SANTA ANA ZOO WEBSITE REDESIGN PROJECT

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EXECUTIVE SUMMARY

Introduction

This document summarizes the final project of the DIS 4 Santa Ana Zoo (SAZOO) group and their redesign of the SAZOO website user interface. The website was launched in 2007, and though it is updated with current information, it desperately needs a redesign. We focused our redesign on improving the user's ability to find vital information by tackling the site's current issues of unintuitive navigation, bad aesthetic design, and lack of information hierarchy.

Objective

The objective of this project was to redesign the SAZOO website interface to allow its users to quickly and efficiently find vital information. All final redesigns were evaluated to ensure it effectiveness with its target audience.

Methods

- Interviews
  - Interviews were 25 - 30 minutes on average
  - Interview questions involved finding users' internet habits
  - Interview questions involved finding out users' design preferences specifically for recreation websites.
- Survey
  - The survey was 15 questions.
  - The survey was shared on social media platforms.
  - In addition to questions about internet habits, the survey asked surveyees' to select good and bad websites based on their own preferences.
- Usability Tests
  - Usability tests were 30 minutes on average
  - Usability tests tasks were chosen based on a scenario where they went through very common and important functions on the site.
  - Participants were given questionnaire at the end which contained questions towards satisfaction of interface, satisfaction with product, and time to comment
- Cognitive Walkthroughs
  - Cognitive walkthrough helped to identify more usability issues
  - Information from the cognitive walkthrough was collected in real time
- Sketching/mockups
  - Team members went through individually sketched their designs

- ○ After discussion, final designs were concluded and mockups were created
  - ○ Mockups went through iterations as changes were needed.
- Heuristic Evaluations
  - ○ Members went through the targets and evaluated based on the guidelines
  - ○ Synthesized the evaluations to come to a group understanding

Key Results

- Participants express great concern for a website's ease of use
- Park times and ticket prices are the most requested information on the homepage
- We identified 4 main usability issues in the SAZOO website:
  - ○ Lack of informative feedback caused users to be unsure if their actions resulted in completing their goal
    - ■ Competitors clearly signalled users when they complete their goal
  - ○ Poor and counterintuitive labeling caused users to navigate through several different sections before locating correct path
    - ■ Users would end up being farther away from their goal
  - ○ Poor color choice and text font usage failed to stress important information
    - ■ Sections that should not be emphasized were highlighted instead
    - ■ Important information was hard to discern as all text uses the same font type
  - ○ All the above issues led to inefficient browsing on the user's part

Redesign

- We focused on 3 main targets for the SAZOO website as part of our redesign
  - ○ Target 1: Efficiently Locate Information on the Homepage
    - ■ Emphasis on the zoo's identity of 50 monkeys
    - ■ More efficient use of layout for informational hierarchy
    - ■ Less visual noise for colors and pictures
  - ○ Target 2: Accurately Discover Animals and Exhibits on Animal Directory
    - ■ Clear icons for interaction
    - ■ Easy to use directory to find specific animals
  - ○ Target 3: Quickly Find and View Events
    - ■ Can easily find events per day using the calendar
    - ■ Look farther into the past/future
    - ■ More modernized and similar to other pages

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1. Introduction

About Santa Ana Zoo

First opened in 1952, the Santa Ana Zoo at Prentice Park (SAZOO) is a historic landmark of the city of Santa Ana, hosting over 270,000 visitors a year. This 20-acre zoo focuses on the recreation, education, and conservation of the animals and plants of Central and South America. As such, the zoo not only exhibits many different species, but also hosts programs that educates its visitors and allows them to participate in conversation.

As per the city's agreement with Joseph Prentice, the man who donated the land for the zoo, SAZOO is currently home to 50 monkeys, which can be found in their large primate exhibit. These 50 monkeys holds the identity of SAZOO and have long become its trademark.

About the Product

The Santa Ana Zoo website (www.santaanazoo.org) was first launched in 2007 and is assumed to have been regularly been maintained since. However, much of its original design has not been updated to follow modern guidelines. Its graphic style is still old, and the website lacks interactivity and clear navigation. The website is thus rather outdated in terms of technology and graphics, but the information on the website is current.

The Redesign Project

Due to the outdated style and disorganization of the homepage, our team decided to redesign SAZOO's website to better fit modern users. The clashing colors and patterns, unintuitive navigation, and lack of information hierarchy on the homepage are only some of the biggest problems we identified. All the issues we found distracted users from optimally locating vital information across the website, and thus became the focus of our redesign.

Key Terms
- **unintuitive design**: design that goes against common, modern day web practices
- **information hierarchy**: information that is processed and prioritized to the user due to the layout and functions of the site.
- **efficiency**: using the minimum effort to achieve the same output for achieving goals.
- **user expectation**: refers to the consistency that users expect upon using the current and previous products

2. Competitive Analysis

To better grasp the product and the various ways it is still lacking, we identified two direct and indirect competitors to use as bases of comparison. These direct competitors (*see Table 1*) are websites of other Southern Californian zoos that we knew competed directly with SAZOO. The indirect competitors in Table 2 below are attraction sites also located in Southern California that we thought visitors of SAZOO would also be interesting in visiting. Then, we analyzed each competitor's website based on its functionality and features, the different types of users that would be attracted to the website, and the notable differences between the competitors' websites and our product.

Direct Competitors

Orange County (OC) Zoo Website

Product URL: http://www.ocparks.com/zoo/
This is the site for the Orange County Zoo, which is a part of the Orange County (OC) parks site. This site contains similar information to the Santa Ana Zoo website in terms of visiting information, news and events, how to contact the zoo, but also offers information to other services in OC, such as parks and trails.

Los Angeles Zoo Website

Product URL: http://www.lazoo.org/
This is the site for the Los Angeles Zoo. This site is more similar to the focal product, as it only displays the Los Angeles's zoo visitor information, news and events, etc. However, unlike SAZOO, the LA Zoo is home to 1,100 animals and is 133 acres large, in comparison to SAZOO's 20 acres and 250 animals. This is reflected onto their site, which offers features that SAZOO cannot due to being smaller in size (*see Table 1*).

Table 1. Direct Competitors

Functionality/Features	User Base	Notable Differences
Orange County (OC) Zoo Website (www.ocparks.com/zoo)		
Offers functions that lets users find information on government, residency in OC, making reservations for camping, etc.	Residents or visitors of OC	Part of OC Parks, hosts other attractions other than the zoo
Many social media links as points of contact	General visitors of OC Parks or who intend on visiting the zoo on their trip to OC Parks. The OC Park has many diverse activities, so users visiting the site may be looking for specific activities to do.	More organized, links to other places of interest in OC
Search function available		Modern design
Los Angeles Zoo Website (www.lazoo.org)		
Navigation similar to SAZOO website, contains information on conservation, news and events, how to support the LA Zoo, etc.	Animal/conservation enthusiasts who wish to visit the zoo, as the LA Zoo is home to 1,100 animals and is over 133 acres large	Efficiently utilizes white space to minimize distraction, easy on the eyes
Online ticket purchasing option	People looking to spend a whole day at the zoo (as opposed to only a couple hours of their day)	Aesthetic and modern design
Ability to join a membership program or a mailing list	People interested in purchasing park tickets, joining the membership program or mailing list, and find sales on LA Zoo merchandise	Navigation bar links to other pages on the website (as opposed to SAZOO, which only act as headers)
Slideshow banner (as opposed to SAZOO's static banner)		
Search function available		

Indirect Competitors

Knott's Berry Farm Website

Product URL: https://www.knotts.com/
This is a site for the amusement park Knott's Berry Farm, which is located in OC and could be an indirect competitor for entertainment in OC. The site offers information about the park, such as what kind of rides there are and information about its hotel. In addition, it allows users to purchase tickets and make reservations for the park.

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Orange County (OC) Great Park Website

Product URL: http://www.cityofirvine.org/orange-county-great-park
This is a site for the City-of-Irvine-owned Great Park, which is an arts and sports recreational hub. The site offers various information about the still in development site regarding news and events, but also jobs and different kinds of sports programs one can register and participate in at the park.

Table 2. Indirect Competitors

Functionality/Features	User Base	Notable Differences
Knott's Berry Farm Website (www.Knott's.com)		
Fixed navigation bar and header that stays with user as he scrolls	Amusement park enthusiast, as Knott's focuses on amusement rides	Most modern and aesthetic design out of all competitors
Ticket gallery as opposed to a form to purchase tickets	Families, friends	Most interactive user interface, easy and fun to use website
Search function available	People interested in purchasing park tickets	
List of sponsors with links to their respective sites		
Orange County (OC) Great Park Website (www.cityofirvine.org)		
Large portion of homepage dedicated to its services	Residents or visitors of Irvine and OC	Clean and simple color scheme
Interactive icons lead to more information	People interested in OC Great Park	Showcases history of the park first upon website visitation
Search bar along the top of the page	People in interesting in finding more about the City of Irvine, e.g. plans, city counsels, current news and events	Different sections, i.e. Features News, Services, and Upcoming Events, are made clear through specific website design choices
Translate function		
Links to other Irvine City services		

Conclusion

After comparing the SAZOO website with those of its competitors, we decided that an interactive interface, clearly defined navigation links, and a minimalistic design that appropriately uses whitespace are features that make the competitor websites more attractive. Thus, we established these features as the basis of our initial target design.

3. Target Population Research

Methods

After conducting the competitor analysis, we turned to look at our target population, which consisted of people at least 16 years old who have or might be interested in visiting SAZOO. We conducted two methods of research: interviews and surveys.

Interviews

Each team member individually conducted at least two interviews, which made eight interviews total. Furthermore, each group member conducting the interview acted as both the notetaker and the facilitator. The questions asked focused on user opinions. We asked what makes a "good" website, where "good" was defined as the user's willingness to use the website, and what makes a "bad" website, or what features made the user unwilling to use the website. In addition, we asked each interviewee to evaluate the homepage of Knott's Berry Farm, an indirect competitor of SAZOO (*see Table 2 above*), as we determined Knott's had the most modern and intuitive website among the ones we analyzed. (See *full list of interview questions in Appendix A*.)

Data acquired from the interviews were then analyzed using an affinity diagram, where we wrote direct quotes on post-its, which we then grouped and labeled to simplify the opinions stated. This allowed us to find common trends and users' wants.

Surveys

In addition to interviews, we also created a survey via Google Forms. Here we asked participants to describe their internet habits and website preferences. The questions in our survey followed those we used in our interviews, such as asking for user opinion on what makes a "good" and "bad" website. After establishing a list of fourteen questions, we shared the survey through social media platforms such as Slack, Facebook, and Twitter. Our survey received a total of 40 responses. (See *full list of survey questions in Appendix C*.)

Findings

Because we shared our survey through social media platforms, our respondents were well acquainted with the internet. Additionally, most of our interviewees were 20-some years old, and thus are also familiar with the internet. Due to this population sample, there could be some biases, as our respondents are mostly experts on website navigation.

