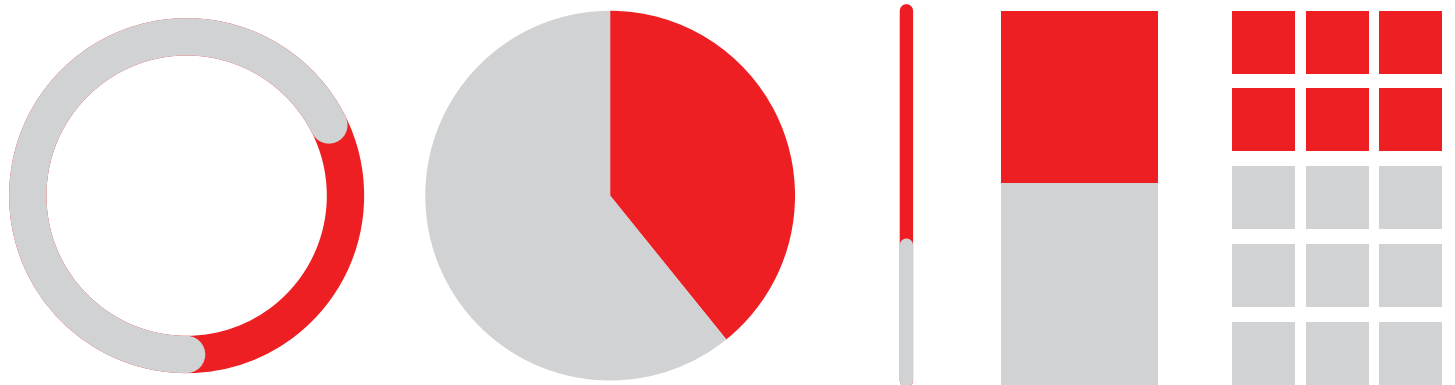
By far the most common visual was bar and a form of circular graph.

Initial Research

Personal research found differentiating evidence of effectiveness of visuals for current balance and visuals for money spent over time



Line, Area, and Linear graphs were most effective for viewing balance spending over spent over a time



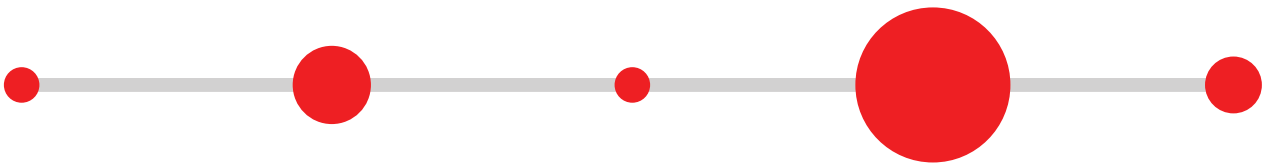
Bar, circular and stacked objects were most useful for current/remaining balance

Narrowing Down

After running a quick survey I reached a starting point

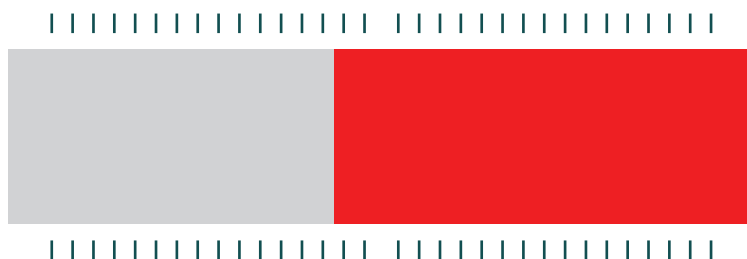
88% Of Users Surveyed

Stated circular elements varying in sizes depicted over a time line was most effective in figuring out amount spent over time period. Although circular graphs were initially linked with current/remaining balance they were effective for comparisons.

