

A behind the scenes look at the design process of

# RecoverEase



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# Preface

This process book covers the various design stages that my group and I went through to arrive at the current state of RecoverEase, a Google Chrome Extension that flags medium-severity sports recovery myths. My group consisted of myself, Kendall Reonal, and Alex Gingras. While this design project was a team effort, I will focus on my own contributions and how it drove our design process forward throughout the quarter.

From the beginning stages of selecting a problem to making the final design touches before submission, you will find my struggles and triumphs documented within this book.

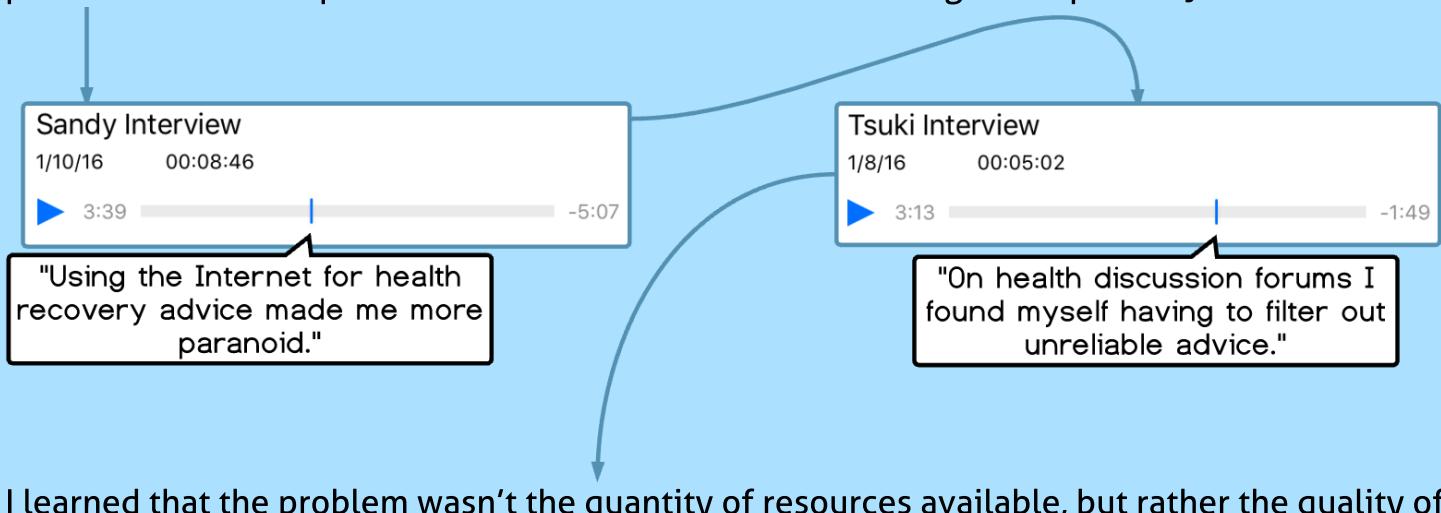


# Brainstorming, Interviews, and Problem Evolution

During the first week we were given an open-ended design topic. Our design problem was only required to relate to health. Being active participants in sports, as a group we brainstormed health problems that we have all experienced. We chose the design problem:

**"There aren't too many clear-cut resources for recovering from a sports related injury"**

To gain insight and a new perspective on our design problem, I performed two semi-structured interviews. I chose interviewees who I believed have experienced these problems and could provide an alternative view on recovering from sports injuries.



I learned that the problem wasn't the quantity of resources available, but rather the quality of recovery information available the Internet. I brought this information and other insight back to my group and used it to refine our design problem to:

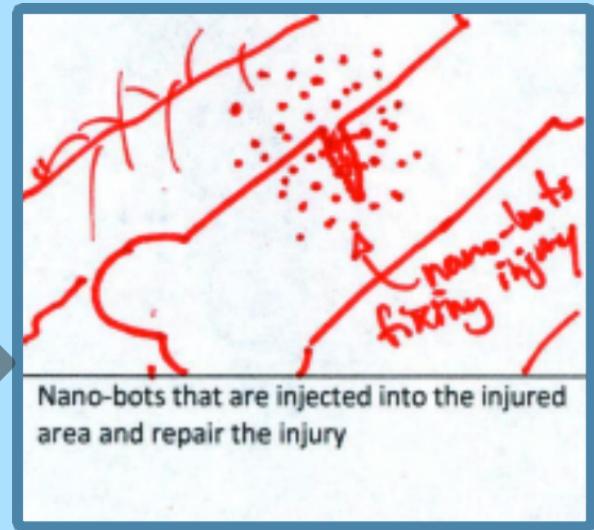
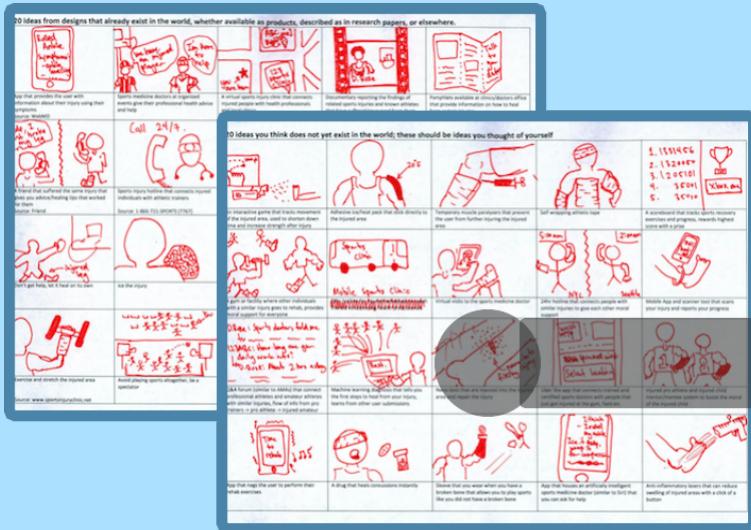
**"Recreational athletes trying to find quick fixes for medium severity sports related injuries are resulting in re-injuring themselves after following recovery myths found on the Internet"**

After some discussion, we narrowed down our design problem to recreational athletes because our interviews uncovered that a majority of organized sport events have sports doctors available for injuries. Therefore, the individuals that would experience this problem would most likely be athletes playing recreationally at home, the park, etc, where health professionals would not be easily accessible.



# Ideation and Decision

Once we had a concrete design problem we set out to find creative, innovative ways to solve it. Collectively, we ideated 120 possible solutions to our problem. At this stage, we were striving for quantity over quality.



Fanciful ideas were not suppressed

We chose two of the best ideas out of the 120 we came up with. The two ideas were from Alex's collection of possible solutions. The two ideas were a Google Chrome Extension that alerts users of false health recovery advice and an injury symptom checker. For the next step of the project we were tasked with creating prototypes for both of the possible design solutions. I chose to design the web plugin's interface, while Kendall designed the on-page alert system and Alex designed the injury symptom checker.