The first thing we found from our users is that people like minimalistic designs. Users go on websites to find information, and minimalistic designs help enable that goal by allowing ease of use. When there is less information on the site that the mind has to process, it does

not impede the user from reaching their goal of finding information. As seen in Figure 1, users indicated that they prioritize a website's ease of use, layout, and functionality over its design aesthetics.
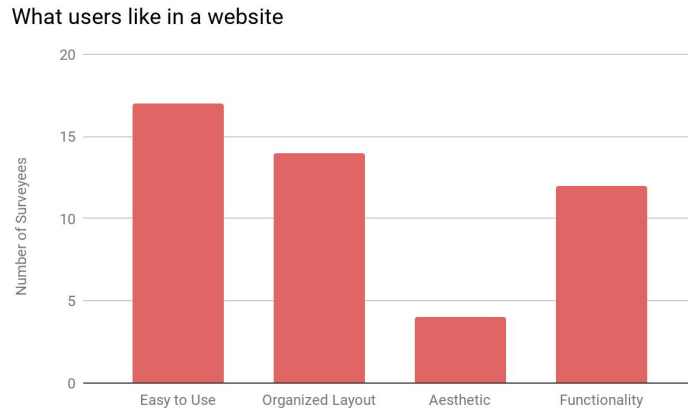
What users like in a website

Figure 1. A graph indicating user preferences in a website, as per our survey results.

This coincided with our data from our interviews. When asked how long it should take for the user to find information on a page, most interviewees specified two clicks maximum. This meant that participants viewed minimal effort and time as necessary components to satisfying their goal of finding the desired information. To reduce that effort further, we asked users what information they were most interested in, and, as seen in Figure 2, found that an overwhelming majority chose ticket prices (92.5%) and park times (95%). This again was supported by the data we gathered through the survey, where 31 participants and 35 participants respectively marked Knott's Berry Farm and Disneyland's websites as the "best" websites.

What kind of information do you want to find on the homepage?
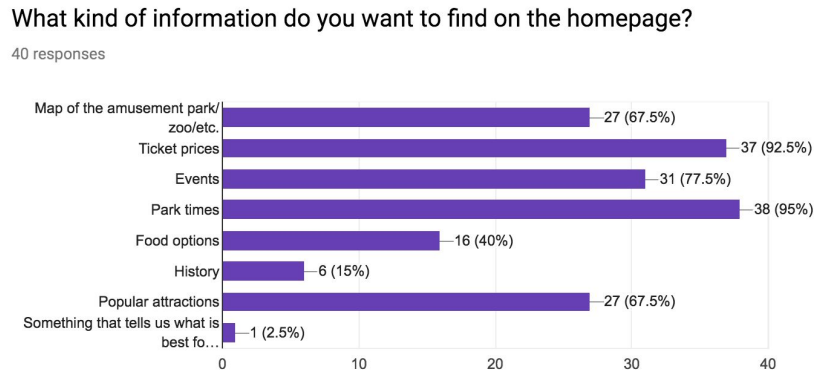
40 responses

Figure 2. Graph pulled directly from survey results. This graph showcases what elements users wanted in the homepage of an attraction park's website.

Analysis

Based on our findings, we identified three potential users of the SAZOO website: "The Noob" (see *Figure 3*), "Frequent Surfer," and "The Internet Addict" (see *Figure 4*). Each user is characterized by the number of hours a day they spend on the Internet, with "The Noob" spending the least amount of time (1 – 3 hours) and "The Internet Addict" spending the most (more than 5 hours). "Frequent Surfer" is considered a casual browser, and is characterized as someone who spends 3 to 5 hours a day on the Internet.

Perhaps due to their infrequent online activity, we discovered that "The Noob" prefers buying tickets on-site rather than online, but is still interested in finding information on ticket prices through the zoo's website. This could also be related to the fact that "The Noob" very frequently visits attractions sites, and thus are well-acquainted with the ticket purchasing process on-site.
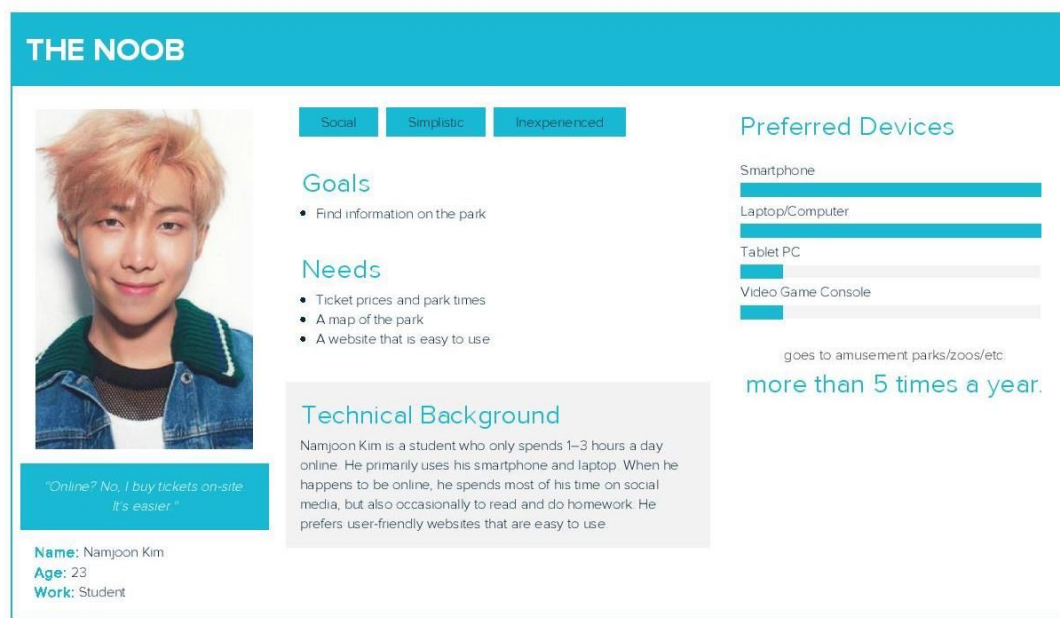

THE NOOB

| Social | Simplistic | Inexperienced |

Goals
- Find information on the park

Needs
- Ticket prices and park times
- A map of the park
- A website that is easy to use

Technical Background
Namjoon Kim is a student who only spends 1–3 hours a day online. He primarily uses his smartphone and laptop. When he happens to be online, he spends most of his time on social media, but also occasionally to read and do homework. He prefers user-friendly websites that are easy to use.

Preferred Devices
Smartphone
Laptop/Computer
Tablet PC
Video Game Console

goes to amusement parks/zoos/etc.
more than 5 times a year.

"Online? No, I buy tickets on-site. It's easier."

Name: Namjoon Kim
Age: 23
Work: Student

Figure 3. Card that depicts the goals, needs, and technical background of "The Noob" user.

On the other hand, both "Frequent Surfer" and "The Internet Addict" prefers to buy tickets online. Therefore, they would like ticket prices and online purchasing forms to be clear and obvious. These two users also stresses their strong inclination for minimalistic websites. However, it is unclear why "Frequent Surfer" likes this minimalism; unlike "The Internet Addict," who emphasized his desire to immediately locate the desired information, "Frequent Surfer" gave no clarification for her preference.
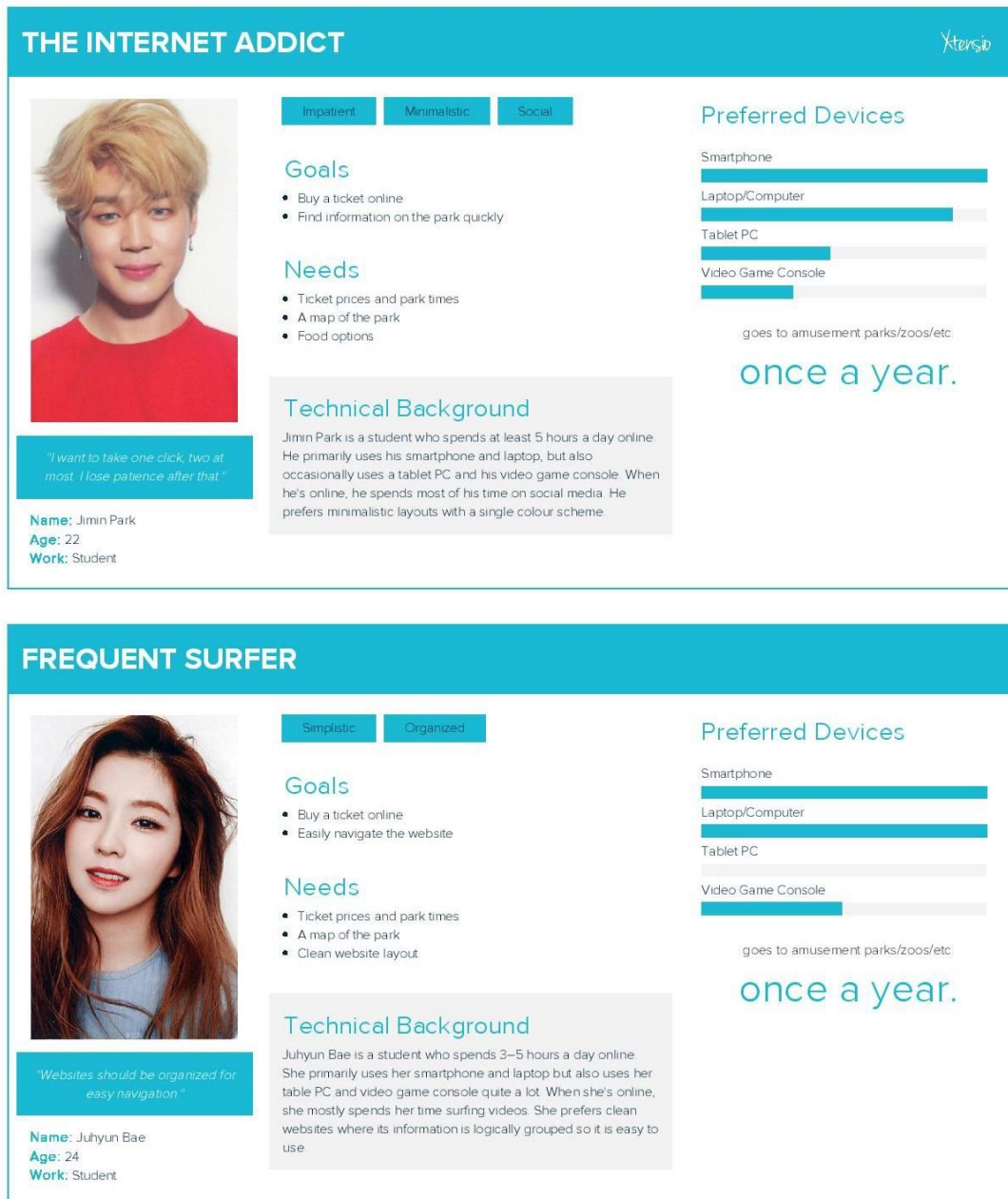
THE INTERNET ADDICT

Xtensio

| Impatient | Minimalistic | Social |

Goals
- Buy a ticket online
- Find information on the park quickly

Needs
- Ticket prices and park times
- A map of the park
- Food options

Technical Background

Jimin Park is a student who spends at least 5 hours a day online. He primarily uses his smartphone and laptop, but also occasionally uses a tablet PC and his video game console. When he's online, he spends most of his time on social media. He prefers minimalistic layouts with a single colour scheme.

