

**Senior Project Research:
Ulli**

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ABSTRACT

This paper discusses and addresses the creation of the web application Ulli, used for the creation of lists. It describes the background information and uses for the site. Additionally, it outlines the design process and choices to be made, as well as the usability testing that the application will undergo.

INTRODUCTION

Ulli is a web application that allows the user to save short bits of text and/or links through the web application itself, Twitter or email. It allows the user to create, save and edit a wide range of lists. The goal of this web application is to create a simple to use interface that allows users to create and maintain lists.

BACKGROUND

The inspiration behind the application comes from my own search for a simple to use, minimal way to save links of interest. Fed up with 20 or more open Firefox tabs or emailing links to myself, I needed a way to save things I want to read, but might not have time to read right away due to school work, or being distracted while at work. This is a growing problem among many people – the internet is distracting and it is hard to put it away until later like one might do with a book. A study in 2005 found that “internet misuse in the workplace costs American corporations more than \$178 billion annually in

lost productivity. This translates into a loss of more than \$5,000 per employee per year.”¹ It is easy to find oneself lost in the internet, unable to read all of the articles, blog entries, Tweets, etc. found in the course of a simple break from work.

From my personal search for a simple way to “put it away until later”, I was unable to find something that perfectly suited my needs. Emailing articles and links to myself only clogged my inbox, which made it necessary for me to take time out to go through my emails and de-clutter. Bookmarking links, either through my browsers own bookmarks or through an online bookmarking service such as Delicious (<http://delicious.com>) was not the best solution either. Bookmarking a site on my home computer meant that I could not access it on any other computer. Delicious worked somewhat, but I found that it was too powerful a service.

Another influence on this project is the concept of lifehacking, which is the idea of simple fixes in order to be more efficient and productive in one's everyday life. Lifehacking initially referred to productivity tricks that programmers used to be more productive, but has since come to refer to any trick or method used to solve common problems, especially with the increased use of technology. Above all, lifehacking is used to increase work productivity and filter out the distractions brought on by life in a technology heavy world.

Lifehacking goes hand in hand with David Allen's Getting Things Done, or GTD. GTD is the concept that:

With a complete and current inventory of all your commitments, organized and

1 \$178 Billion in Employee Productivity Lost in the U.S. Annually Due to Internet Misuse, Reports Websense, Inc., <http://www.wwwcoder.com/Default.aspx?tabid=266&type=art&site=5548&parentid=472>

reviewed in a systematic way, you can focus clearly, view your world from optimal angles and make trusted choices about what to do (and not do) at any moment. [...] It provides structure without constraint, managing details with maximum flexibility. The system rigorously adheres to the core principles of productivity, while allowing tremendous freedom in the "how." The only "right" way to do GTD is getting meaningful things done with truly the least amount of invested attention and energy.²

This application will allow users to organize their life, through the ability to create the inventory that Allen discusses in his definition of GTD. The design and concept of the lists is such that users can easily create and use the lists with little effort and maximum effectiveness.

Ultimately, I am hoping to create an application that can be a one-stop application for any sort of list that a person may want to create. More than just a to-do list, a user could create a list of places they would like to travel, or people to call, or a list of articles outlining healthcare around the world, or any other list of items.

ANALYSIS OF SIMILAR APPLICATIONS

There are other applications that perform similar operations. As a disclaimer, since this application grew out of my own need for a list application, in my mind, the design and content choices made are better than other site that already exist. One site that addresses the to-do list is Remember the Milk (<http://rememberthemilk.com>). The

² David Allen, "What is GTD?", http://www.davidco.com/what_is_gtd.php

purpose of this site is a task manager. Users can create different lists and then check off each item as it is completed. They can set different priorities to items, as well as set due dates for them. While this works well for a to-do list, it is not useful for a running list of items or links.

A site that addresses the links to read later idea is the aforementioned Delicious (<http://delicious.com>). This is a an online bookmarking site, that allows users to bookmark websites and tag them. It allows users to access their bookmarks from any computer connected to the internet, as well as share their saved bookmarks with other people. As a long time user, I created a tag just for “to-read”, but I found that I would read something and forget to un-tag it or the list would become too overwhelming that cleared the entire list and did not read anything on the list. Another web application designed to be simpler is Instapaper (<http://www.instapaper.com/>). This application uses a browser bookmark that lets the user click on it, saving whatever website or article to be read later. This is a simple way to perform the task, but does not allow for any other type of list or tags beyond just “read it later”. A similar application is “Read It Later” (<http://readitlaterlist.com/>), which started as a Firefox browser Add-On. The application adds a button to Firefox that allows the user to save the site to read later. Again, this application does not allow for any other type of list beyond a list of things to read later.