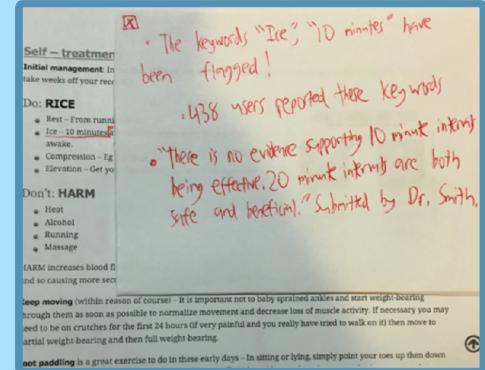
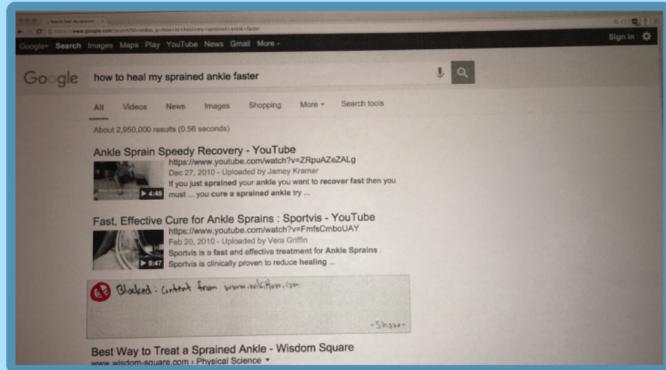
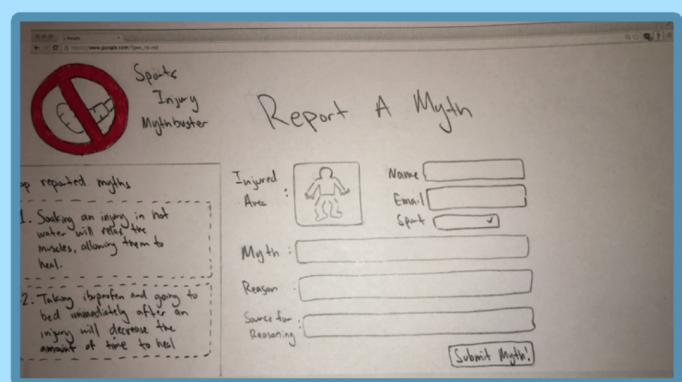
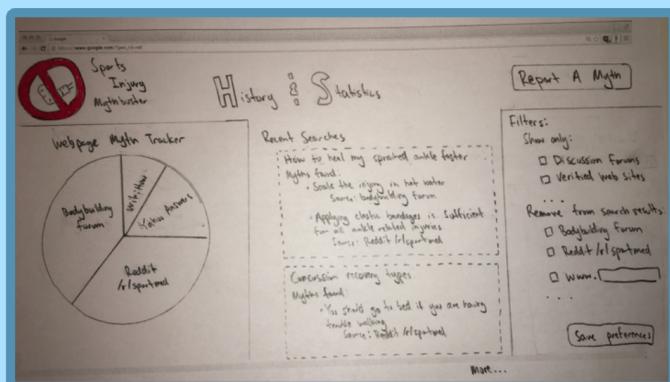


Wall of possible design solutions



# Prototyping

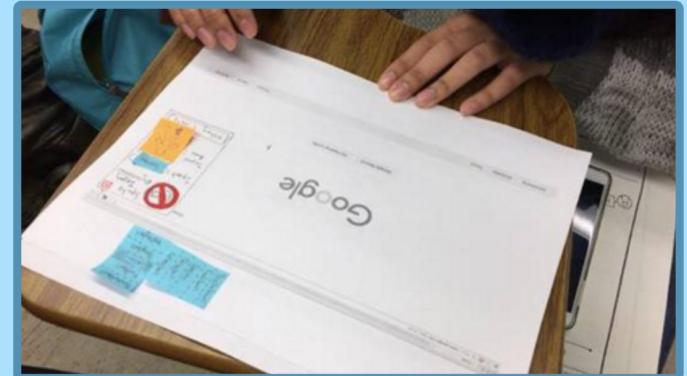
I took Alex's Google Chrome Extension idea and expanded on its functionality. I wanted to add features that would tend to the issues I discovered during my two initial interviews. I added a feature that would allow users to customize what their web search results displayed because my interviews uncovered that some users tend to ignore entire web sources (i.e., forum.bodybuilding.com) due to reoccurring unreliable information found on these web sources. This feature would provide a better user experience while searching for sports injury recovery information. I also added features such as a statistical breakdown of the false advice a user receives and "Report a Myth" that would allow user to add to the known recovery myth database. I chose to include these features because I have had good experiences with Google Chrome Extensions that gave me the power to personalize and customize my preferences, while also providing me with information I could interpret on my own. With these goals in mind I created a low-fidelity paper prototype of the user interface, while Kendall prototyped the on-page alert system.