Preferred Devices

Smartphone

Laptop/Computer

Tablet PC

Video Game Console

goes to amusement parks/zoos/etc.

once a year.

"I want to take one click, two at most. I lose patience after that."

Name: Jimin Park
Age: 22
Work: Student

FREQUENT SURFER

| Simplistic | Organized |

Goals
- Buy a ticket online
- Easily navigate the website

Needs
- Ticket prices and park times
- A map of the park
- Clean website layout

Technical Background

Juhyun Bae is a student who spends 3–5 hours a day online. She primarily uses her smartphone and laptop but also uses her table PC and video game console quite a lot. When she's online, she mostly spends her time surfing videos. She prefers clean websites where its information is logically grouped so it is easy to use.

Preferred Devices

Smartphone

Laptop/Computer

Tablet PC

Video Game Console

goes to amusement parks/zoos/etc.

once a year.

"Websites should be organized for easy navigation."

Name: Juhyun Bae
Age: 24
Work: Student

Figure 4. Cards that depict goals, needs, and technical backgrounds of "The Internet Addict" user (top) and "Frequent Surfer" user (bottom).

4. Usability Evaluation

Methods

To understand the exact usability issues of the SAZOO website, we conducted five usability test and three cognitive walkthroughs. Usability issues are problems that hindered users from using the website well, regardless if they are first-time or returning visitors of the SAZOO website.

Usability Test

A usability test is an evaluation technique used in user experience (UX) design in which users participate in a designed test on the product. Our usability test lasted around 30 minutes each and tested users on six different tasks:

- Searching for ticket prices for a certain date
- Looking for events on said date
- Finding all the animal exhibits at the zoo
- Locating dining options
- Donating to the zoo
- Identifying special ticket promotions based on residency

The participants of the usability test acted as an animal conservationist who wanted to plan a day trip to the zoo with his or her family. To ensure that participants were processing and retaining the information they find, we asked that they estimate the total price of the trip. We also specified that the participants were acting as Santa Ana residents during the test. This allowed us to see if the participants understood that Santa Ana residents received free admission on the specified date by predicting their projected total. (*See usability test instructions in Appendix D*).

Participants of the usability test were chosen based on our target population, which consisted of teens and adults who wanted to partake in recreational activities (*see Target Population Research*).

Cognitive Walkthrough

A cognitive walkthrough is another evaluation technique used in UX design, except that this technique uses one or two evaluators as opposed to actual users. These evaluators as they work through a series of tasks while acting as users of the product. A cognitive walkthrough thus enables us, the evaluators, to understand how easily new users can learn to interact with the product.

For our cognitive walkthrough, we limited the tasks to ones that required 6 to 8 steps; with any task that required above eight steps, we broke down the task into two separate tasks and chose the one that is most complete. Any task that required less than six steps was reevaluated or discarded. In the end, we chose three tasks that we thought users were most likely to undertake when visiting the SAZOO website:

- Planning a trip to the zoo
- Buying tickets for an event at the zoo
- Make a donation to the zoo

(*See detailed task break-up in Appendix F*).

For each task, we identified the optimal path the user could take to complete the task. For every step in a task, we would answer the following questions:

1. What is the user's goal at this point? Why is it their goal?
2. Are the necessary actions obviously available in the interface?
3. Once users see the control, will they recognize that it does what they want?
4. After the action is taken, is the feedback appropriate? Will the user understand it so they can move on to the next action with confidence?

After answering these questions for all steps in each task, we analyzed the answers and looked for trends and patterns. Common negative trends that we found in both our usability tests and cognitive walkthroughs were identified as our main usability issues. Individual problems that we found that did not necessarily create a pattern were also noted. This includes at outlier behavior in our usability tests.

Findings

The result of the methods above are four main usability issues, on which we will base our redesigns.

Lack of Informative Feedback

During our usability tests, one common trend users encountered was the uncertainty that their actions led them to achieve their goal. Even if the users had gone through the correct steps, they would often be unaware that they had found what they were looking for, or their eyes would wonder towards something else. Our cognitive walkthrough also showed that the website did not give any indication that we have completed our goal despite encountering the correct information we were looking for. Often we would have to manually look for the desired section, but that section itself would have unclear labels or, in extreme cases, does not contain a direct link or action associated to that section.

Save Up to $43. Online Only As
Low As

$109

plus applicable taxes and fees

BUY NOW

Save Up to $43. Online Only As
Low As

$109

plus applicable taxes and fees

BUY NOW

Figure 5. Images from Knott's Berry Farm's website that show button feedback through color change.

One of the golden rules of any interface is to provide informative feedback, which the SAZOO website clearly fails to achieve. This could be accomplished by simply changing the colors when the user hovers over the different sections instead of having these sections remain unresponsive. For example, the current way of booking tickets for an event does not offer feedback when reaching that section. Comparatively, the majority of our competitors provide signals that indicates an important action. One example can be seen in Figure 5, where the "Buy Now" button on the Knott's Berry Farm website changes from turquoise to green when hovered. When the user clicks on this button, a whole new dialog box opens, through which the user can then purchase tickets.

If SAZOO implements a similar set of actions, such as Knott's' use of dialog boxes or color-changing buttons, the SAZOO website could be improved to provide informative feedback for their users.

Poor and Counterintuitive Labeling

When asked to search for animal exhibits during our usability test, users would instinctively click on "Attractions at the Zoo." However, this is not the correct location to find the desired information; animal exhibits are depicted in the "Meet the Animals" page, which is located under the navigation link titled "Conservation." Another page users would visit is the zoo map, but this page also holds no information regarding the animals at SAZOO. Thus, the counterintuitive and misleading titles of the navigation links hinder users from finding information efficiently, as the page the users encounter does not meet their expectations.

Our cognitive walkthrough also showed similar problems. In order to make a donation towards a specific animal, the user must first navigate to the support tab and locate the "Make a Donation" tab. At first glance, the page offers the user the ability to donate to the zoo; however, this donation page does not allow you to specify which animal you would like to support. The correct path to donating towards a specific exhibit is by *adopting* an animal,

which is not a word a user would think of when approaching the website with their goal of *donating*.

Poor Color Choice and Design Priority

As one of the initial reasons to why we made the SAZOO website our focal product, we found that the overall layout and color choices of the site led to much confusion and inefficient actions. During our usability tests, we noticed that people would often be more attracted to other areas of the screen, which prevented them from completing the tasks we asked them to do. Upon closer analysis, we noticed that the sections the participants focused on were generally darker and higher in contrast in comparison to the other sections. For example, the calendar sections off its months into the seasons spring, summer, fall, and winter. The actual dates and event description are written in a smaller font, which made it hard to see between the surrounding bright colored text and sections (*see Figure 6*). The most important text is not only the most plain, but also utilizes the same type of font as the rest of the page. This makes it hard for the user to identify which text relates to their goal, as there is an excess of similar fonts.

In the cognitive walkthrough, we saw that the "purchase tickets" section was at the very bottom of the page. This section was small and was placed against a white background, which was unappealing to the eye in comparison the the bright-colored boxes right above it (*see Figure 6*). This color convention thus prioritizes the information written in the colored boxes as opposed to ticket purchases, which should have been emphasized. Our research shows that users find that colors help reduce cognitive load of processing excess information. Thus, the opposite should have been implemented, where the most important sections and actions, such as buying tickets, were depicted in different colors.
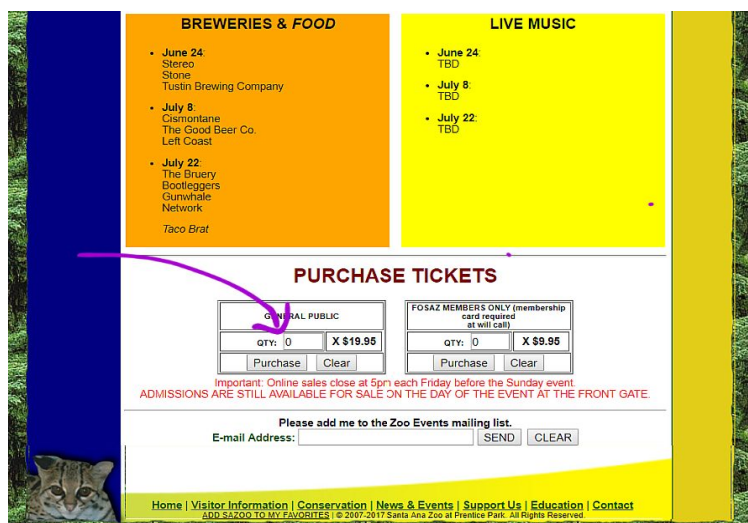
Figure 6. This is the page on SAZOO's website where users can purchase tickets for a music event.

Inefficient Browsing

This problem is perhaps a cumulation of all the problems stated above. When conducting our usability tests, users would often have to visit each page on the drop down menus to locate specific information. Often times, the user would not be able to locate the desired information and is forced to go through the tabs again. This adds unnecessary steps to completing the goal and induces information overload.

5. Redesigns

Based on the usability issues we identified above, we created three main targets that became the focus of our redesign. Each team member created several sketches for each identified target, which was then used to create high-fidelity mockups, which are computer-based representations of the product in its closest resemblance to the final design in terms of details and functionality.

Target 1: Efficiently Locate Information on the Homepage

Motivation and Rationale

The homepage of a website is the first part of the website that is available to the user. It serves as a base of navigation and is meant to stimulate the user's interest in the website. As it stands, the SAZOO homepage does neither of these two points well. The current homepage is cluttered and the information hierarchy, or how information on the page is laid out to stress importance, is unorganized. This results in information overload that causes the user to find little interest in exploring the contents of the homepage.

This is particularly evident in our usability tests, where users bypassed most information except for ticket prices and zoo hours. However, even this information is incomplete; all participants of the usability test failed to realize Santa Ana residents receive free admission every third Sunday of the month. Furthermore, users also found it particularly difficult to locate SAZOO's animals, as well as the page where they could donate to a specific animal. This is due to the poorly designed navigation bar, which was needed to complete each of the tasks depicted above.