USES

This web application is at it's simplest, a list. Any set of data that can be

presented in list form can be stored in ul/li. Sample uses include: a list of tasks to do, a grocery list, a list of links to read, a list of people to call or email. An eHow.com article outlines more uses for lists: immunizations, Christmas gifts, freezer contents, household/other non-perishable food, clothing, medicine, possessions, menus/menu planning, items you wish to purchase, and an address book.³

HOW IT WORKS

Users must create an account in order to create lists. Users access their account and can update their lists. They can create multiple lists and tag them depending on the type of list. Lists can be set as public or private. Users can also update their accounts via Twitter, using the Twitter API. Email updates may also be possible. Users can view their lists online via a traditional web browser or a mobile web browser. Users can view their lists all on one page or access each list individually. If the list is a to-do type of list, the user can check off when a task is completed.

TECHNOLOGY

The back end of ul/li is an SQL powered database, using PHP, CSS and HTML on the front end to design the website's interface. This is the fastest and simplest way to handle both the administrative sections such as creating an account and maintaining lists and also to display the lists. It will also make use of URL cloaking through the

³ How to Use Lists to Simplify Your Life and Keep Organized, http://www.ehow.com/how_4532377_lists-simplify-life-keep-organized.html

.htaccess file of the site.

Database Information:

The database will contain the following tables:

- An administrative table, which controls the log-in information and other administrative information. This will contain a username field, a password field, a log-in key field, a first name field, a last name field, and an email field
- A lists table, which contains a list title field, a list description field, a username field, a list type field, a list tags field, and a list items field.

Client-Side:

After log-in, the user will be taken to the portal page, which contains information about lists the user has already posted and the ability to start a new list. If the user chooses to start a new list, the user will title the list, define the type of list, give a short description of the list, give it tags and then complete the list. They then submit it. If the user chooses to edit an existing list, they have the ability to add or delete items; add, edit, or delete tags; edit the description; edit the type; and edit the title. They can update list items to show that they have completed an action on a given item. They can also delete the list completely.

DESIGN

The design of the site will be clean and modern with plenty of whitespace. As this

is a user centered web application, it is important that the design is both pleasing to the user, but also simple to navigate in order to complete the desired tasks.

Sign Up Page:

The sign up page will be simple. To create an account users must provide an email address, desired username, and password. The sign up page will be designed to be simple and allow the user to begin styling the list as easily and quickly as possible. Rather than the user's first and most important interaction with the site be a poorly designed and thought out sign-up page, they should first interact with the product in some way, to create a memorable response and lasting relationship with the site. Luke Wroblewski, author of *Web Form Design: Filling in the Blanks* wrote on noted web development magazine A List Apart that, “[...] I believe we can get people engaged with digital services in a way that tells them how such services work and why they should care enough to use them. I also believe we can do this without explicitly making them fill out a sign-up form as a first step.”⁴

Web design blog Web Designer Depot reports that “a well developed and organized sign-up page has to relay a large quantity of data in a small area and must be quick and easy to read and understand. [...] It’s better to save your creativity for the other pages which will be redirecting the user to the sign-up page.”⁵ This highlights the importance of having a simple to use, clear and concise sign-up page.

Users want to access the website as easily as possible and anything that slows

4 Luke Wroblewski, A List Apart, “Sign Up Forms Must Die”, <http://www.alistapart.com/articles/signupforms/>

5 25 Inspiring Examples of Sign-Up Pages, Web Designer Depot, <http://www.webdesignerdepot.com/2009/07/25-inspiring-examples-of-sign-up-pages/>

them down is a barrier to them using the website – thus to create a solid user base it is important to allow the user to join the website in as few steps as possible.