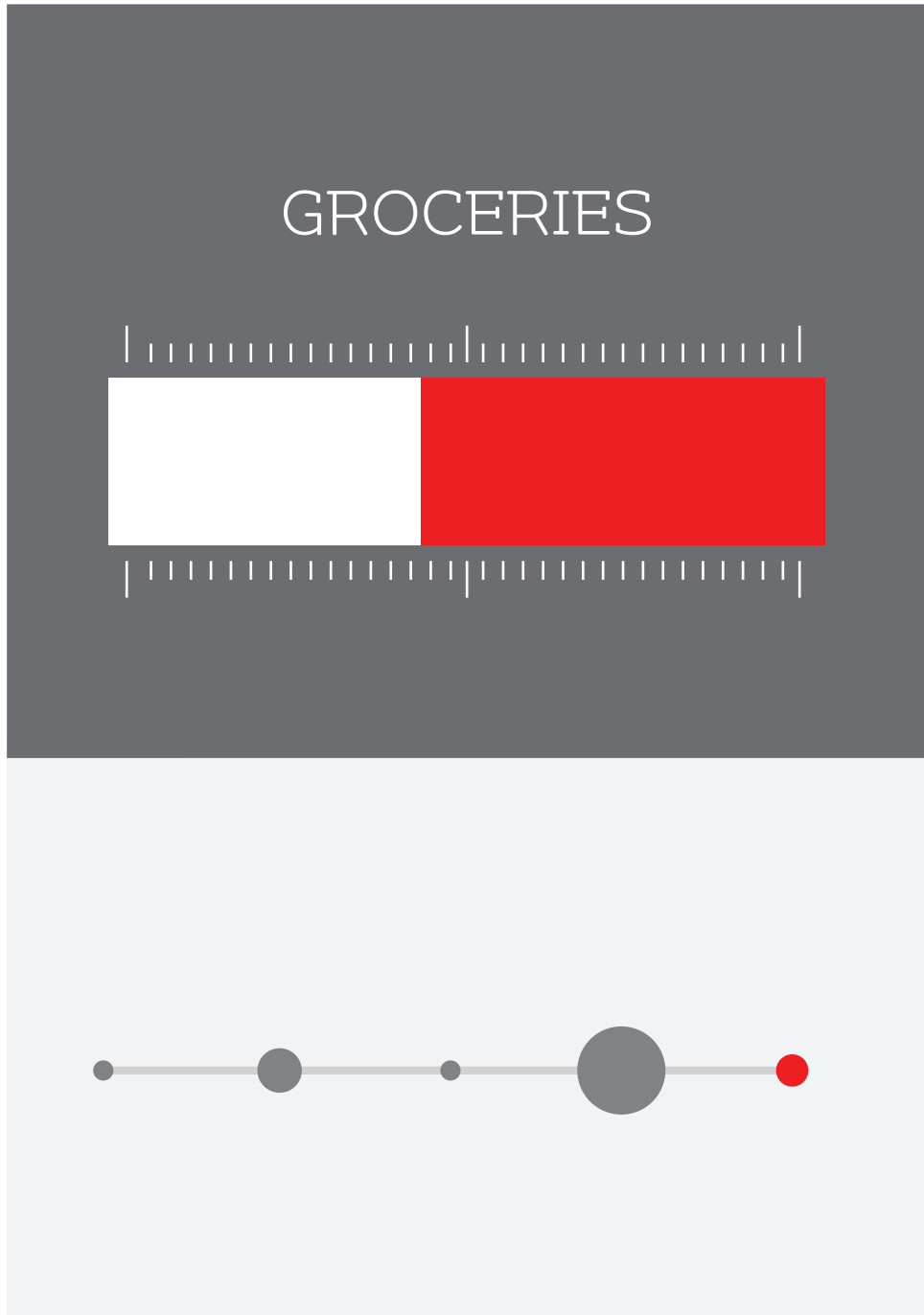


66% Of Users Surveyed

Stated bar elements incremented with lines was most effective in depicting current/remaining balance