Design Range

Our individual sketches all had similar features, such as a banner near the top of the page and a row of upcoming events displayed on cards. In most of our sketches, the logo size was also reduced and generally placed in the upper left corner to make room for more content. We also decided that having a navigation bar at the top of the page is a standard feature present in our competitors' websites. Most sketches also had a modern layout that featured distinct sections separated by whitespace.
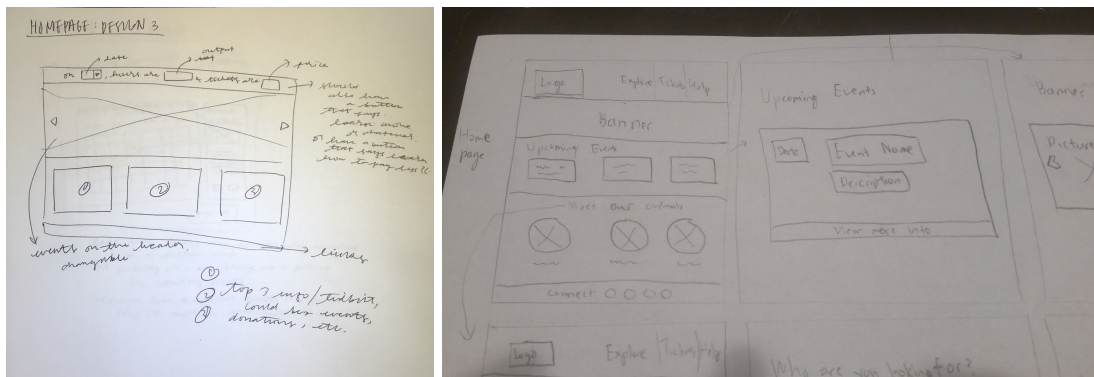
Figure 7. Sketches of the homepage by Winona Lisuallo (left) and Jason Chen (right).

After comparing each team member's sketches, we decided that these two sketches (see *Figure 7*) held the most essential features we would like in our final redesign. These two sketches emphasized having a banner to display a main event, cards to show upcoming events, and an animals section similar to our competitors' websites. While most of the individual designs were similar, these designs were the least cluttered and offered the most relevant information. Thus, we turned this into a sketch that finalized our design (see *Figure 8*) before turning that into a mockup (see *Figure 9*).
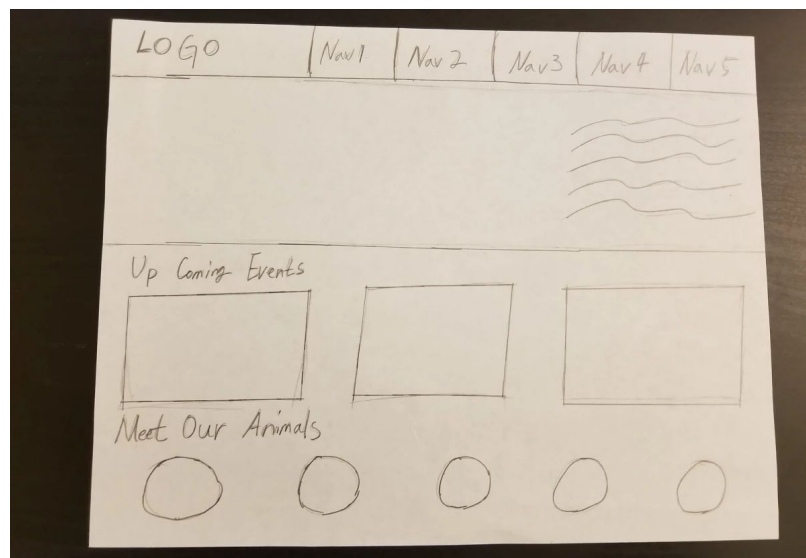
Figure 8. Final sketch of the homepage. It contains the features we deemed most important, including a banner, logo, navigation bar, upcoming events in the form of cards, and a Meet Our Animals Section.
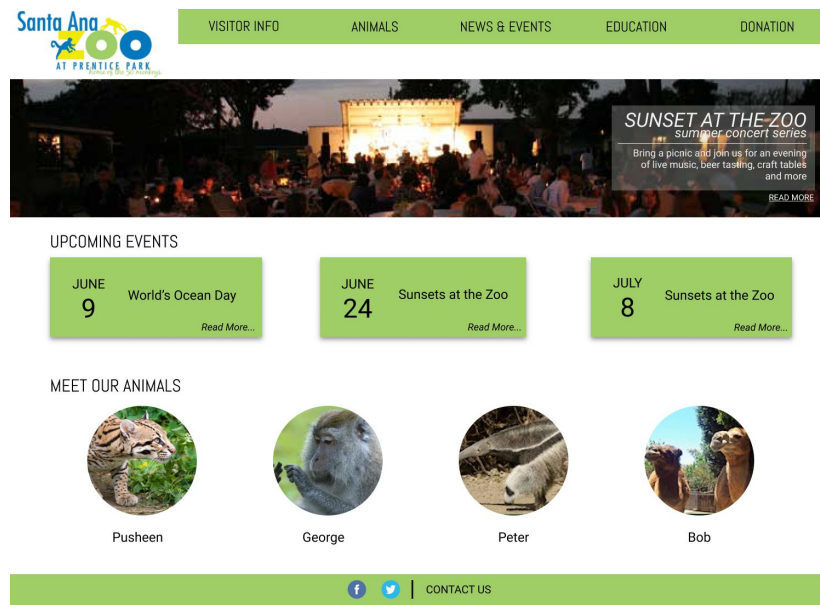
Figure 9. First iteration of a high-fidelity mockup of the homepage. Issues we identified in this iteration: too clean, boring, lacking personality; "Donation" button too similar to navigation tab despite different feedback.
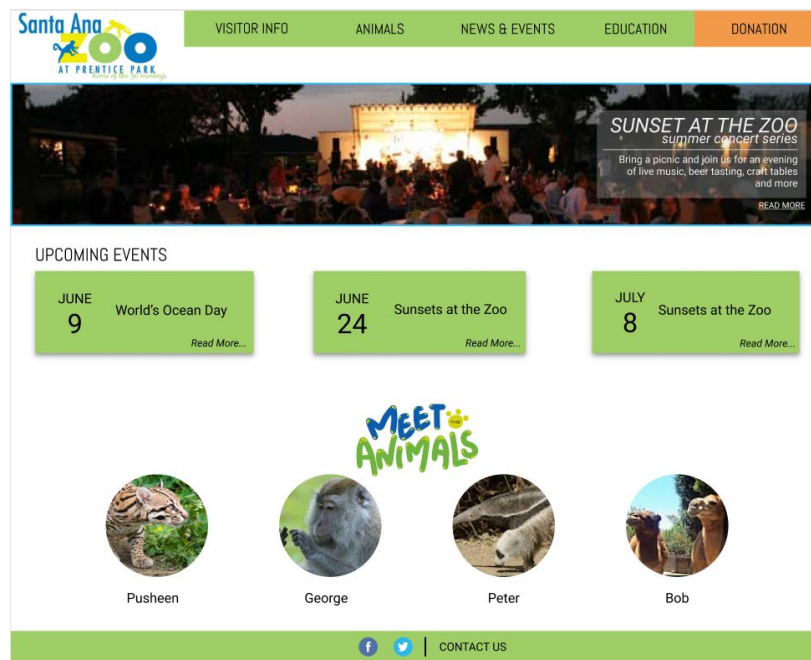
Figure 10. Second iteration of homepage high-fidelity mockup. Changes include changing the "Meet the Animals" title to a different font and the "Donation" button to a different color to indicate different feedback.

However, after analyzing our first iteration (*see Figure 9*), we realized our design still lacked two components: SAZOO's renowned 50 monkeys and information on ticket prices. Thus, we returned and redesigned the pages (*see Figure 12*) to accommodate these two important pieces of information. The final result is a homepage that would display SAZOO's 50 monkeys and Upcoming Events without requiring the user to scroll, as we deemed these two sections are more important that the "Meet the Animals" feature (*see Figure 13*)
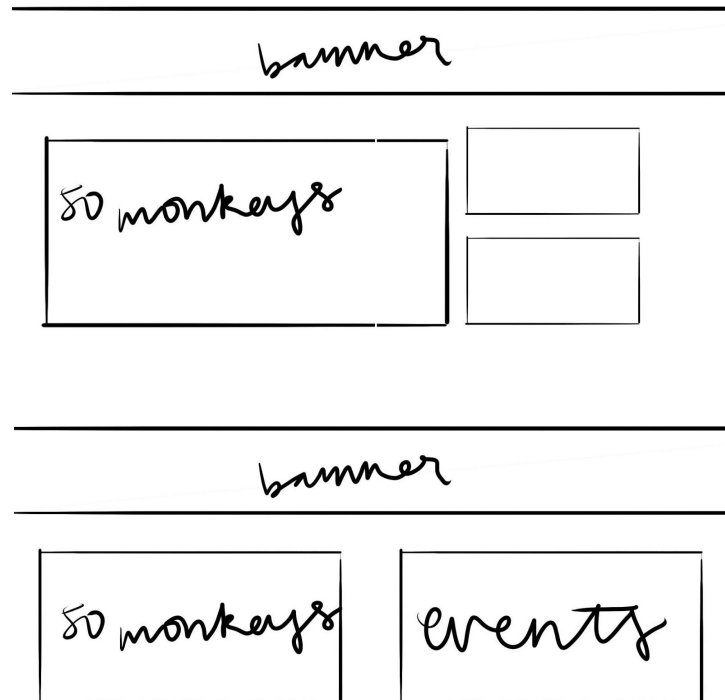
Figure 11. Sketches by Winona Lisuallo. Focus was reintroducing a section called "50 Monkeys at All Times" to reinstate SAZOO's identity and personality back into the redesign.

Figure 12. Third iteration of homepage high-fidelity mockup, based on sketch in Figure 11. Changes include adding a "50 Monkeys At All Times" section to bring back the zoo's personality, as it was emphasized on original website.

Figure 13. Final iteration of homepage high-fidelity mockup, based on feedback from classmates. Changes include reducing "50 Monkeys at All Times" to mostly consist of pictures to prevent information overload and renaming "Donation" to "Donate" to induce action rather than a task.

Target 2: Accurately Discover Animals and Exhibits on Animal Directory

Motivation and Rationale

One of the tasks in our usability test required participants to find an animal at the zoo that they would want to visit. Most participants struggled to complete this task. This was mainly due to the obscure location of the information, which made it inaccessible at first glance. To complete this task, users could either use the interactive map or download a PDF file that listed the name of the species currently at the zoo. While the interactive map is a useful tool that lists not only the exhibit name but also the animals that reside there, the information will only appear if the user hovers over the exhibit. However, exhibits are not marked on the map, leaving the user to blindly search for exhibit locations.

There is currently a PDF map that specifies the location of each animal exhibit at the zoo. However, we would like to provide a more interesting method of exploration to discover the animals available at SAZOO.

