Overview

This paper will discuss the details about my senior project, specifically, the problem at hand and how I solved it, specifically, usability evaluation, design, implementation, and testing. Although my senior project is technically soon to be over there is still some work that can be done in order to make the project more easily usable and practicable for my client.

Introduction

When I decided to develop a website for photographers I went around and spoke to a few different photographers that I knew so that I could get an idea of how their business's work and get an understanding of their work flow. I also discussed challenges that they often have as well as ways that we could make those challenges not so challenging, which I will discuss in the solution section of this paper.

My motivation for doing this project came from a desire to learn web development and be able to actually implement something that could help photographers manage their clients as well as display their work. I have received an excellent education from Cal Poly but there is one area that I felt that I was not proficient at, which was web development. I have not been able to take any classes in this area as Cal Poly does not offer any on a regular bases. From doing this project I feel that I am now a well rounded computer science student and I feel that this experience will help me in the future.

Problem statement

The problem that I discovered from photographers were all similar and they included both the client and the professional photographer. When a client hires a professional photographer for a special event or just for a family portrait it could take a long time before the photographer edits all of the photographs and schedules a meeting to order prints. Also, clients have busy schedules and it can be inconvenient and difficult to set time out of the day to meet with the photographer after a shoot to view their photos.

Another problem that clients have is the short time period that they have to choose from many photos. They know that the photographer's time is valuable and don't want to stay in their office for a long period of time examining each and every photos to determine which one is the best. Some feel pressured to make fast decision and then they don't pick the photo that they wished they did.

For the professional photographer the problem lies with a way to display your work and managing all of your clients. My client receives a lot of calls each week from old clients who want to know if their photos from previous photo sessions are still available or would like to view prior photo sessions to order more prints. This can be time consuming and prevent the photographer from making money on new clients.
The main problem is that the clients do not have direct access to their photos, which leads to a client-photographer dependency. The only way for a client to view their photos is to make an appointment and go to the photography studio and go through each photo with the photographer, if the photographer still has copies of their photo session in the first place.

Solution

I believe that I have provided a solution to the problem mentioned above in the previous section. I have developed a web site that will give power to the client and at the same time take some workload off of the photographer. This website provides information about the the photographer, display's the photographer's work, and allows the clients to login to see all of their previous photo sessions and photos.

Implementation

I used the basic waterfall software development process to for this solution with a few added steps which included a prototype and usability evaluation.

Requirements

I had many meetings with my client through out this project. My client does not have very much experience working with technology and did not how to express the requirements. It was a challenge because they often changed requirements and I had to deal with a little feature creep. It was a very good experience for me to learn how to get good requirements, I learned a lot from my mistakes as well as how to help the customer tell me what they wanted or needed. I got better at this through out the project.

Prototype

The prototype was a huge help for me in determining what my client really wanted for their website. After our first couple of meetings I had an idea of what they wanted so I put together a simple prototype of how I thought the website would be like. When I presented the prototype I found out that there were many things that needed to change, so the extra time the prototype took to make ended up saving me time in the long run.

Usability Evaluation

I conducted a usability evaluation to ensure that I was not going to design the user interface poorly. I wanted the clients to be able to find what they are looking for quickly and efficiently without getting frustrated or annoyed with anything. I did this by making a questionnaire to get a feel for what other photographer website were doing and seeing if people in general liked some of their features or didn't like them. This usability evaluation answered some of our questions that we were unsure about during the initial prototype. For example we were unsure on how to display the photos for each gallery as well as for the clients photos. We were thinking about doing a flash sideshow for each but from the usability evaluation we found out that there were a lot of people who liked sideshows but there were almost as many people who would rather have the images laid out across the screen, so we decided to mix the two. We
had a sideshow on the home page and for the rest of the galleries we laid the images down the screen.

**Design**
In order to make the work flow correct and efficient, I developed a basic flow chart or design of the entire system that included every page in the entire website. This helped my client and myself understand the features of the website. See Figure 1 below.

![Design Diagram](image-url)

**Figure 1**
**Implementation**

There are two major goals of this website. The first is displaying the photographer's work and information. The second is to give clients control over their photos. Both goals involved CSS, and html, but in order to build the client login functionality into the website I had to make some content dynamic which required php.

First, I will talk about how I implemented the look and feel of the website, then I will talk about how I implemented the client login and other dynamic content.

**Look and Feel**

The main website is broken up into divs which contain the styling for each section of the page. I implemented each page to have the basic set up listed in Figure 2 below.

![Figure 2](image)

Figure 2 is the template. The only thing that changes from page to page is the content. Although each div in the template might change based on if the user is logged in or not. If the user is currently logged in than the Client-Login div will display will say “Hello <username>” instead of showing the login form and the menu_bar div will display an extra “client” tab which allows access to their account.

The menu_bar div is one of the most complex divs: it involves many divs and CSS properties in order to make it change color on a mouse hover and to make the drop down box appear. An example of the html using the CSS menu div is listed below in Figure 3.
The CSS is quite long for the menu but the basic idea is that it takes the image in Figure 4 and repeats it horizontally across the entire div to form the background.