List Styling

As this is a site built around lists, it will be important to style the lists so that the user can best utilize the site and make the most of the lists they create. When creating lists, it is important to consider the ease of scanning, ease of readability and the item hierarchy. Each design decision made will keep these factors in mind. Usability.gov outlines lists as such:

Each list should be clearly introduced and have a descriptive title. A list should be formatted so that it can be easily scanned. The order of items in the list should be done to maximize user performance, which usually means that the most important items are placed toward the top of the list. If a numbered list is used, start the numbering at ‘one,’ not ‘zero.’ Generally only the first letter of the first word is capitalized, unless a word that is usually capitalized is shown in the list.⁶

One of the most important factors to consider for readability is the spacing of the list. It is crucial that there be enough space so as the list items are legible and easy to scan. Web design blog “Web Design Tuts” writes:

The effective use of white space is also a critical element of a list when it comes to legibility, scannability, and down-right good looks. Sure, in some cases, the lack of white space just works. However, consider this the exception, not the rule.

⁶ Research-Based Web Design & Usability Guidelines, Chapter 12: Lists, <http://usability.gov/guidelines/index.html>

By spacing out the different items of a list, it becomes easier to read, easier to understand, and is certainly less of an eye-sore.⁷

As this website will be taking advantage of ample whitespace, spacing will be a crucial element to consider in the design of the lists. Each item of the list will be spaced, so as to allow for the best readability, and any text longer than one line will be given a line-height that spaces the lines further than the default height.

Color is another important factor to take into consideration. Color allows the user to differentiate between different elements on a website and gives contrast to the site. It allows the user's attention to be attracted to certain elements that are more important than others. Color can also be used to give the user clues as to the function of an element, such as a button.

Lynda Weinman writes “Making a web page read with color the way you want is the key to effective communication. You want to draw your end user to the areas of your site that are most important, and you can do that in a variety of ways.”⁸ This passage highlights the importance of choosing the right colors so that the information on the screen is communicated correctly.

Another consideration for the lists is the use of a divider of some sort to differentiate between each list item. This, combined with the spacing, make it easier to scan the list and find the item the user is looking for. There are a few ways to do this. The first is to use a technique called zebra-stripping, in which two alternating colors are used on each line of the list. For example, the even lines could be a light grey, with the

⁷ How To Design The Perfect List, <http://webdesigntuts.com/web-design/lists-in-modern-web-design/>

⁸ Lynda Weinman, Thinking about Web Aesthetics, <http://www.peachpit.com/articles/article.aspx?p=32057&seqNum=3>

odd lines a darker grey. This affect allows the user to scan each row easily. Another option is to use a divider, made using a border above and below each item. This allows the user to distinguish between the list items. A final option is changing the color of the list item when it is hovered over. This acts as a highlight of the current item and brings attention to that specific item.

For the lists, the main colors of the list items will be a darker shade, most likely a dark grey or black. This will give them weight. As the user rolls over each item, options in a lighter shade will appear, perhaps a lighter grey or blue. This will differentiate between the list item and the secondary menu items. In a post titled “30 Ways to Increase Readability Online” by Pro Blog Design, it is reported that “a faint gray color works well for that information that has to be there, but isn’t crucial (e.g. the post date, author etc.). The faint color means the line won’t draw attention.”⁹ Other colors used will be the same shader or lighter, so as to not compete in importance with the list items.

Form Styling

In styling the form used to create and edit each list, the ease of use is the most important factor. Users want to be able to perform each task quickly and easily without any question as to what each function of the form does. As each list is built by the user's input into a form, it is important that the form is usable. When the user wants to create a new list, they will be provided with a form that includes a selection for type of list to create, title of the list, description of the list, five input boxes for list items, with an

⁹ 30 Ways to Increase Readability Online, Pro Blog Design, <http://www.problogdesign.com/blog-usability/30-ways-to-improve-readability/>

option to create more fields, and an input for list tags.

The type of list will be a drop-down, with a set list of choices. The user will choose the type of list, and that will determine how the list will be styled. For example, if the user chooses an ordered type of list it will include numbers, or if the user chooses a to-do list, there will be an option on the list page that allows the user to update when a task is completed. The title box and description box will both be text input fields, as will the tag box.

The list item fields will be text input boxes, but they will resize as the user inputs more information, so that the user can see all of the information they have already typed. In “Sensible Forms: A Form Usability Checklist” by Brian Crescimanno, he writes about the importance of having enough space for text entry, and to allow users to see all of the information they have typed. He writes:

For text areas, make sure to give the user sufficient room to enter and read their text. Very tall, very thin columns are as difficult to read as a very wide, very short horizontal text area. The exact values will vary depending on their use but we can establish some minimums of 50 characters wide by 10 lines tall to ensure readability.¹⁰

The user can thus re-read and edit their text before submitting it, allowing fewer errors that would necessitate that the user take further action once the form was submitted.