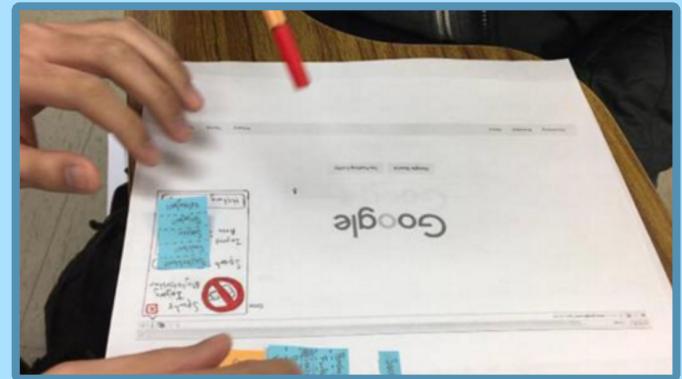
# Usability Test and Refinement

I believed the layout, functionality, and overall usability of my prototype was close to finalization. Boy, was I wrong. Kendall and I created a usability test script to test users on our design paper prototype. We asked the users to perform tasks ranging from simply opening the user interface to filtering a web source out of their search results. During this stage of our design process I gathered valuable information from my peers regarding the usability of my prototype. I conducted two usability tests for our Google Chrome Extension prototype. The feedback I received helped me realize that my own experiences and expectations of a particular tool (in this case a Google Chrome Extension) are not necessarily shared among others. Kendall also conducted several usability test using our prototype. He found that some features were not necessary and others took away from our tool's validity. Although I understood the feedback I received from the usability test, I struggled to make the right design changes to resolve these problems. After discussing with my group and reviewing our problem statement and scope, I was able to determine what our design project should and should not be covering. I used this as a guiding tool when making changes to our design for our following prototype iterations.



Conduction my first usability test on Joyce

From this usability test I discovered that some users are tempted to click large buttons on the interface when they are not sure how to perform a task. This was valuable feedback as it resulted in direct changes to the user interface and features available.



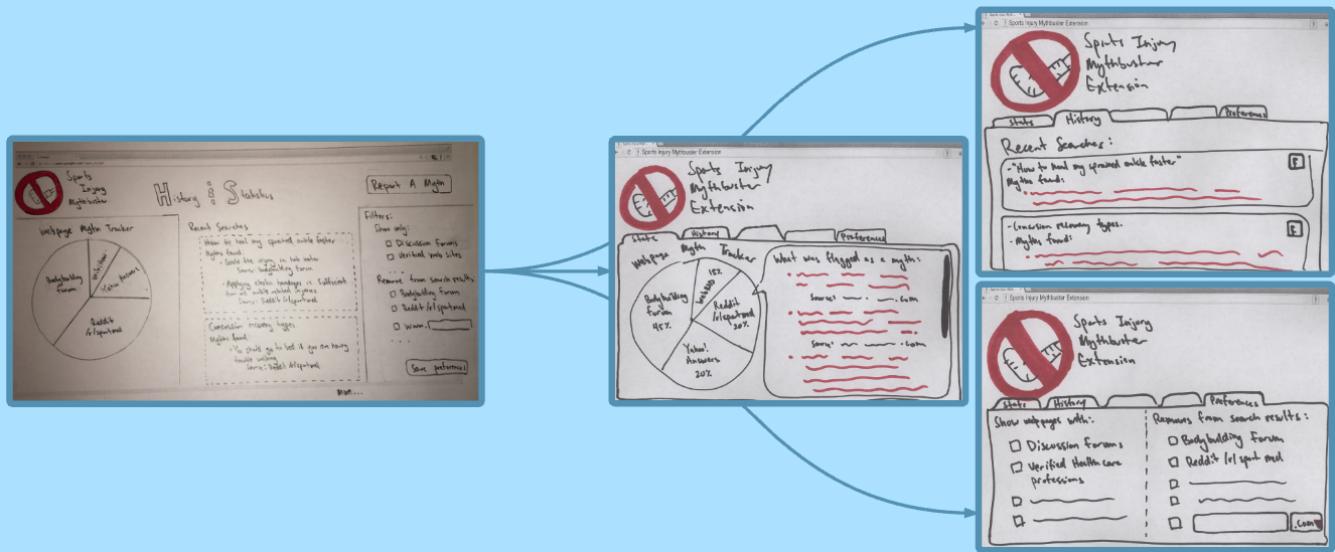
Conduction my second usability test on Brian

From this usability test I discovered that users like to receive feedback from the system to alert them of the system status. After Brian made his selections in the drop-down interface, he wanted the system to alert him of his saved changes. This was valuable feedback as it resulted in direct changes to the user interface.