The text in each of the top links are displayed on-top of the background created from Figure 4. When the mouse is hovering over the top link it is replaced with the an image which is shown in Figure 5 below, the link text is changed to the color black and is also visible through the button.

Client Login Implementation
The client login functionality of the website uses PHP and has 3 databases tables. The PHP is used to dynamically change the content of the content div based on the current user logged in. The 3 table names are and fields are listed in Figure 6 below.
When a client logged into the system I just check the All_Clients table to see if I can find their Username. If I did then I load their ID into the session and load the Client Home page, if the Username could not be found I load the account not found page where they can try again.

When a client clicks the session link from the client tab on the menu bar I use the ID that was loaded into the session and query the Sessions table to extract all of the sessions that are associated with the ID. I dynamically display these sessions as links for the client to click on. When the client clicks on one of the session links I append the session that was selected into the URL and load the ViewSessions page where I parse the URL and obtain the session selected.

To dynamically load the photos from that specific session I query the photos table to find all of the photos that are associated with the ID (from session) and the current session (from URL). I then display each photo returned. To display the photos I create two divs one with a left float and the other with a right float and I put them inside the content div. This allows the photos to be displayed in two columns as lists.

If the client clicks on the View All Photos link from the client tab I simply query the photos table with the ID (from session) and return all of the photos associated with that ID no matter what the session is.

**Verification**

In order to see if I was getting the results that I should be getting I used a 2 basic forms of testing methods. The easiest and fastest testing method was just to an adhoc testing method where I clicked on every link on every page and I compare the results with what should be happening. The problem with this testing method is if I made one change I would have to manually go through and test it to see if I broke anything else. Another testing method I used was to print out all of the session variable and their values to make sure that the session was being cleared upon logout and filled correctly as the client went through the website.
**Maintenance**

The maintenance for this website will be very time consuming as it is built right now. The only way to add new clients, photos, and sessions is to manually go in and edit the tables then add the photos making sure that the paths in the photos table match the actual path of the photo. In order to change the pages for each of the galleries it would require direct html/php manipulation. I will discuss a solution to these problems in future work.

**Validation and evaluation:** Description of experiments, or a demonstration of the system developed, to indicate that the work done in the thesis solves the problem formulated in the earlier statement. This depends on the nature and topic of the thesis, and may include performance measurements, or comparisons against similar systems.

The website as it is now, solves the problem as mentioned above according to my client. There are more features that my client would like to include in the future that would be even more helpful to both clients and the photographer.

**Project contributions**

The website was written entirely by me except for the flash programming for the slide-show. The slide uses another php file which I did write by myself. This php file tells the flash slide-show what photos to include in the slide-show, the transitions between each slide, and what background color to use behind each photo.

Before this project I did not have very much experience with html, CSS, and php so I spent a lot of time going through tutorials about CSS and php. Another source of information that I took advantage of was the Zen Gardens website [http://www.csszengarden.com/]. This website shows the power of CSS and I used it as an example of how to integrate html/php with CSS.

**Future work**

Throughout the development process I have had many new ideas and features that I would like to implement. These features would give me good experience as well as improve the functionality of the website greatly, thus making the lives of the clients and photographer easier. These feature include:

- **Photographer's User Interface:** This could either be an account that the photographer uses to login into the website which will allow the photographer to add and remove content in the website. This tool would allow the photographer to basically do all of the maintenance on the website with out having to have the web developer constantly updating photos, adding accounts, adding photos, adding sessions, and adding or removing clients. This tool would allow the photographer to do all of these things with out having to touch any code.
• **Ordering/Automatic payment control**: Having a photo ordering system with automatic payment would be a huge time saver for both photographer and client. Another advantage for the photographer would be the ability to generate more money some time after a photo session because since clients would have access to all of their old sessions and photos they would be more likely to order old photos.

• **Calendar/Appointment scheduler**: Including a calendar of the photographer's available time slots for sessions and the ability for clients to add appointments within the calendar would also save some administrative time as well as keep the photographer organized.

• **Email Notification System**: It would be nice to allow the photographer to send out a message to all of her clients about a deal or some kind of special offer or other notification. This could be done by using an SMTP server so that you could send out mass emails. Emails would also be useful in reminding clients about an upcoming appointment or for giving receipts if the ordering component is implemented.

• **Client Privacy Controls**: This feature would be nice if clients wanted specific other clients to be able to see one of their sessions or a specific photo(s). Clients would be able to control who could see their content. Either the world, only certain other users, or nobody except themselves. This would be very helpful if a client wanted to get the opinion of others without giving their username/password away.

**Conclusions**

This project has been invaluable to me. I have learned so much about software processes, requirement gathering, usability, design, implementation, maintenance, and testing. I have rarely had this experience as a student in developing software that actually gets used and is not just for an assignment that you forget about as soon as you get it working! It is a rewarding experience.