A form will also be used if a user wants to edit a list. They will be taken to an edit page, that allows them to add more list items, add tags, delete items, edit items, etc.

¹⁰ Brian Crescimanno, “Sensible Forms: A Form Usability Checklist”, A List Apart, <http://www.alistapart.com/articles/sensibleforms/>

The edit page will follow the same guidelines as the new list page.

Whitespace

For this site, one of the most important design elements will be whitespace. While it seems to be a concept that deserves little thought, it is important to give the content space and room to breathe. Whitespace is not just empty space, but a contrast to space that contains text or images. Weblog VanSEODesign describes it as such:

Day exists in contrast to night. Without cold there is no hot. It's the yin/yang of interconnected opposites. Space is no different. Filled space sits in opposition to negative space, but neither exists without comparison to the other. Both are necessary to create a harmonious balance in a design.¹¹

Whitespace helps to organize content on the page and aids in scanning a page to find the content that the user is looking for. As this site will be mainly text driven, it is important that the user does not get overwhelmed by the amount of text on the page.

Whitespace is an important design element in the feeling it conveys – that of luxury and quality. More text, squeezed into a small amount of space feels cramped and busy and frenetic. Whitespace throughout the design gives a page a freer feel.

Whitespace within the lines, words, and characters allows for better legibility. Though subtle changes to line-height and character spacing might seem like an overall small design choice, it can have a large impact on how the user interacts and absorbs the information on a site. Again, as this site will be mainly text based, it is important to take into consideration the user's experience with the text on the site, so that it is a site that

¹¹ Whitespace: Less Is More In Web Design, <http://www.vanseodesign.com/blog/web-design/whitespace/>

is easy to use and one that they continue to use.

Typography

This site will use easily legible fonts, with a variation used for contrast among the different elements of the site. One of the most important factors to consider when making text choices is to create visual consistency across all the website. Usability.gov found that:

The number of errors made using visually inconsistent displays is reliably higher than when using visually consistent displays. Visual consistency includes the size and spacing of characters; the colors used for labels, fonts and backgrounds; and the locations of labels, text and pictures.

Earlier studies found that tasks performed on more consistent interfaces resulted in (1) a reduction in task completion times; (2) a reduction in errors; (3) an increase in user satisfaction; and (4) a reduction in learning time. However, users tend to rapidly overcome some types of inconsistencies. For example, one study found that the use of different-sized widgets (such as pushbuttons, entry fields, or list boxes) does not negatively impact users' performance or preferences.¹²

In addition, using text to create a consistent visual display also creates consistency in the overall design. As this is a largely text based site with minimal image use, it is especially important for the text to be well chosen and consistent across each page.

One way that this can be achieved is to style common elements consistently. The lists

¹² Research-Based Web Design & Usability Guidelines, Chapter 11: Text Appearance, <http://usability.gov/guidelines/index.html>

will all have the same styling, as will list headings, etc.

As far as specific font choices, the site will use a sans serif font, as sans serif fonts are the most legible for on screen use. A 12 or 14 point font will be used for the list elements with a larger size (24 point) used for headings. Usability.gov suggests that the smallest font size to use for body text is 12 point.¹³ Additionally, a familiar font should be used “to achieve the best possible reading speed” as “Research shows no reliable differences in reading speed or user preferences for twelve point Times New Roman or Georgia (serif fonts), or Arial, Helvetica, or Verdana (sans serif fonts).”¹⁴

USABILITY TESTING

Usability testing will be done multiple times in order to determine whether the site functions in a clear, concise way so that the user can best make use of the site.

Usability.gov outlines the two major considerations when conducting usability testing:

The first is to ensure that the best possible method for testing is used. Generally, the best method is to conduct a test where representative participants interact with representative scenarios. The tester collects data on the participant’s success, speed of performance, and satisfaction. The findings, including both quantitative data and qualitative observations information, are provided to designers in a test report. [...]

The second major consideration is to ensure that an iterative approach is used.

After the first test results are provided to designers, they should make changes

¹³ Ibid.

¹⁴ Ibid.

and then have the Web site tested again. Generally, the more iterations, the better the Web site.¹⁵

For this website testing will be done first by web designers, who will be able give feedback on the design and look of the site. They will evaluate the early design schemes and wireframes. The second part of the usability testing will be done by a range of people on a working prototype of the site. This round of testing will determine how users approach and interact with the site.