Design Range

Most of our initial sketches emphasized the process of finding animals both on the website and the zoo. This meant all animals and their physical locations at the zoo would be readily accessible on one page while maintaining SAZOO's current implementation of an interactive design. We accomplished this by adding exhibit icons to better indicate where the users can specifically interact with the map.
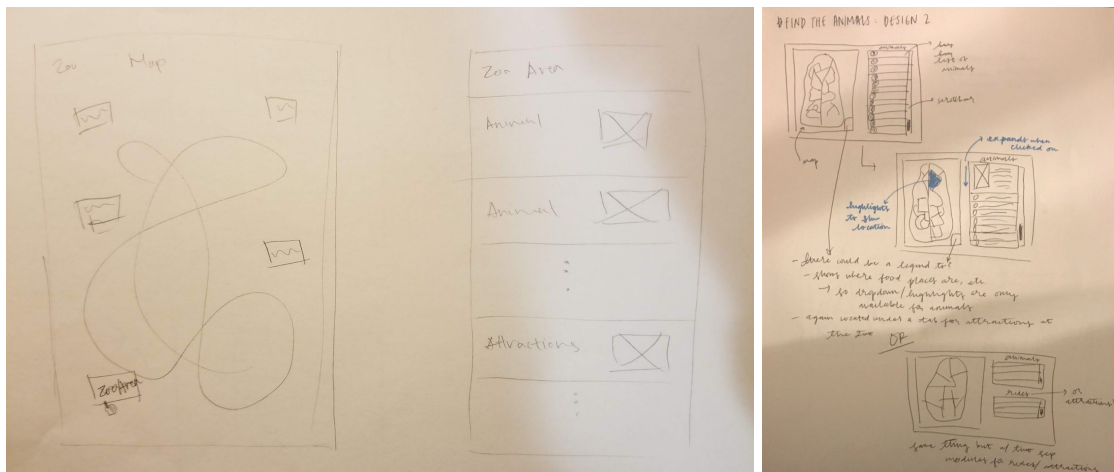

Figure 14. Sketch of Animal Directory page by Tessa Tsao (left) and Winona Lisuallo (right). Both featured an interactive map on the left and an animal list on the right of the page.

Like the homepage, the first step to finalizing the design was to review everyone's sketches and decide the critical features. Again, we selected two sketches (see *Figure 14*) that best

showcased the features we identified as critical. These two sketches feature an interactive map on the left half of the page and a scrollable list of animals on the right. However, unlike the homepage we did not create a final sketch, as the idea and components of the animal directory were rather simple in itself. The first iteration (*see Figure 15*) focused on modeling the idea as presented in the above sketches (*see Figure 14*) into a high-fidelity mockup.

Figure 15. First iteration of the Animal Directory high-fidelity mockup. Issues identified included awkward positioning of page's main components (map and animal list); map took up far less space than list.

In this version of the animal directory (*see Figure 15*), the interactive map not only marked exhibit locations through icons, but also clarifies them using pictures. Through this way, users can familiarize themselves with what kinds of animals to expect when visiting the specific exhibits. Meanwhile we introduced a collapsible list on the right side of the page that segregates animals according to the exhibit they reside in. This allows users to easily translate the visual information on the interactive map onto the mostly textual list.

Despite being completely functional, we felt as though the design of the page seemed imbalanced. Thus, we attempted to rearrange the components to achieve a more aesthetic appeal (*see Figure 18*).
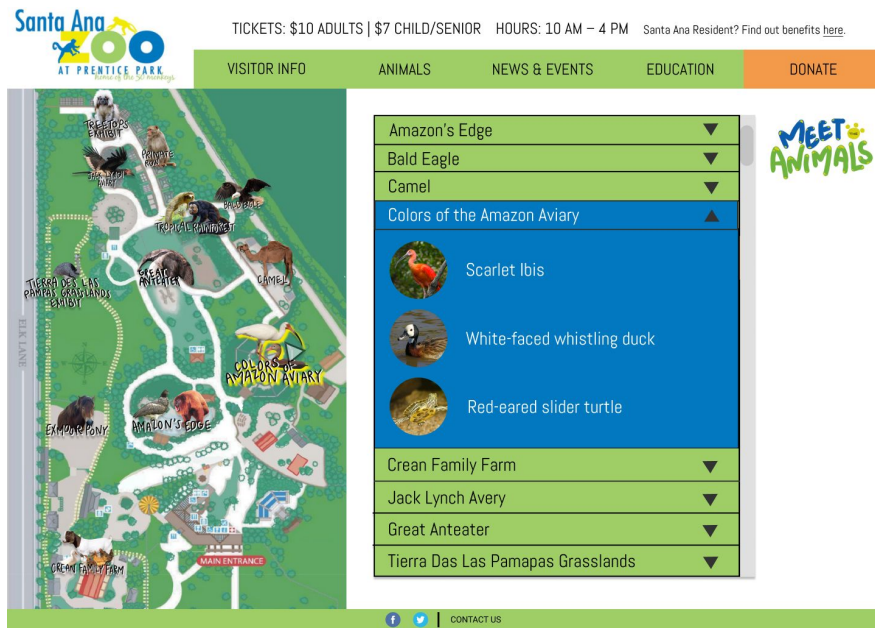
Figure 16. Second iteration of Animal Directory high-fidelity mockup. Changes included adding a "Meet the Animals" title to fill in whitespace and moving list slightly to the left.

Figure 17. Final iteration of Animal Directory high-fidelity mockup. Changes included enlarging map and stretching list to balance the page, as well as moving "Mett the Animals" title to above the list.

Despite moving the components across the page, we still felt as though the map still took too little space. Thus, we decided to recrop and scale the map and adjust the width of the list to finally achieve equilibrium.

Target 3: Quickly Find and View Events

Motivation and Rationale

Our cognitive walkthrough proved that finding specific events is a difficult task, particularly due to the overall layout and design of the page. While it is fairly easy to locate the "Calendar of Events" page, how the page is organized makes filtering through the information difficult. The calendar is organized by seasons, which is depicted as a header with a picture and text, and is then further arranged by months. In between each month is heavy text written in one type of font style, which made discerning between different types of events difficult. This is particularly concerning, as our survey indicated large interest in events (*see Figure 2*).

Design Range

After reviewing our individual sketches, we established two main guidelines for this page: the event date and its name should be clearly visible, and users should be able to easily view the detailed description of each event. However, displaying both these ideas at once would result in information overload.

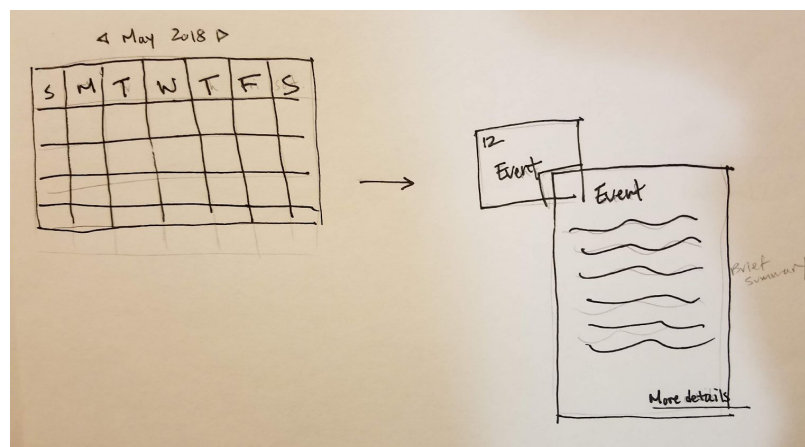*Figure 18. Sketch of Calendar of Events by Tessa Tsao.*

To solve this problem, we agreed to display a calendar with specific dates marked to signify an event occuring that day. In order to view the events details, users can hover on the name of the event, which would trigger a pop-up window containing the event blurb (*see Figure 18*). Users can also choose to keep the window there by click down on the event.

Furthermore, a link will be provided at the bottom of the event description in case the users would like to find out more about a certain event.

Like the Animal Directory page, we decided this idea was simplistic enough to turn straight into a high-fidelity mockup without creating a final sketch.

Figure 19. First and final iteration of Calendar of Events high-fidelity mockup. Design is comparatively less text than current SAZOO page. Hovering on an event triggers a window with a short description of the event. Clicking on the event will cause the window to stay.

Unlike the other pages, this design only went through one iteration (see *Figure 19*), although the details of the design were heavily discussed before implementation. After much deliberation, we decided to add three buttons to the top of the calendar: one that would allow the user to return to the previous month (left arrow), one that would allow the

user to view the upcoming month (right arrow), and a drop down button that will allow the user to select a month from any given year until exactly a year from the current month. This allows users to view any old events SAZOO has held but also anticipate for future events.

6. Heuristic Evaluation

Homepage Redesign Evaluation

Strengths

Our redesign of the homepage addresses the issues of information overload, unorganized information hierarchy, and unappealing visual elements. The homepage redesign features clear sections of information, predominately separated by whitespace and section titles. This allows users to easily see and distinguish the different components of the homepage. We also reduced the amount of information present on the homepage to not only make the homepage minimalistic, but also highlight only the most important information.
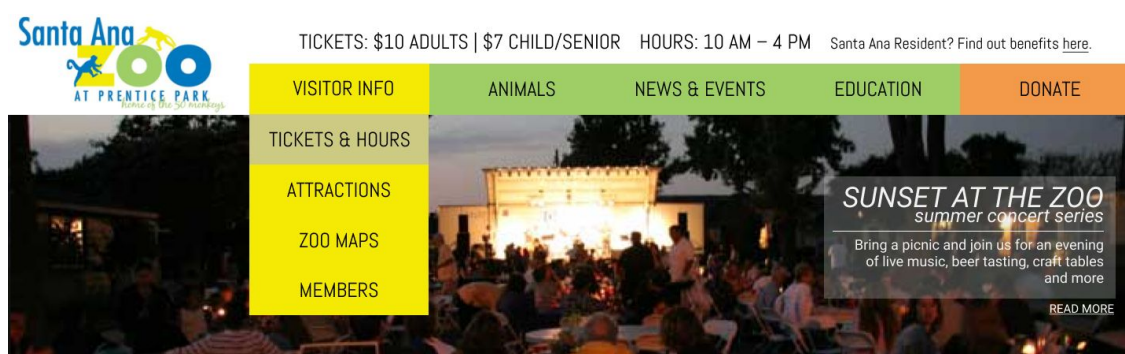
Figure 20. Navigation bar on the final redesign of homepage. Tabs change color when user hovers over the different links.

In addition to changing the main body of the homepage, the navigation bar and its contents have also been improved. The navigation tab changes colors in addition to a drop down menu on hover (*see Figure 20*). Each item of the drop down menu will also change color on hover so that the user can easily see which item they are on.
All previously mentioned changes were made to modernize the site in a way that introduces modern conventions that regular internet users are familiar with.

Improvements

The animal icons under the "Meet the Animals" section may not seem to have user interaction at first glance. For this, we can add in an indicator, such as a "Read More" link as used in the banner. Furthermore, the names of each animal in this section may confuse users who are expecting the name of the species (*see Figure 13*). While this may become an issue, naming the animals in this way is more personable and as a result, the user may be more interested in getting to know more about that animal.

The interaction indicator "Read More" is used both in the banner and in the cards for upcoming events. However, the "Read More" links in upcoming events are not underlined, unlike the links in the banner. This should be standardized because both indicators have the same function of bringing the user to another page to provide more information on an item. Doing so would also maintain consistency throughout the homepage.