# Prototyping and Testing... Again

After compiling our usability test feedback, we observed a few reoccurring critiques of our prototype. For example, my prototype's layout was reported as cluttered and made it difficult to perform tasks. After discussing possible solutions to this problem, we decided split the interface into three different sections and allow users to select between them by clicking on tabs.



After conducting our last usability test many of the changes that needed to be made were for aesthetic purposes. Kendall and I used a wire-framing tool to create a polished version of our prototype. After some discussion, we agreed on a doctor's office themed interface. We attempted to create a doctor's office theme by using a manila folder to separate the interface sections, sticky notes to display information, and blue font (to resemble blue ink) to show what the user's input was.

**RecoverEase**

Questionable Websites

- Bodybuilding.com (55%)
- Yahoo Answers (15%)
- Reddit.com/Spoofed (30%)

Notable Flagged Myths:

- MYTH: "Applying cayenne pepper to your injury will increase the rate of healing."
- MYTH: "Lemon juice is great for healing skin. It contains citric acid which helps to heal skin faster."
- MYTH: "Loren ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. Ut enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat."
- MYTH: "Loren ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. Ut enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat."

Recent Searches

Search: HOW TO HEAL MY SPONDED WRIST FASTER

Search: RECOVER FROM SPONDED WRIST GLOWLY

The keywords "Cayenne Pepper" have been flagged!

- Reasoning:
  - "There is no evidence that the application of cayenne pepper is beneficial to wrist injuries." Submitted by Dr.Oliver Smith, New York



# Final Touches

We submitted our 'finalized' design for heavy critiquing and evaluation from our professor and TA. Upon receiving our feedback, we learned that using skeuomorphism for every aspect of our interface to resemble a doctor's office might not be the most efficient way to design our extension. I made some final touches by replacing some design features used complementary colors to tie it the interface together.

**RecoverEase**

Questionable Websites

Website	Percentage
Bodybuilding.com	65%
YouTube	10%
Reddit.com/sportmed	25%

Notable Flagged Myths:

- MYTH: "Applying cayenne pepper to your injury will increase the rate of recovery."
- MYTH: "Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque."
- MYTH: "Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque."
- MYTH: "Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque."



**RecoverEase**

Web Search Statistics

Website	Percentage of Content that are Myths
Bodybuilding.com	85%
Reddit.com/sportmed	75%
InjuryAdvice.com	65%
answers.yahoo.com	55%
WebMD.com	45%

**RecoverEase**

The keywords "Cayenne Pepper" have been flagged!

- Reasoning:
  - "There is no evidence that the application of cayenne pepper is beneficial to wrist injuries." Submitted by Dr.Oliver Smith, New York



**RecoverEase**

The keywords "Cayenne Pepper" have been flagged!

Reasoning:

"There is no evidence that the application of cayenne pepper is beneficial to ankle injuries." Submitted by Dr.Oliver Smith, New York

**RecoverEase**

Recent Searches

Search: HOW TO HEAL MY SPRAINED WRIST FASTER

MYTH: GO HOME. Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque.

MYTH: GO HOME. Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque.

Search: RECOVER FROM SPRAINED WRIST QUICKLY

MYTH: GO HOME. Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque.



**RecoverEase**

Recent Searches

Search: HOW TO HEAL MY SPRAINED WRIST FASTER

MYTH: GO HOME. Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque.

MYTH: GO HOME. Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque.

Search: RECOVER FROM SPRAINED WRIST QUICKLY

MYTH: GO HOME. Loren ipsum dolor sit amet, consectetur adipiscing elit. Sed lacinia dapibus neque, non viverra velit tristique id. Sed seductor urna eu dui pellentesque.



# Wrapping It All Up

With the final touches in place, we spent the last week of the quarter finalizing the rest of our design specification for submission.

