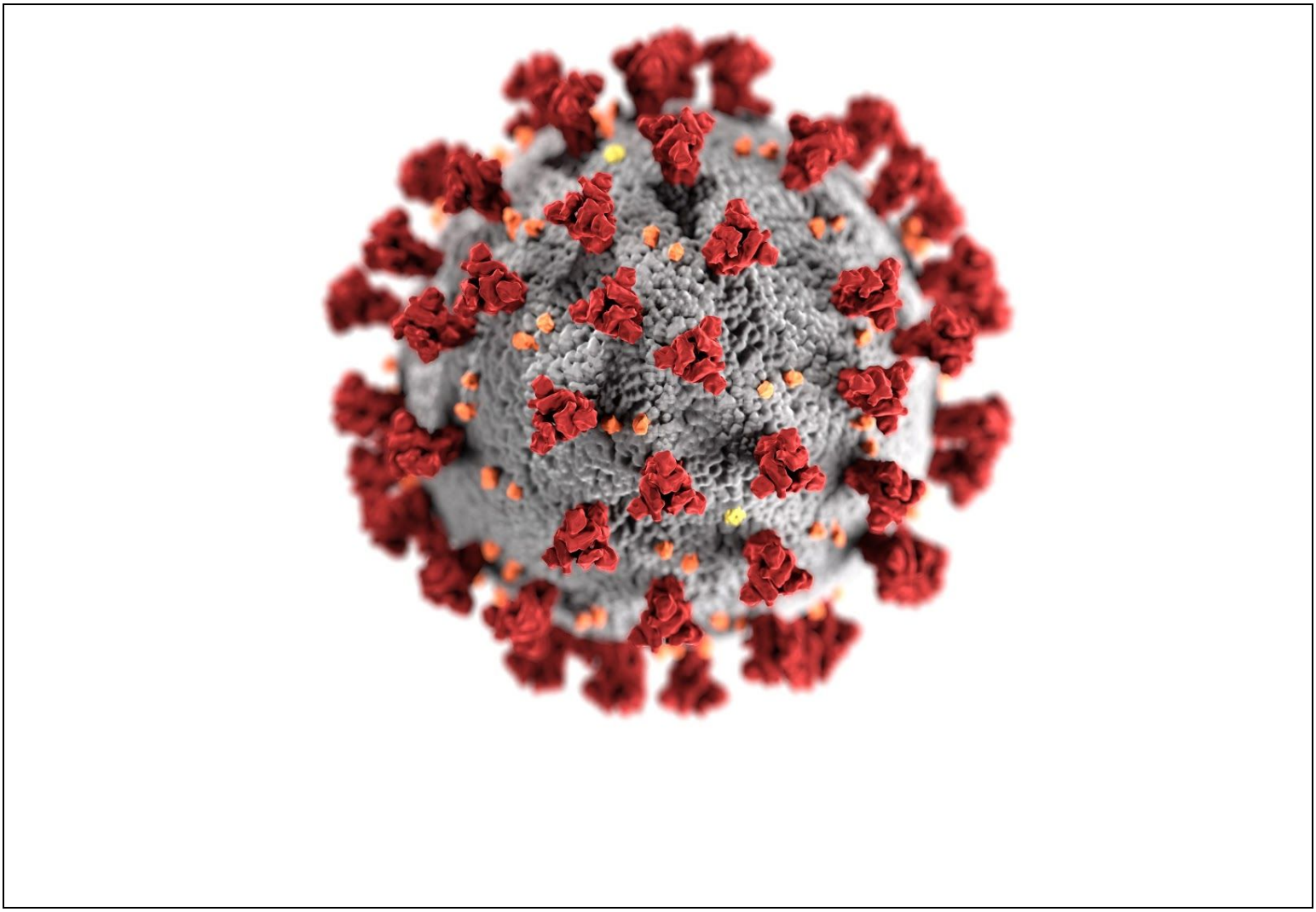


4/1/2020

Due to the Covid19 pandemic the project faced several setbacks. After multiple changes the decision was made to stick with one platform (WordPress). While several parts of this document references multiple platforms, the rest were dropped mid-project. The final two deliverables will be focused on this single platform with documentation based on creating a tutorial on how to create a WordPress website.

Develop a National Drug Court Resource Center

National Drug Court Resource Center

Report #1 "Software Project Plan Document" Outline
Report #2 “Software Requirements Specification”
Delivery #3 - "Software Design Specification Document" Outline
Delivery #4 & #5 - “Test Plan”, Final Product

Team Freakout
Anna Gallagher, Dylan Grafius, Amber Kurker, Kenneth Mcmillan, Jeremy Thomas

Table of Contents

Introduction

Purpose

This Software Project Plan provides the framework and establishes specific strategies as well as software used in the execution of the development of a National Drug Court Resource Center.

Stakeholders Stated Problem

The current NDCRC.org was inherited from another university. The current layout and design is less than favorable. The site should be intuitive and easy to use. While some functionality aspects of the current site need to remain, there should be space to add more functions during development and post-development. The site should be built from the ground up with an emphasis on the presentation and ease of usage. A dedicated web developer will be assigned to the website for updating and maintenance once the site is complete. While Wordpress is the current platform for the site, the project team is tasked with researching and providing several different options for the stakeholders to pick from. The choice that the stakeholders make will determine what platform the team will use to create the website.