While the homepage is now minimalistic and contains distinct sections, the team found that it was too static. To add more movement to the page, the team decided the "50 Monkeys At All Times" image carousel (*see Figure 13*) should also have passive movement at a predetermined time interval in addition to allowing the user to manually browse through the images. Specifically, the image carousel will move without user input.

Animal Directory Redesign Evaluation

Strengths

Our redesign of the "Meet the Animals" page addresses the issues of the lack of clear signifiers and affordances, as well as its inefficient navigation. The animal directory redesign offers clear icons and pictures that are clearly interactive, a map with clear indicators of important locations, and a drop down menu of the animals for easy navigation (*see Figure 17*). This allows the user to identify which areas of the page are interactive and helps reduce the cognitive load of the user by keeping the exhibit or animal that they are looking for selected on the dropdown menu. Separating the page into two distinct sections thus allows a straightforward approach to using the page.

The drop down menu also allows the user to easily find the animal that they are looking for. Regardless of whether the user is selecting the animal, the menu will remain expanded unless the user chooses otherwise (either by collapsing the tab or selecting another exhibit). The changes to the identification of the map is also inline with other popular zoo maps as they are separated by exhibits as well.

All the aforementioned changes help to make the page more intuitive and user friendly.

Improvements

Though the redesign presents clear indicators to signify that the page is interactive, it is still possible that users may not recognize this fact. This could be remedied by adding some text that explicitly states the map is interactive. This text could be added into the title of the page so that it would clearly state "Meet the Animals: an interactive map." Another solution to this problem is adding a text description that explains the page's functionality in a concise manner directly below the page title.

Another problem we encountered is the possibility of a work or cognitive overload on the user's part. If the user would like to look at the animals at a different exhibit, he would have to collapse the menu of the existing exhibit first before viewing the new exhibit. Thus, the user would have to recall the animals in each exhibit he viewed. Users may also find difficulty just searching for a specific animal, as he would have to scroll through all exhibits until the desired animal is found. Thus, we can fix this issue by having the drop down menus collapsable *only* when the user indicates it and implementing a search function for animals.

The layout of the page was designed so that users can easily distinguish and use the page, but we did not factor in that the pages may have too much information on different screen sizes. With the drop down menu showing the exhibits and animals, it may prove too much on a smaller screen. We can fix this by implementing dynamic CSS/HTML practices to ensure that smaller screen sizes do not get overloaded.

Calendar of Events Redesign Evaluation

Strengths

Our redesign of the "Events" page addresses the issues of inefficient information hierarchy due to misplaced signifiers. The events page redesign is a complete overhaul of the previous page, which contained all the information of each event for the year on a single page, separated by seasons. The new design features a very simple but effective calendar, which is very common in modern-day websites. The calendar allows the user to go to any month and view all the events on specific dates, which is an improvement over the current design.

Additionally, the redesigned calendar highlights events using colors, and if clicked or hovered upon, the user will get more information regarding that event. As many modern sites also implement this style of showcasing their events, this redesign will allow both new and returning visitors to efficiently locate events of interest. The redesign also allows the visitor to view future and previous events past a year, which the current iteration of the page does not allow, as it only shows the events of the current year.

The design is also aesthetic and minimalistic, as it only contains the calendar with simple colored bars to signify an event, compared to the previous page which had lots of unnecessary visual noise that distracted users from finding vital information. Overall, the calendar page is as functional and similar to other calendar pages that we have seen and used on other websites. We think this is an effective redesign,as many other successful sites also use the same type of design and functionality.

Improvements

One issue we identified was the potential learning curve a novice user of the page would have. This user might find difficulty navigating through the months, as there are many options. The novice user might not realize that the calendar has a drop down menu to navigate to certain months and will take time to navigate back. There is also no help documentation on how to use the calendar functions, as we felt that the calendar is intuitive enough, and other applications have similar enough features that we assumed the visitor can figure out the calendar.

This leads to our final issue of making assumptions about the user. Although it could be bad to assume the users have some previous experiences with other similar calendar pages, we think that it is an okay assumption to have. Nevertheless, we have ways that novice users can still intuitively figure out how to navigate through the calendar, though they may not know that the on hover/clickable events functionality is there.

7. Conclusion

The objective of our team was to provide a redesign of the SAZOO website interface to allow the users to find vital information more efficiently. After going through all the methods for our project, analyzing the key results, and coming up with our final redesigns, I believe that we have fulfilled our objective. By breaking down the site into 4 usability issues, we were able to:

- Address the lack of informative feedback that caused users to be unsure of their goals
- Change the poor and counterintuitive labeling that would cause inefficient navigation for the users
- Alter the poor choice of colors and text through clean, modern layouts that had a purpose for each color
- Attacking the inefficient browsing problems through fixing the aforementioned usability issues.

By investigating these issues, we finalized our redesigns for our targets through iterations and discussions about necessary changes. Our redesigns has allowed us to:

- Efficiently Locate Information on the Homepage
- Accurately Discover Animals and Exhibits on Animal Directory
- Quickly Find and View Events

With the redesigns, we have reached our objective of allowing the users to quickly and efficiently find out vital information, in a desirable way to our target audience.

8. Appendices

1. Can you give me a little bit about your background?
    a. Age, occupation, schedule (amount of free time?),
2. How comfortable are you with technology?
3. How many hours a day do you spend on the internet?
4. What are you primarily doing during that time?
5. Can you describe a website that you've frequently visited? What makes you go back to that website so often?
    a. Is there anything that you dislike about that website?
6. Can you describe an instance where you felt website design disrupted your web surfing experience?
    a. How would you recommend changes?
    b. How about a website design that enhanced your web surfing experience?
7. (Maybe put at the end?) Show sample website (Knott's). What do you like about this website?
    a. What don't you like about the website?
8. When you want to go to an attraction, do you first visit their website?
    a. What information do you expect to see on the homepage?
    b. How long do you expect to take to find the information you are looking for?
9. How often do you visit attractions such as amusement parks or zoos (in the past year)?
10. Who do you usually go with?
11. Have you ever been to Santa Ana zoo?
    a. If no, have you ever been to a zoo? Which one?
    b. What is the zoo like?
    c. What brought you to visit santa ana zoo?
12. How do you plan for outings (do they do research beforehand)?
13. How do you book reservations for your party when planning an outing?
    a. If they frequent zoos, how do you usually book tickets?
14. Is there anything that you would like to add to this interview?

Appendix B: Statement of Informed Consent

Purpose: We are conducting a study of how people use attraction (amusement park, zoo, museum, etc..) websites. The purpose of this study is to inform the design of such a website. It is not intended to test your individual performance in any way. This study is being conducted as part of a course at the University of California, Irvine, entitled, "Informatics 132: Project in Human Computer Interaction." As such, this is also a training opportunity for us as students.

Procedure: You will be asked to participate in an interview. We will ask you questions about your experiences and opinions. This interview is meant to be a conversation — there are no right or wrong answers. We expect the interview to last approximately 30 minutes. WE will take notes about your responses.

Confidentiality: We will use the data you give us, along with the information we collect from other participants, to design better technologies. To ensure confidentiality, we will not associate your name with your data.

Freedom to Withdraw: Participation in this study is voluntary. You may withdraw from the activity at any time without penalty.

Contact Information: If you have any questions or comments, you may contact us at tjtsao@uci.edu, or you may contact the instructor of the course: Matthew Bietz, Ph.D, mbietz@uci.edu.

If you agree to these terms, indicate your acceptance by signing below:

Signature: _____

Printed Name: _____

Date: _____

Appendix C: Survey Questions

1. What is your age?
2. What is your occupation?
3. How much free time do you have?
4. How comfortable do you feel with technology
5. What kind of devices do you use?
6. How many hours do you spend on the internet on a regular day?
7. What are you primarily doing on the internet during the times you mention above?
8. Which websites would you classify as "good websites"?
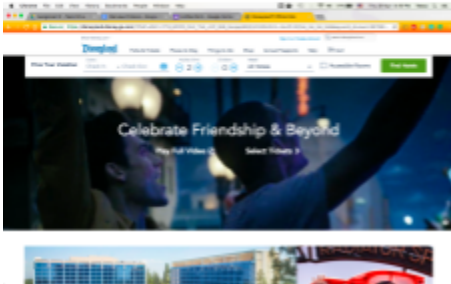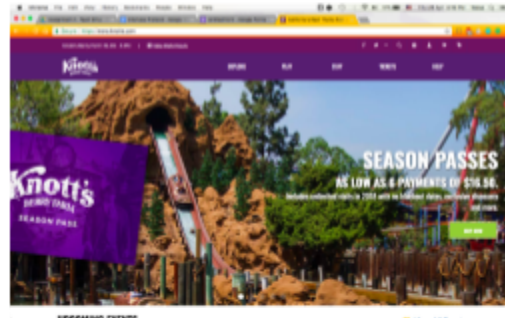
9. Which websites would you classify as "bad websites"?
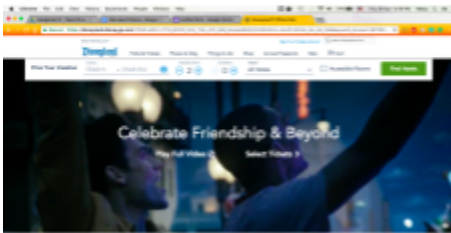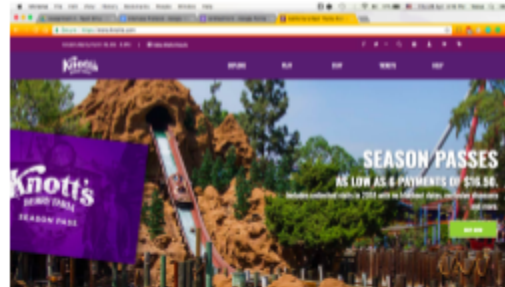
10. Think about a website you use often. What do you like about it?
11. What don't you like about it?
12. How often do you visit attractions such as amusement parks, zoos, etc. in the past year
13. Where would you buy tickets for attractions such as amusement parks, zoos, etc.?
14. Where would you buy tickets for attractions such as amusement parks, zoos, etc.?
15. What kind of information do you want to find on the homepage?

Appendix D: Usability Test Instructions

As an animal conservationist, you love visiting zoos and learning more about endangered species. In order to promote your agenda, you decide to take your mom, dad, and 8-year-old sister to the zoo in Santa Ana, where your family lives. The only available day when everyone in your family is free is May 20, so you decide you will go on that day.

Please visit www.santaanazoo.org on Safari or Internet Explorer to begin planning your trip. In order to make the most of the day, choose the animals you think you and your family would be most interested in, an event that the family could attend that day, and a food place where your family can eat. Also, select a ride at the zoo that your sister would enjoy. Please take note of the estimated total that this trip will cost, as your parents will be paying.

After visiting the zoo, your family has become interested in ocelots, and they want to donate money to specifically support ocelots at the zoo.

Please describe to us aloud as you complete the task, and tell us when you have completed the task.