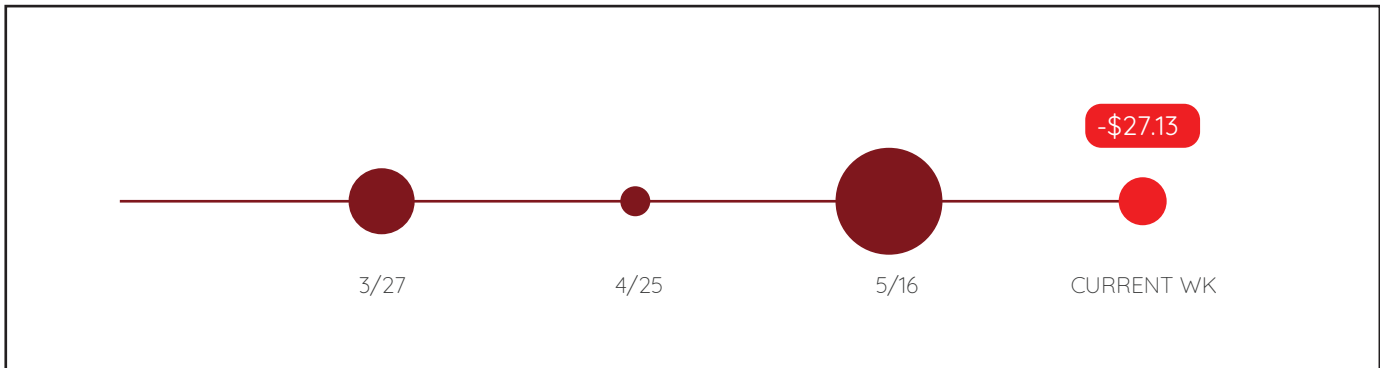
INITIAL RENDER



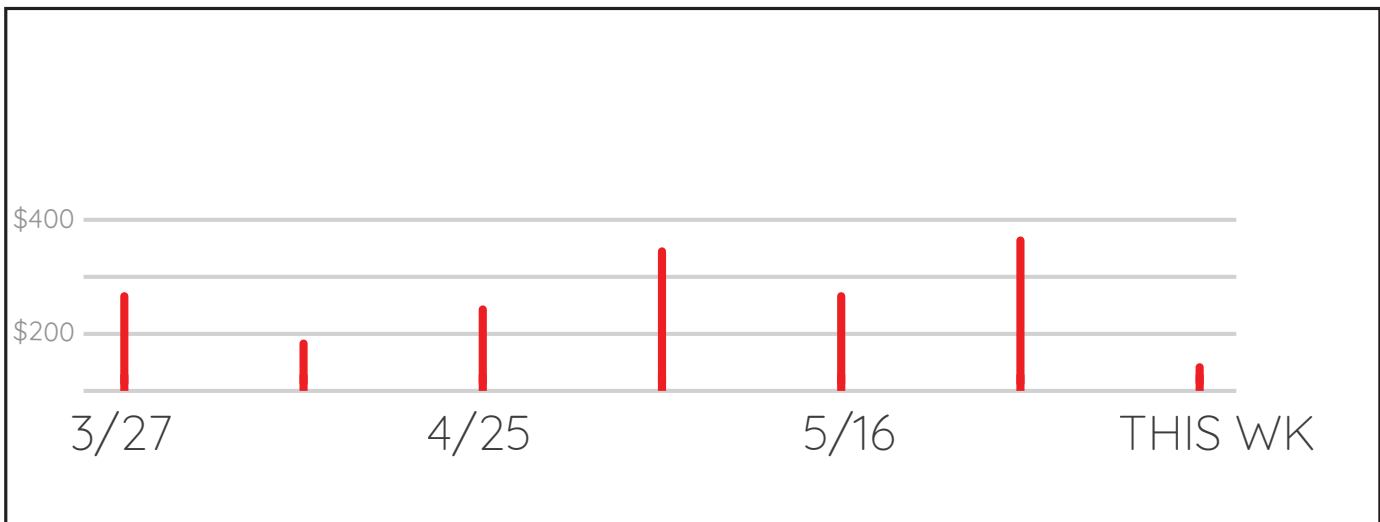
Validating

After running a few tests users mentioned the lack of precision regarding circular comparisons. While they were effective for at glance comparison they did not provide a precision regarding amount spent. Therefore updates were made from render A to render B.