# RecoverEase

**Problem Statement**

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Medical confidentiality is a problem. In our initial interviews, we observed that individual cells have a tendency to recall their patients as if they were their own. This is particularly true of the older physicians. The physician's office is a place where patients go to regain the doctor. Regrettably, patients are often caught during their visit with the physician, and without the physician's knowledge, the information is passed on to other members of the office staff. In addition, during our initial investigations, we observed that most individuals who have suffered from medical confidentiality breaches do not speak up. They are afraid of being labeled as a troublemaker or being blamed for the problem. In addition, they are afraid of being labeled as a troublemaker or being blamed for the problem. In addition, they are afraid of being labeled as a troublemaker or being blamed for the problem.

**Project Scope**

**Background:** Google Chrome extension designed to help people identify and avoid fake advice on how to recover lost property. After noticing it's quite difficult to identify someone's property from "fancy terms" like the ones they get a property owner to use, we decided to make a chrome extension that can identify these terms and alert the user if there is even one or more of these terms.

**Problem:** There are a number of different terms and techniques which try to convince the public - both individuals and whole organizations - that they have found missing items. These are a couple of factors which have led us to believe that identifying these terms will be a great benefit. First off, these items are often claimed as missing items by people who are not the actual owners. This is a common tactic used by scammers to trick people into giving them their personal information. Secondly, you might come across a few items and directly ask the owner if they are missing. If the owner says yes, then you might want to double check if the item is actually theirs. This leads to another concern where people might say no, yet they are being harassed.

**Proposed Solution:** We propose to use machine learning to identify these terms. We will use a dataset of many recovery messages, as well as the many ways these terms can be used. This will then train our machine learning models with a large amount of data so that they can identify these terms correctly. Once this is done, we will use this model to identify these terms in new messages. By doing this, we will be able to create a system that when users see such terms which have been flagged, then they will be able to reference and change their behavior.

**Timeline:** We have decided to start this project in a number of weeks. From the very first week, we will be working on the basic structure of the extension. This will include the basic UI and the basic logic of the code and the number of ease of use for the user. Then, finally, we will be working on accuracy. As we know, doing things for people will be at some high risk of failure so we will be making sure that they have the skills required to understand what they are doing. This will be done through a series of tests and experiments. We will be monitoring why a review has flagged because, while we will strive to make the early understanding, it may still include errors.

## The Target Audience

**Initial Ideas**

During our first few group meetings, my preoccupation was to focus on specific ideas. More specifically, we wanted to identify a single problem that we could work on. This was a difficult task because there were many different ways to approach the research and many different areas that could develop a promising research idea when given the freedom, which was at the beginning of each meeting to determine these initial themes.

—Lorraine

After a few initial meetings, though, we discussed a more general problem, which we decided to address again. When these – particularly with moderate intensity, such as a sustained write – were taken together, they were able to produce a significant amount of writing. In fact, the first time I asked the question on how to start a research project, I was asked to start by writing a short story. Most of these methods were fine, though, and can cause the person to need to go back and re-read what they have written.

For me, though, I found that I had trouble with this problem. First, I was forced to “create” a “cheat sheet” which gathered all of the most common research words, listed them in their level of abstraction, and gave a short, direct definition next to each word. This was a good start, but I still had trouble with the process of writing. I was still having trouble processing to decide exactly where my research words fit in a paragraph, highlight them, and provide a pop-up with the reason they were used. With the knowledge behind the reader’s language processing and the information on the pop-up would be gathered, these issues can be easily addressed.

An as mentioned in our "Final" section, we decided between not to check website and our Chrome extension since it's more user friendly and it's more effective. We have also added a new feature in our extension which can be used only for the [Rakuten Ichiba](#) Google extension. The full list of both of these simple as well as the complex features are as follows:

**Testing Script**

"Introduction and description of the task that you will be performing a search on Google and identifying what statements are relevant to the search term and what part of the body you have found, and rendering a module saved from your search."

**Succesful**

You are an attorney that has just obtained your right writing during a match. The pain is now enough to kick for a second time. You are now in the recovery mode.

**Test 1**

You have a sprained ankle and don't believe that you need to go to the doctor. System for recovery mode.

Click [this](#) to be recovered quickly and by the doctor. Interest with 1

Interest with 0-90

**Test 2**

You found [this](#) on [10best.com](#). Has been providing information that has helped further to recovering of all ankles.

The [link](#) that you have been provided with has the most sprain injury relief with 8+ tips.