Appendix E: Post-Usability Test Questionnaire

1. Age
2. What is your occupation?
3. Where are you from?
4. Have you ever been to the Santa Ana Zoo?
5. Have you ever visited the Santa Ana Zoo website before today?
6. The navigation was intuitive (information was where you expected it to be) and informative.
    a. 5 point scale from strongly disagree to strongly agree
7. The layout of the website made it easy for me to find information
    a. 5 point scale from strongly disagree to strongly agree
8. I found the website aesthetically pleasing
    a. 5 point scale from strongly disagree to strongly agree
9. How would you rate the overall test?
    a. 5 point scale from strongly disagree to strongly agree
10. What did you think about the website?
11. What did you think about the overall test?
12. Any additional comments?

Appendix F: Cognitive Walkthrough

1. Book tickets for a music event at the Santa Ana Zoo
   a. News and events tab
   b. Find correct subcategory — Select "Calendar of Events"
   c. Scrolling down to June events
   d. Click on "more info"
   e. Enter quantity of tickets for "General Public" tickets
   f. Press "Purchase"
   g. Fill out purchase information
   h. Press "Summarize order"
   i. Go back to event page
   j. Enter quantity of tickets for "FOSAZ Members Only"
   k. Repeat steps g-h

2. "Make a Donation"
   a. Go to "Support Us" tab
   b. Locate "Make a Donation"
   c. Fill out adoption information
   d. Add to cat
   e. Proceed to cart
   f. Fill out Shipping Information
   g. Fill out payment information

3. Plan a trip to santa ana zoo (collection of information)
      (to satisfy this task, we need to know its open hours, location, ticket price and special event if there is)
   a. Go to the VISITOR INFORMATION tab from the navigation bar
   b. Go to Hours/Admissions
   c. Scroll down to the Zoo Hours section to check its open hours

Appendix G: Individual Heuristic Evaluations

Aiden Ahn's Heuristic Evaluation

Target 1: Efficiently locate information on the homepage

1. Visibility of system status : YES
   - The system gives appropriate information for users action such as clicking any feature on the mainpage.
2. Match between system and the real world : YES
   - The system should speak the users' language and also uses the same language that the Santa Ana Zoo uses.
3. User control and freedom : YES
   - User has freedom to go back to its previous page by the back button, which is supported by its browser, click the Zoo logo to go back to the main page aby time.
4. Consistency and standards : YES
   - The system has enough level of consistency.
5. Error prevention : YES
   - The navigation bar gives the user a choice before gets into the next step.
6. Recognition rather than recall : YES
   - No recall is required for its uses. Everything is displayed
7. Flexibility and efficiency of use : NO
   - There is no shortcut is provided by the website since the system(website) itself is very simple.
8. Aesthetic and minimalist design : YES
   - I would say that there is no dialogues that uses to display irrelevant or rarely used information.
9. Help users recognize, diagnose, and recover from errors : YES
   - There is no error message feature is implemented.
10. Help and documentation : NO
    - There is no help and documentation provided.

Target 2: Accurately discover animals and exhibits on animal directory

1. Visibility of system status : YES
   - The system gives the user an adequate information for his/her action such as displaying its animal list when the user clicks the image on the map.
2. Match between system and the real world : YES
   - The system uses real world languages and the vocabularies that the Santa Ana Zoo uses.

3. User control and freedom : YES

- ○ The default back button, which is supported by its browser, the Santa Ana Zoo logo, or the black-filled-triangles gives the user freedom to go back to its previous stage or to the initial page anytime.
4. Consistency and standards : YES
    - ○ There is lack consistency and standard. The website uses Zoo's own way of designed map and list the animals which can cause a confusion when the first time user uses.
5. Error prevention : NO
    - ○ There is no error prevention feature on the system.
6. Recognition rather than recall : YES
    - ○ No recall is required for its uses. Everything is displayed
7. Flexibility and efficiency of use : NO
    - ○ There is no shortcut is provided by the website since the system(website) itself is very simple.
8. Aesthetic and minimalist design : YES
    - ○ There is no dialogues that uses to display irrelevant or rarely used information.
9. Help users recognize, diagnose, and recover from errors : NO
    - ○ There is no error message on the system.
10. Help and documentation : NO
    - ○ There is no help and documentation provided.

Target 3: Quickly find and view events

1. Visibility of system status : YES
    - ○ The system lets the user be informed for his/her actions such when clicking dates on the calendar. As the user clicks, there will be a pop-up shown for its result.
2. Match between system and the real world : YES
    - ○ The system uses real world languages.
3. User control and freedom : YES
    - ○ The default back button, which is supported by its browser, the Santa Ana Zoo logo, or the black-filled-triangles gives the user freedom to go back to its previous stage or to the initial page anytime.
4. Consistency and standards : YES
    - ○ The system uses the standard, typical image of calendar and uses the common language to avoid confusion.
5. Error prevention : YES
    - ○ There is an error prevention for displaying its detailed information when the users clicks the date on the calendar. So the "More information" is a confirmation before gets into its detailed event information.

6. Recognition rather than recall : YES
    ○ There is no such thing to memorize. Every feature is displaying.
7. Flexibility and efficiency of use : NO
    ○ Since the system(website) is very simple, there is no shortcut that the user can make on the website.
8. Aesthetic and minimalist design : YES
    ○ There is no dialogues that uses to display irrelevant or rarely used information.
9. Help users recognize, diagnose, and recover from errors : NO
    ○ There is no error message on the system.
10. Help and documentation : NO
    ○ There is no help and documentation provided.

Jason Chen's Heuristic Evaluation

Target 1: Efficiently locate information on the homepage

1. Visibility of system status
    ○ There are elements that do not seem interactive (event cards, animals)
    ○ Tabs can be seen with dropdown menu and different colors
    ○ Read more option shows more information on different page
2. Match between system and the real world
    ○ Homepage has a certain order it is supposed to be read, as we have the text located in such a way that you can read from top and the left to the bottom and right.
    ○ Pictures are related to real life animals
3. User control and freedom
    ○ Users can always go back to homepage by clicking on the logo
    ○ User has no control over the slideshow of monkeys, might cause issues on slower computers
    ○ There is the navigation bar that follows the user so they can go to any page
4. Consistency and standards
    ○ Layout of each item is consistent spacing
    ○ Navigation bar always follows the user as they scroll
    ○ Navigation items always lead to a drop down menu, except donate which is separate
5. Error prevention
    ○ User can always use the navigation bar to get back to where they were
    ○ User can also click the logo to go back to homepage
6. Recognition rather than recall

- ○ If users are inside of a page, they have to remember where they are currently navigating from
7. Flexibility and efficiency of use
   - ○ The site follows normal, modern site conventions in terms of layout so it is not difficult for regular internet users
   - ○ Layout and use of navigation is consistent throughout the site so novice users can become experts quickly.
8. Aesthetic and minimalist design
   - ○ Use of whitespace creates space between elements that are not related
   - ○ Color choices are consistent and effective when used
   - ○ Maybe the slideshow conflicts with minimalist design?
9. Help users recognize, diagnose, and recover from errors
   - ○ N/A?
10. Help and documentation
    - ○ N/A?

Target 2: Accurately discover animals and exhibits on animal directory

1. Visibility of system status
   - ○ Icons will enlarge on hover
   - ○ Users may think the image of the map is static
2. Match between system and the real world
   - ○ Users can imagine themselves in the map if they have been to zoo before
   - ○ New users might have difficulty understanding the boundaries of each region on map
3. User control and freedom
   - ○ User can user animal directory or map to get information they want
4. Consistency and standards
   - ○ Layout is consistent even when actions are done on the page
   - ○ Map will always remain while icons may be enlarged
5. Error prevention
   - ○ Users can stop hovering or click on the animal directory to switch or change their previous action
6. Recognition rather than recall
   - ○ Users may have to remember the animals when hovering over icon
   - ○ Users will also have to remember where the animals are located on the directory if it is in between a lot
   - ○ FInding the location of the animal can be difficult if the user forgets the exhibit location
7. Flexibility and efficiency of use
   - ○ Not as efficient if the user wants to find a specific animal deep inside the directory

- ○ Flexible in how it is used, might be slower on older computers
8. Aesthetic and minimalist design
    - ○ Only contains the two big interactive elements
    - ○ The size of selected icons may have to be changed in order to still see the map or to not look bad on the page.
9. Help users recognize, diagnose, and recover from errors
    - ○ Users will have to have some semblance of what they want to look for, they may take time if there is an error
    - ○ Users can do different actions to undo their previous action
10. Help and documentation
    - ○ The page is made to be sort of intuitive, might be better if there was more text regarding on how to use the page somewhere.

Target 3: Quickly find and view events

1. Visibility of system status
    - ○ Events are a different color from the rest of the page
    - ○ Users may not immediately think that elements are hoverable, or that a box comes out of clicking on it
2. Match between system and the real world
    - ○ Calendar is like any other calendar, with standard months and days.
    - ○ Might need to change based on international standards?
3. User control and freedom
    - ○ Users can go to any specific time frame, no matter how far and back.
4. Consistency and standards
    - ○ Calendar items are all consistent in terms of color and interaction
    - ○ Layout is similar for each time frame or month
5. Error prevention
    - ○ User will have to use arrows or drop-down menu if they navigate to the wrong time frame.
6. Recognition rather than recall
    - ○ Users will have to remember which event they are looking for, and if it is a longer time ago, they may forget specific dates or times during the search.
7. Flexibility and efficiency of use
    - ○ Novice users will use the arrows and might not know the elements are interactable
    - ○ Expert users will use drop-down menu and recognize that each element has interactable elements.
8. Aesthetic and minimalist design
    - ○ Only calendar is on the page
    - ○ No distracting visual noise (colors or excess lines) that distracts the user from specific elements

9. Help users recognize, diagnose, and recover from errors
   ○ If users go on the wrong month, they can use arrows or drop-down to find the right one
10. Help and documentation
    ○ There is no documentation on how to use the page, not sure if it is needed for semi internet experts
    ○ We could have some text at the top to help explain the intractability of the elements.