RENDER A



RENDER B



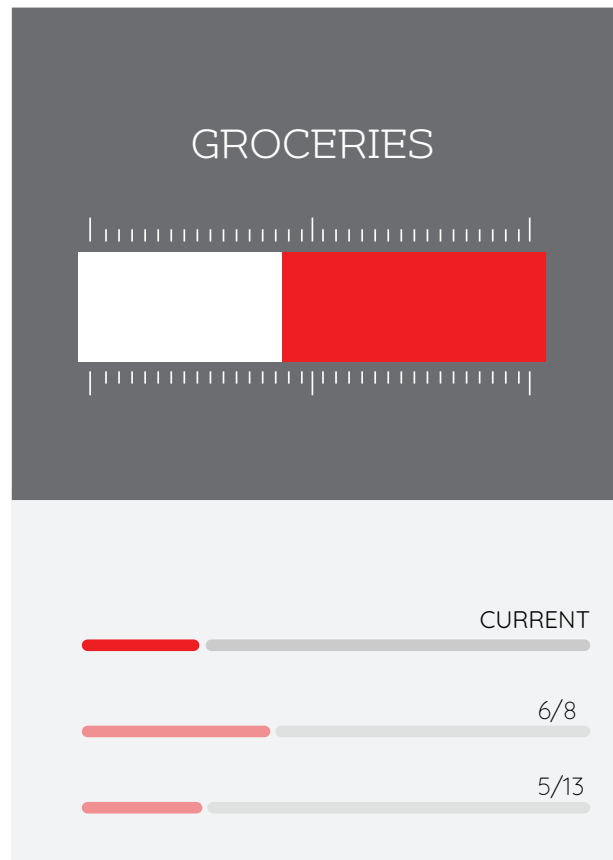
Redundancy

After working on the design for the current/remaining balance visual and reworking the the balance spent over time visual. I realized they were both bar graphs but going in different directions. An adjustment was made for redundancy and the design was edited to the render shown in Render B.

RENDER A



RENDER B



Supplemental Research

Further research lead me to a MIT-Harvard study on memorable visualizations. According to the study there were a few key take aways for making graphics and visuals more memorable and effective.

1. Visuals with Human Recognizable Object
2. An uncommon visual (Visual Novelty)
3. Rounded Features
4. Natural look (See quote below)
5. Descriptive Titles About Visuals
6. Data Redundancy When Numbers are Present
7. Visuals with Faces

“One common visual aspect of the most memorable visualizations is the prevalence of circles and round edges. Previous work has demonstrated that people’s emotions are more positive toward rounded corners than sharp corners....since “natural” things tend to be round.”

Credit:

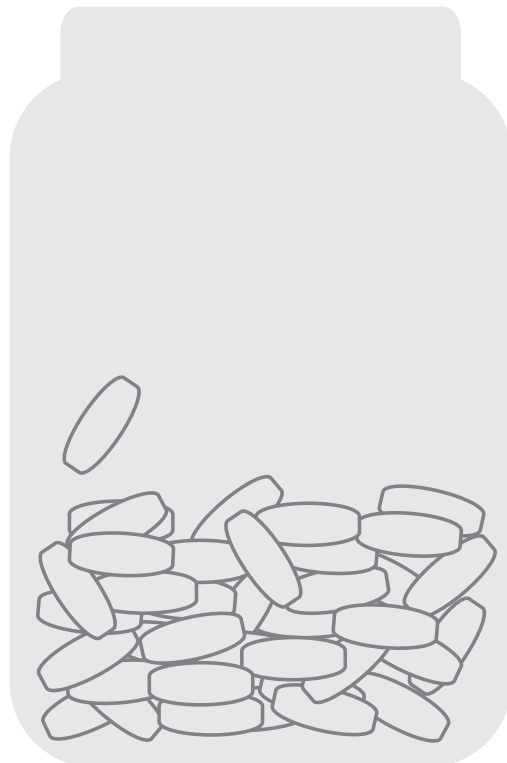
Borkin, Michelle & Vo, Azalea & Bylinskii, Zoya & Isola, Phillip & Sunkavalli, Shashank & Oliva, Aude & Pfister, Hanspeter. (2013). What Makes a Visualization Memorable?. IEEE transactions on visualization and computer graphics

Supplemental Research

I started off with ideating upon the first 3 key points

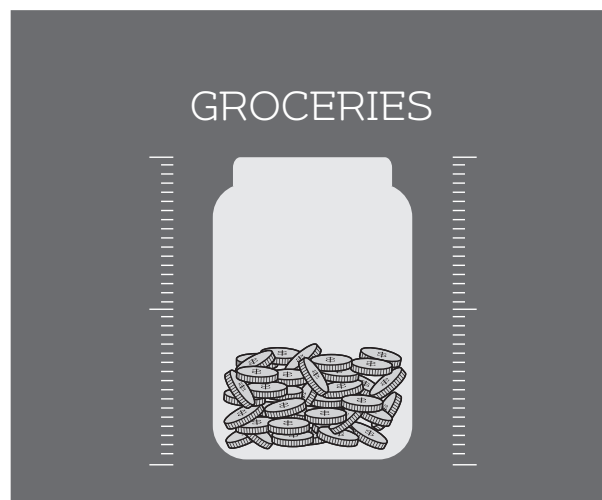
1. Visuals with Human Recognizable Object
2. An uncommon visual (Visual novelty)
3. Rounded Features
4. Natural Look