What percentage of the users that come from [Baidu](#)?

Interest with 1

Did you flagged search history

**Opposite**

A screenshot of a Windows-style application window titled "Rec-va-Func". A context menu is open at the top left, featuring a cartoon character icon of a person with a speech bubble. The menu items include "Copy", "Paste", "Delete", "Format", "Properties", and "Help". Below the menu, there is a toolbar with icons for "New", "Open", "Save", "Print", "Exit", and "Help". The main area of the window contains a grid of small icons representing various file types like documents, images, and folders.

**Heuristic Evaluations**

In addition to usability tests, we also ran a heuristic evaluation on our second paper prototype. We found one problem in our design for each user interaction. After finding these issues, we made the appropriate changes to our prototype. Two examples of the changes we made are as follows. In the first example, we had a "Find" button located at the top right of the search results page. This button was intended to allow users to quickly find a specific item if they have a few letters or more to enter directly into the drop down menu, which is called "Faceted navigation results." To fix this problem, we removed the "Find" button and instead added a "Search" button to the bottom right of the search results page. In the second example, we found that some users of our first three direct changes had been applied because they are returning feedback. We also visited a "Comments" section of our site and found that many users were leaving comments on the first few pages of the review. We then changed the name to "Flagged" "Flagged" is the part of speech which is consistent with our use of the word "comment" in the rest of the application. The "Flagged" section is located at the bottom of the first few pages of the review. Once we learned about the use of the term "comment" in the first few pages of the review, we decided to change it to "Flagged" so that users would better understand what it means. Overall, we learned a lot from our usability test and user feedback which helped us identify and solve problems. These issues were well founded and during testing, no errors, flaws or bugs were found.

## Application Details

The diagram illustrates the process of identifying and reporting Google search results containing malware:

- User View:** A user views a search result from Google.
- Malware Identification:**
  - If the URL is identified as malicious (e.g., via VirusShare), the user can click "Report this page as malicious".
  - If the URL is identified as a known exploit kit (e.g., via ExploitDB), the user can click "Report this page as exploit".
- Reporting:**
  - Malicious URL:** The user can click "Report this URL as malicious".
  - Exploit URL:** The user can click "Report this URL as exploit".
  - Entire Site:** The user can click "Report this entire site as malicious".
- Feedback Loop:** The user can click "Feedback" to provide feedback on the detection or reporting process.
- Review:** A review panel (labeled "Review Panel") reviews the reported URLs.
- Action:** If the URL is flagged as malicious, the review panel can take action (e.g., "Block this URL").
- Final Status:** The status of the URL is updated (e.g., "URL blocked").
- Highlight:** The review panel highlights specific URLs in the dashboard.
- Log In:** The user logs in to the system.
- Feedback Form:** The user fills out a feedback form.

The diagram illustrates the 'Open in New Tab' feature in Internet Explorer 8. It shows four browser windows labeled 'Page 1.htm'. A legend indicates:

- Blue arrow: Click to activate
- Green arrow: Click to expand
- Red arrow: Click to expand

The windows are arranged as follows:

- Top row:** The first window has a blue arrow pointing to its title bar. The second window has a blue arrow pointing to its title bar, a green arrow pointing to its status bar, and a red arrow pointing to its status bar.
- Bottom row:** The third window has a blue arrow pointing to its title bar, a green arrow pointing to its status bar, and a red arrow pointing to its status bar. The fourth window has a blue arrow pointing to its title bar.

Arrows also point from the bottom row windows to the top row windows, indicating the flow of interaction between them.

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### Design Decision and Rationale

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A screenshot of the Microsoft Edge browser window. The title bar says 'Rec. ver Case'. The main content area shows a Google search results page for 'Windows 10 Anniversary Update'. A large grey arrow points from the top-left of the browser window towards the bottom-right. In the bottom-right corner, there is a small floating window titled 'Rec. ver Case' with the message 'Changes applied!'.