Winona Lisuallo's Heuristic Evaluation

Target 1: Efficiently locate information on the homepage

1. Visibility of system status
   ○ hovering leads to colour change and a drop-down menu appearing → signals current selection and paths user can take
   ○ clickable links are always underlined, follows norm of having hyperlinks underlined
   ○ fading image on monkey reel with arrows shows how pictures can change, but no feedback on how many pictures are in the image wheel/carousel
   ○ meet the animals doesn't really showcase whether it's clickable or not; are simply images at the bottom
     ■ we also didn't really discuss what feedback happens if we clicked it or not → must revisit this module later
2. Match between system and the real world
   ○ the system uses real world language and common phrases, so it is completely understandable
3. User control and freedom
   ○ there is no specific undo button, but because the navigation is fixed regardless of where the user goes on the website, they can simply interact with the navigation bar again or click on the logo to return to the homepage
4. Consistency and standards
   ○ underlined links always lead to a relevant topic → keywords: here, read more
   ○ orange button distinguishes how "donate" is different from the rest of the navigation tabs
   ○ all drop-down menus have similar colour schemes to showcase that they are drop-down menus

- - ○ titles are always at the top of a section in a distinguishable font (whether in all caps or a customised font/colour)
    - ○ both navigation bar and donation button captures user's goals
      - ■ navigation bar → *what do i want to find?* → written in nouns
      - ■ donation button → *how do i donate?* → written using a verb (donate)

5. Error prevention
   - ○ which page the user is going on next when interacting with the drop-down menu in the navigation bar is highlighted using a darker colour → prevents user from selecting the wrong one
   - ○ upcoming events are not clickable; if user wants to know more about the event, they have to actually click *read more* → prevents user from accidentally clicking on an event and having to go back

6. Recognition rather than recall
   - ○ while moving through the navigation bar users would have to remember the different options in the drop-down menu if they go to another tab

7. Flexibility and efficiency of use
   - ○ homepage highlights most important features that novice users would most likely be interested in → allows ease of use
   - ○ navigation bar also organises information for easy finding for novice users
     - ■ more experienced users would already know where the pages are and which links would direct them where so they would most likely rely on memorisation (e.g. go to this tab then click this link to find this info)

8. Aesthetic and minimalist design
   - ○ only the most important information is displayed, and whatever is extra is given as a read more link
   - ○ utilises lots of white space to show clear separation of information

9. Help users recognize, diagnose, and recover from errors
   - ○ there is no real error message when user performs an error

10. Help and documentation
    - ○ a contact us link is provided at the bottom; other than that, there is no documentation that helps users with website navigation

Target 2: Accurate discover animals and exhibits on animal directory

1. Visibility of system status

- ○ when user is hovering over an exhibit, the exhibit picture will light up accordingly → lets user know what is currently being selected
- ○ clicking on an exhibit will cause the list to drop down according to the exhibit → let's user know what has been selected
    - ■ the drop down menu also changes colour to blue to highlight it even more

2. Match between system and the real world
    - ○ there isn't much language on the page other than the names of the existing exhibits, which the user can match from the map and onto the list
3. User control and freedom
    - ○ user can simply click on the little up arrow button to undo the drop-down action
4. Consistency and standards
    - ○ all drop-down menus in the list has little arrows that follows the norm that shows what drop-down menus look like
    - ○ hovering → highlight/change of colour, similar to navigation bar
5. Error prevention
    - ○ when user is interacting with the map, the exhibition picture will light up first to let users know what they are about to select
6. Recognition rather than recall
    - ○ use of pictures and exhibit name to clearly show what kind of animals they can expect in that specific exhibit → less memorisation on user's part
    - ○ all exhibits are directly accessible without having the user to scroll through the list → interacting with the map = interacting with the list
    - ○ however users would have to remember what animals were in the last exhibition they looked at were they to look at a different exhibition (e.g. user looked at amazon's edge first then tropical rainforest → have to remember what animals are at amazon's edge)
7. Flexibility and efficiency of use
    - ○ icons on map allows both novice and expert users to accelerate through list
8. Aesthetic and minimalist design
    - ○ list uses icons and names → minimalistic design
    - ○ use of icons to declutter map also adds to minimalism
9. Help users recognize, diagnose, and recover from errors
    - ○ there is no explicit error message that allows user to recognise their action caused an error, but users can see if they clicked on something they're not supposed to (e.g. the wrong exhibition) the list will also showcase that
10. Help and documentation

        ○   there is no explicit documentation that the user can access to understand how to navigate through the page

Target 3: Quickly find and view events

1. Visibility of system status
    - pop-up box on hover over a calendar date is pretty standard, but users might not understand how to interact with calendar at first
    - users will not understand that clicking down will cause pop-up box to stay
    - events are clearly marked in colour on date it occurs

2. Match between system and the real world
    - calendar looks like a regular calendar that one would use in the real world
    - it's lacking days of the weeks, though, so that must be changed
3. User control and freedom
    - there are easy to find forward and backward dates in case users are looking at the wrong month, plus a drop down menu that allows users to filter through months
    - if a user accidentally clicks down and causes the pop-up box to stay, there is no clear undo button that will allow them to fix their error
4. Consistency and standards
    - left/right arrows follow standard convention of moving backward/forward, while the down button follows standard convention for a drop-down menu
    - hover on calendar date is also a standard convention, but clicking to keep pop-up box there isn't
    - read more link consistent with other links on homepage, except for the fact that it isn't underlined (so far all redirect links are underlined)
5. Error prevention
    - there isn't a way to prevent the user from accidentally clicking on the date to keep the pop-up info (no explanation that they can do that)
    - calendar will always start with current month so user doesn't have to find it
6. Recognition rather than recall
    - clicking down and causing pop-ups to say lessens recall because users can look at multiple events at once without having to memorise them
7. Flexibility and efficiency of use
    - the drop-down menu allows expert users to navigate to a selected month choice

- - all users can use the left/right arrows to go through the different months
8. Aesthetic and minimalist design
    - the calendar is mostly empty except for the different little blocks of colour that showcases an event
    - keeps things clean and organised
    - pop up windows also only contains most important info
9. Help users recognize, diagnose, and recover from errors
    - there is no real error message to tell user they've committed an error
10. Help and documentation
    - there is no documentation that tells user how to interact with the page

Tessa Tsao's Heuristic Evaluation

Target 1: Efficiently locate information on the homepage

1. Visibility of system status
    - Interactions with tabs visible through dropdown menu and color change
    - Read more was used to indicate more information on another page
    - Event cards may not seem interactable
    - Meet the animals may not seem interactable
2. Match between system and the real world
    - Navigation tabs use language english users are familiar with
    - Events occur in chronological order
    - Homepage is meant to be read top → down, left → right
3. User control and freedom
    - The navigation bar will remain constant on all pages, serves as hub of navigation?
    - Users can always go back to the homepage via clicking on the logo
    - 50 monkey at all times image carousel lets users go left and right between images
    - Users can navigate using navigation bar, or objects present on the homepage?
4. Consistency and standards
    - Navigation bar is standard, and works in a way that users expect
    - Arrows indicate direction of browsing on image carousel
5. Error prevention
    - Navigation tabs have drop-down menu that display the pages under them, allows users to explore w/o going to a different page
6. Recognition rather than recall

- ○ Users have to remember the drop-down menu options of previous navigation tab if they hover over another tab
7. Flexibility and efficiency of use
    - ○ Users familiar with the website may use the navigations to go directly to a specific page, while novice users can use the navigation tabs as a means to explore the site
    - ○ Novice users can also explore the most important parts of the website through homepage components like upcoming events
8. Aesthetic and minimalist design
    - ○ The homepage only features components that we thought were most important for users
    - ○ There is a possibility that there is too little.
    - ○ Whitespace provides clean, and obvious separation between elements on the homepage.
9. Help users recognize, diagnose, and recover from errors
    - ○ Error would consist of going to the wrong page → pages are clearly labelled and user will recognize that they're on the wrong page
    - ○ Other errors (system errors) are outside the scope of this design
10. Help and documentation
    - ○ No help and documentation

Target 2: Accurately discover animals and exhibits on animal directory

1. Visibility of system status
    - ○ Exhibit icons will enlarge when hovered over
    - ○ Users may not realize the map is interable upon first glance
    - ○ Expanded exhibit tabs are different colors
2. Match between system and the real world
    - ○ Everything is in common english language
    - ○ First-time users may not realize the categories are each of the zoo's exhibits
3. User control and freedom
    - ○ Users can either use the animal directory to select exhibits, or click on the exhibit icons on the map
4. Consistency and standards
    - ○ The drop-down arrows are a standard indicator of expanding menus
    - ○ Plus sign might have been a better indicator
    - ○ Interactive maps have become more common, but the user may not realize the map is interactive.
    - ○ It is clear that the map, is a map.
5. Error prevention

- ○ Selected exhibits are clearly highlighted on the map → enlarged icon w/ highlights and in the directory → background color and font color change

6. Recognition rather than recall
   - ○ The icons allow users to use recognition over recall (this can be limiting)
   - ○ For the most part, there is a lot of text, so if users are trying to find a specific exhibit, they may need to recall the name.
   - ○ If the user were trying to locate a specific animal, they would have to remember which exhibit it was in.

7. Flexibility and efficiency of use
   - ○ No feature for expert users (ex. Users who know the name of a specific animal they want to find)

8. Aesthetic and minimalist design
   - ○ The page only includes two elements. Both elements take up considerable space, making it clear to the user that these are the only two points of interaction.
   - ○ Depending on the size of the screen, the elements may take up too much space and the user may experience information overload

9. Help users recognize, diagnose, and recover from errors
   - ○ If the user clicked on something that wasn't an exhibit icon or exhibit option, there would be no feedback. Users may not recognize that the area they have clicked on is not a valid interaction point

10. Help and documentation
    - ○ There is currently no help or documentation provided, if implemented, it may help users to better interact with the map

Target 3: Quickly find and view events

1. Visibility of system status
   - ○ An information box will appear if the user hovers or clicks on the event
   - ○ Events are highlighted in green to catch the user's attention/indicate interaction
   - ○ Users may not recognize points of interaction (hover)

2. Match between system and the real world
   - ○ Calendar is identical to physical calendar
   - ○ Months and weekdays (cries) are month all standard english terms

3. User control and freedom
   - ○ User can choose go to a previous month or the next month
   - ○ Not many points of interaction with the calendar

4. Consistency and standards
   - ○ Calendar is a standard calendar
   - ○ Arrows indicate which direction the user wants to navigate

5. Error prevention
    ○ The month is displayed clearly at the top of the page → users are unlikely to think that they're on the wrong month
6. Recognition rather than recall
    ○ Currently, there is no way to search for an event. If the user wanted to revisit a specific event, they would need to remember the date of the event (the current calendar is strictly for browsing, not search)
    ○ Users may have to recall what the next month is when navigating between months
7. Flexibility and efficiency of use
    ○ Expert users can use the drop-down menu to quickly go to a specific month
    ○ Notice users can use the arrows to navigate between months
8. Aesthetic and minimalist design
    ○ The calendar is the only element on the page
    ○ There are no colors besides the events that are highlighted in green
9. Help users recognize, diagnose, and recover from errors
    ○ If users go to the wrong month, they can clearly see what month they're currently on clearly
10. Help and documentation
    ○ There is currently no help or documentation

9. Glossary

cognitive walkthrough
A usability evaluation method in which one or more evaluators work through a series of tasks and ask a set of questions from the perspective of the user. The focus of the cognitive walkthrough is on understanding the system's learnability for new or infrequent users.

high-fidelity mockup
A computer-based representation of the product in its closest resemblance to the final design in terms of details and functionality.

homepage
A web page set as the default or start-up page on a browser.

information overload
Exposure to or provision of too much information or data

interface
A point where two systems, subjects, organizations, etc., meet and interact.

SAZOO
Santa Ana Zoo

usability test
Evaluating a product or service by testing it with representative users.

users
A person who uses or operates something, especially a computer or other machine.