I came up with a literal a mason jar with round coins. Which addressed all three points

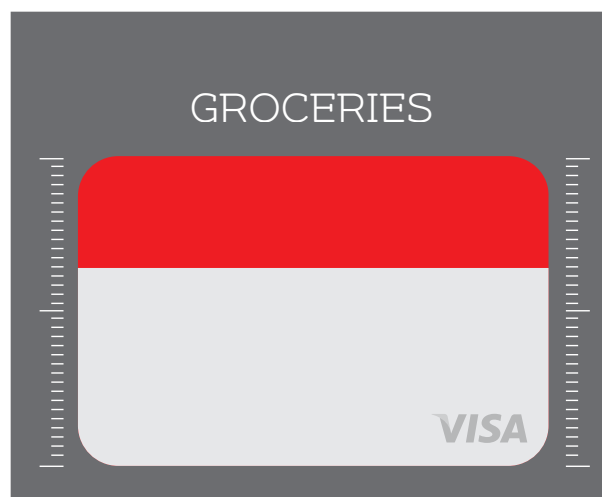


Human Recognizable Object

After a few surveys users stated that although the image was effective the jar and coins were not precise enough for payment and transactions.



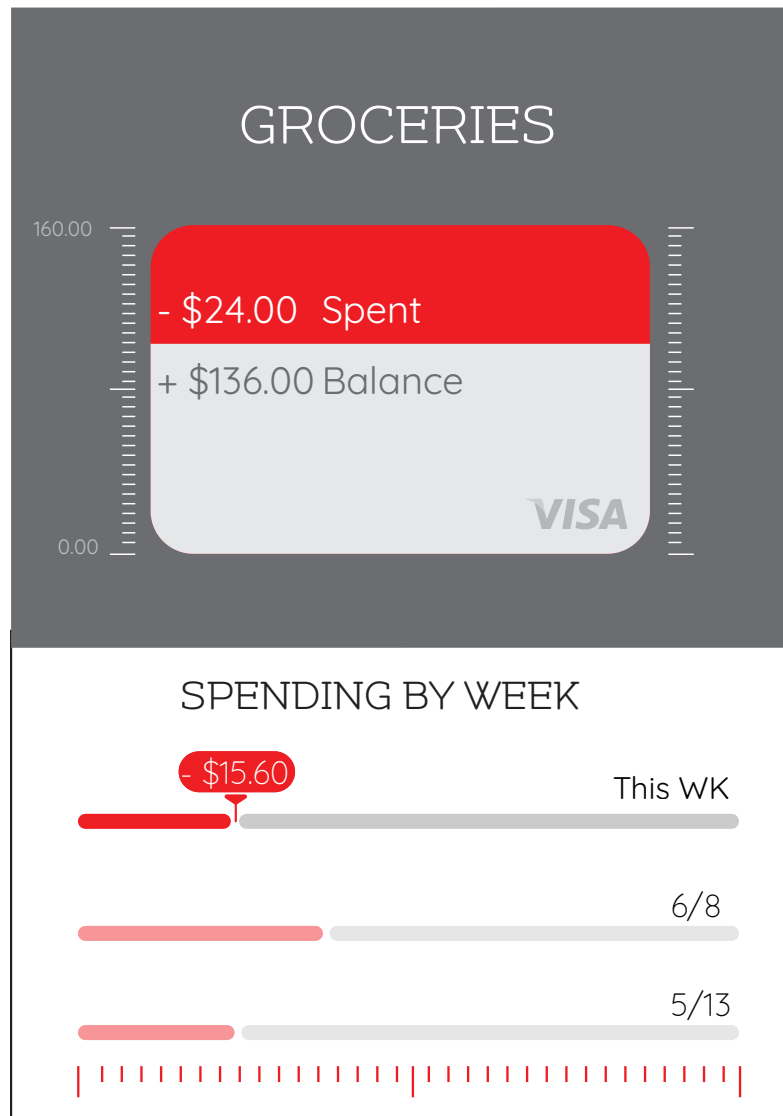
I replaced the jar with a credit card and heavily rounded the corners. The VISA logo further enhanced recognition as well as the use of the card as a novel bar graph.