The screenshot shows the RecoverEase software window titled "RecoverEase" with the sub-section "Web Search Statistics". The main area displays a horizontal bar chart with the following data:

Search Term	Number of Results
Windows 7	1,234,567
Microsoft Office	890,123
Mac OS X	567,890
Ubuntu	456,789
Linux Mint	321,654
Fedora	210,987
CentOS	154,321
Debian	123,456
Arch Linux	89,012
OpenSUSE	76,543
Elementary OS	65,432
Pop!_OS	54,321
Manjaro	43,210
MX Linux	32,109
Plasma	21,098
KDE	15,432
GNOME	12,345
XFCE	8,901
Budgie	7,654
MATE	6,543
Cinnamon	5,432
LXDE	4,321
Openbox	3,210
Docky	2,109
Unity	1,543
Unity 7	1,234
Unity 8	890
Unity 9	567
Unity 10	456
Unity 11	321
Unity 12	210
Unity 13	154
Unity 14	123
Unity 15	89
Unity 16	76
Unity 17	65
Unity 18	54
Unity 19	43
Unity 20	32
Unity 21	21
Unity 22	15
Unity 23	12
Unity 24	8
Unity 25	7
Unity 26	6
Unity 27	5
Unity 28	4
Unity 29	3
Unity 30	2
Unity 31	1
Unity 32	0

Annotations on the left side of the chart explain the search terms:

- Windows 7
- Microsoft Office
- Mac OS X
- Ubuntu
- Linux Mint
- Fedora
- CentOS
- Debian
- Arch Linux
- OpenSUSE
- Elementary OS
- Pop!\_OS
- Manjaro
- MX Linux
- Plasma
- GNOME
- XFCE
- Budgie
- Cinnamon
- LXDE
- Openbox
- Docky
- Unity
- Unity 7
- Unity 8
- Unity 9
- Unity 10
- Unity 11
- Unity 12
- Unity 13
- Unity 14
- Unity 15
- Unity 16
- Unity 17
- Unity 18
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- Unity 24
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- Unity 26
- Unity 27
- Unity 28
- Unity 29
- Unity 30

Annotations on the right side of the chart explain the search terms:

- Windows 7
- Microsoft Office
- Mac OS X
- Ubuntu
- Linux Mint
- Fedora
- CentOS
- Debian
- Arch Linux
- OpenSUSE
- Elementary OS
- Pop!\_OS
- Manjaro
- MX Linux
- Plasma
- GNOME
- XFCE
- Budgie
- Cinnamon
- LXDE
- Openbox
- Docky
- Unity
- Unity 7
- Unity 8
- Unity 9
- Unity 10
- Unity 11
- Unity 12
- Unity 13
- Unity 14
- Unity 15
- Unity 16
- Unity 17
- Unity 18
- Unity 19
- Unity 20
- Unity 21
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- Unity 26
- Unity 27
- Unity 28
- Unity 29
- Unity 30

**Decisions**

Decisions are highlighted in red and “tagged” with a red circle.

**Habits**

Habits are highlighted in blue and “tagged” with a blue circle.

**Rec-Verdicts**

The “Rec-Verdicts” “Circus Page” have been flagged.

**Browsing**

“Browsing” is an evidence that the application of e-commerce is beneficial to the user. It is based on the quote by Dr. Oliver Smith, New York.

**Open-Links**

Open-links are highlighted in green and “tagged” with a green circle.

**Keywords**

Keywords are highlighted in orange and “tagged” with an orange circle.

## Bibliography



# Conclusion

The single most difficult aspect of my design project was creating new paper prototype iterations after conducting usability tests. Although some usability tests discovered reoccurring design problems, it was difficult to make changes to our prototype with the feedback we received because I found it challenging to make the right design changes to resolve the problems. Keeping the project scope in mind made it easier. Discussing the project scope with my group helped me determine what our design project should and should not be covering. I used it as a guiding tool when making changes to our design for our next prototype iteration.

From the beginning process of formulating a design problem to pixel-perfecting our design solution, this project has tested and stretched all our design ideas. Throughout the quarter I have learned that design is an on going process that involves communication and compromise. Most importantly, feedback and empathy for your users is key to providing a design that is effective for everyone that uses it.

Derek Han

## Design Thinking

the essential ability to  
combine empathy,  
creativity, and rationality  
**to meet user needs** and  
**drive business success**