There are three key elements that usability testing will address. The Online Journalism Review outlines them:

- * Areas of confusing navigation. There is no doubt that as the project designer, you know how your site navigation functions. [...] It is important to realize that about an hour into designing your project, you may have lost all perspective on how the interface appears to others. This also holds true for your colleagues who have been looking at the project as you have been creating it. You all have learned your navigation; you have conditioned yourselves to go where you want. But for others it may not be so easy and intuitive. You need to test and see.

- * Users' intuitive viewing sequences. Again, this is an area that designers tend to have in mind and follow as they work on or show the site to others in the newsroom. A usability test can reveal if others will follow what you intend.

- * Roadblocks in the flow or delivery of information. Not everyone in your target audience may know that the e-mail for the reporter is at the end of the text or that

15 Research-Based Web Design & Usability Guidelines, Chapter 18: Usability Testing, <http://usability.gov/guidelines/index.html>

the panoramic photograph moves when the arrows on either side are clicked.

What seems normal and natural to the creator is not always so with the user.¹⁶

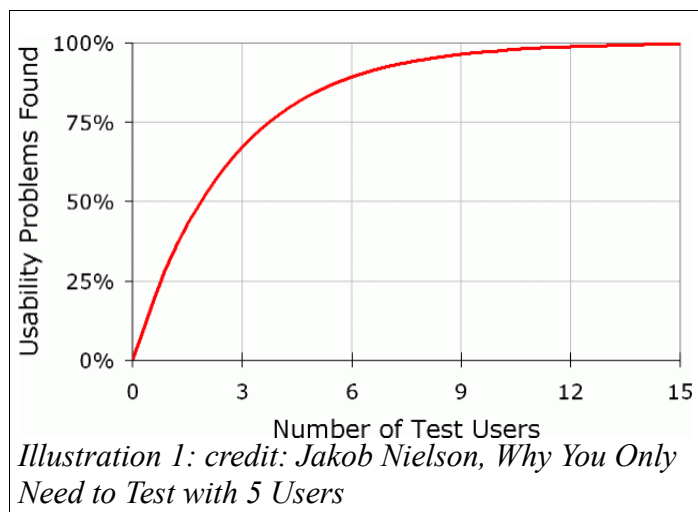
While other issues may arise during testing, these are the main points that usability testing will address.

Demographic Sample

The audience for this application is any person who tends to spend a lot of time on the computer and needs a way to organize their online life. The test group for usability testing will therefore be a sample of people who use the computer often, but are not in the web design field. They use the computer and internet for work or school and for casual web surfing. The group is a mixture of men and women and the age range is around 24 – 50 years old. The age range is not as important as the type of computer user they are.

The sampling will be kept relatively small. According to Jakob Nielsen, the best results of usability testing are the result of testing no more than 5 users and running smaller tests. Illustration 1 shows the relationship between number of testers and percent of usability problems found¹⁷.

The chart shows how zero users find



¹⁶ Laura Ruel and Nora Paul, OJR's 'five guide' to do-it-yourself website usability testing, <http://www.ojr.org/ojr/stories/070802ruel/>

¹⁷ Jakob Nielsen, Why You Only Need to Test with 5 Users, <http://www.useit.com/alertbox/20000319.html>

zero percent of the usability problems, with a great increase as the number of users increases to three or four. The rate of increase in percentage of usability problems found slows as the number of testers reaches five. As the number of testers increases, the testers tend to find the same problems over and over again, which does not help the overall results of the usability test. A smaller test group allows the application to be tested thoroughly, reviewed, then passed on to another small test group.