Human Recognizable Object

I then made sure to implement the rest of the suggestions the as

- 5. Descriptive Titles About Visuals
- 6. Data Redundancy When Numbers are Present



Finishing Touch

Lastly the study showed that the visuals with the highest effectiveness were those shown with faces. Therefore I wanted to ensure that I incorporated faces into the final visual.

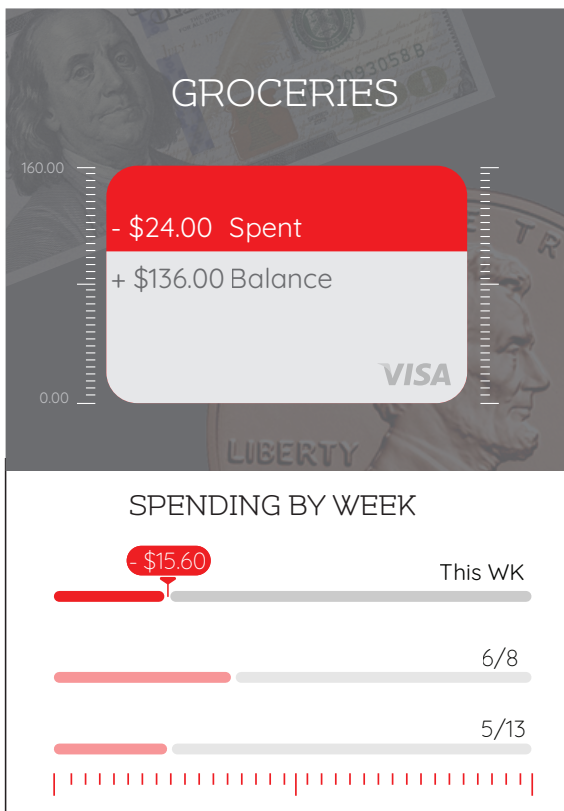
Some of my initial ideas were of pets and user customized faces. However in the end I decided for a money project money was key. The portraits had all the right elements. Recognizable, face and exists.



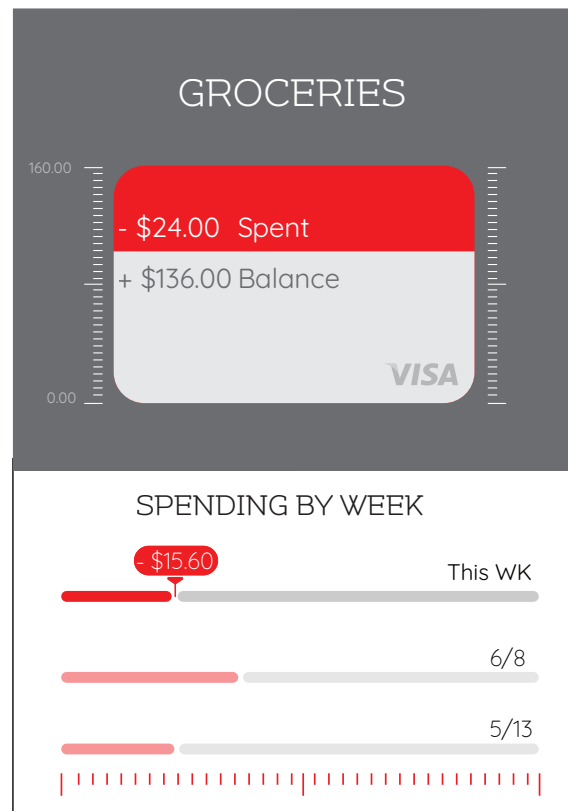
Finishing Touch

I wanted to keep the human facial element of the visuals somewhere in the design. On the card itself was too cluttered. Therefore I added in watermarks of US currency in the background. Which worked out fantastic since they all bills and coins have a portraits of faces and very easily recognizable by most.

RENDER A



RENDER B



66% Of Users Surveyed had higher visual recall with Render A

Retrospective

Successes:

The visual design took a bit longer than expected however the testing was a lot quicker. Testing visuals through survey and A/B testing was more efficient and due to the visuals variances users were quick to notice the differences.

Challenge:

The biggest challenge was testing and gathering data since there were so many variations in the initial stages of the research phase. As well as the testing parameters of how to successfully measure for a more successful visual.

Moving Forward:

While I was able to find an academic research on visuals more evidence for effective animations specific to loss of money would be best. Future updates would definitely benefit from testing with animations and the effectiveness of money-loss felt per transaction