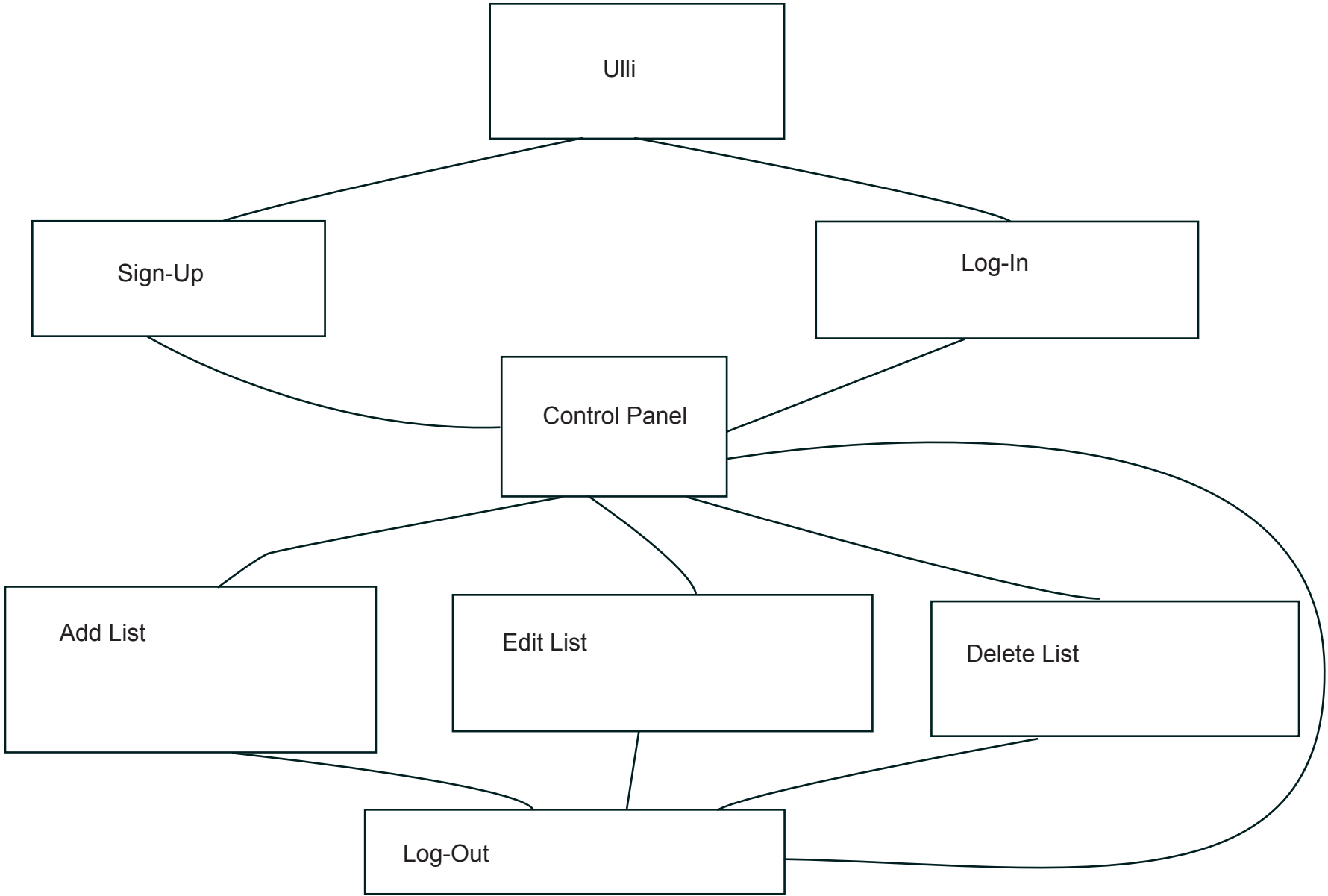
Test Process

At each step of the design process, users will test each aspect of the application. First they will test the basic wireframe, determining whether the layout of the design is intuitive. Next they will test the comps, looking towards color, contrast, legibility of text, whitespace and overall aesthetics. They will also participate in card sorting, which allows the tester to interact with the organization of the site. This method helps determine whether the information architecture of the site works the way that it was intended. Finally they will interact with the actual site in the form of different prototypes. Testers will sign-up for the site, log into the site and create, edit and delete lists. They will report feedback on ease of interaction, legibility of the different content areas and overall design and aesthetics. They will received a directed questionnaire with specific questions about the site, as well as an undirected response section. After receiving this feedback and analysis of the feedback, changes will be made to the site. The testing process will begin again and the changes will again be made to the site. If necessary, this process will be repeated.

CONCLUSION

Ulli will be a web application that handles lists. Inspired by to-do lists, it will allow users to create, edit and delete lists of all sorts. Users can use the lists for whatever purposes they deem necessary. Ulli is designed to be simple to use, making use of ample whitespace and easy to read typography, allowing the user to interact with the content with no distractions.

Flowchart: User Process for Interaction with Ulli



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