Stakeholders Requirements

The stakeholders require that the current NDCRC logo, along with a provided UNCW logo to be placed on the site. The current interactive map, or a version of the map, must remain on the site. The disclaimer at the bottom of the site must remain, with the addition of the grant number to be supplied at a later date.

Team Objectives

To provide a website that is intuitive and easy to use that will replace the current NDCRC website. The new website should adhere to web design standards while following web design best practices. A platform should be chosen that a single web developer can maintain and update while not being too simple as to lose some of the freedom to make changes as needed. The project team will collaborate with the assigned graphic design personnel for color, font and logo choices.

Project Resources

People

Students

- Kenneth Mcmillan
- Amber Kurker
- Dylan Grafius
- Jeremy Thomas
- Anna Gallagher

Faculty

- Dr. Ron Vetter
- Dr. Kristen DeVall
- Dr. Christina Lanier
- Dr. Jeanne Persuit
- Dr. Sally MacKain
- Graphics Designer - Ben

Hardware

Personal Computers

Software

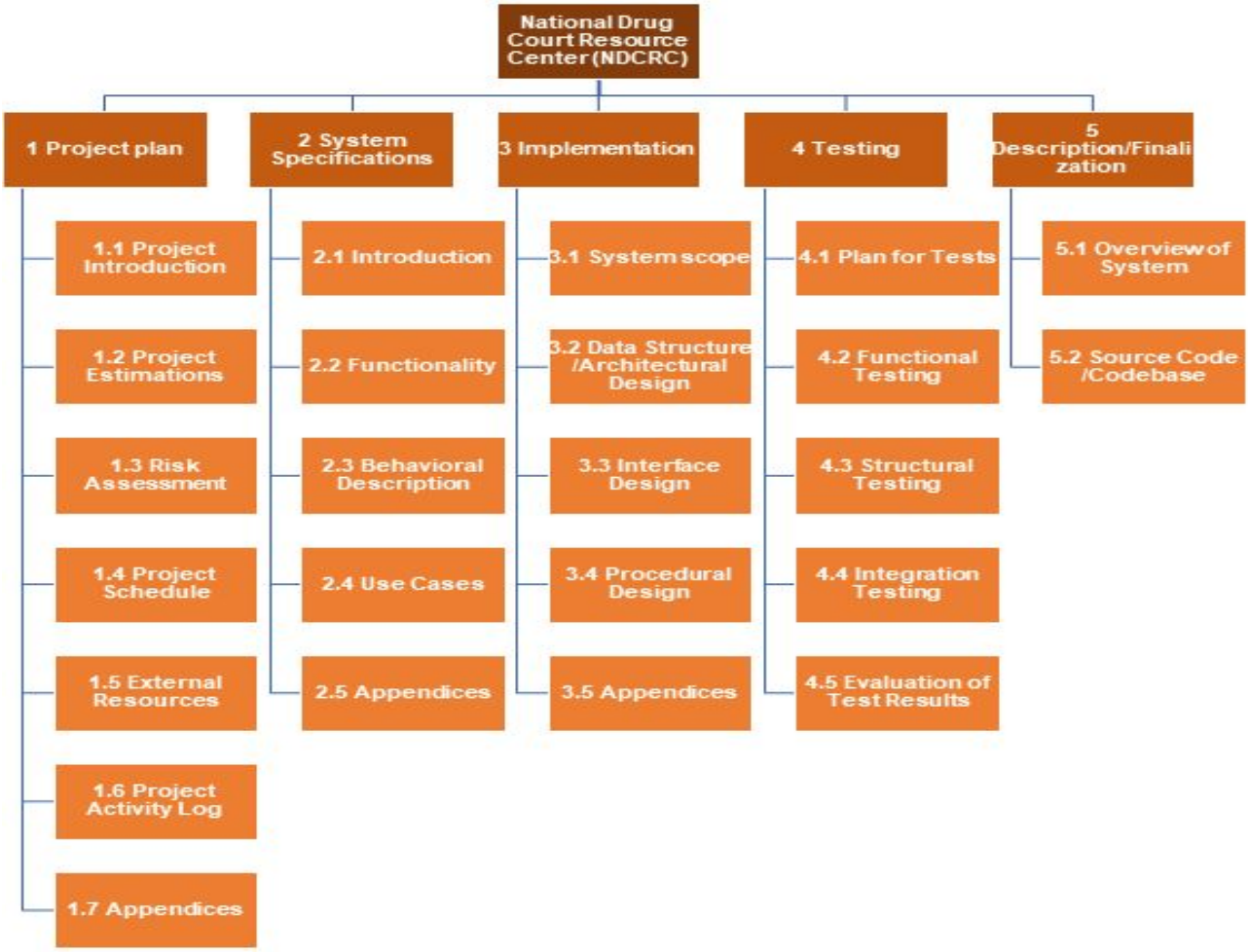
- Wordpress (current)
  - Adobe DreamWeaver
  - Wix
  - SimpleSite
  - Site123
  - B12
  - Django
- Trello (Task Management)
- Google Docs (File Management)
- GroupMe (General Communication)
- GitHub
- Youtube (Videos from specific channel linked through the site)

Risk Assessment

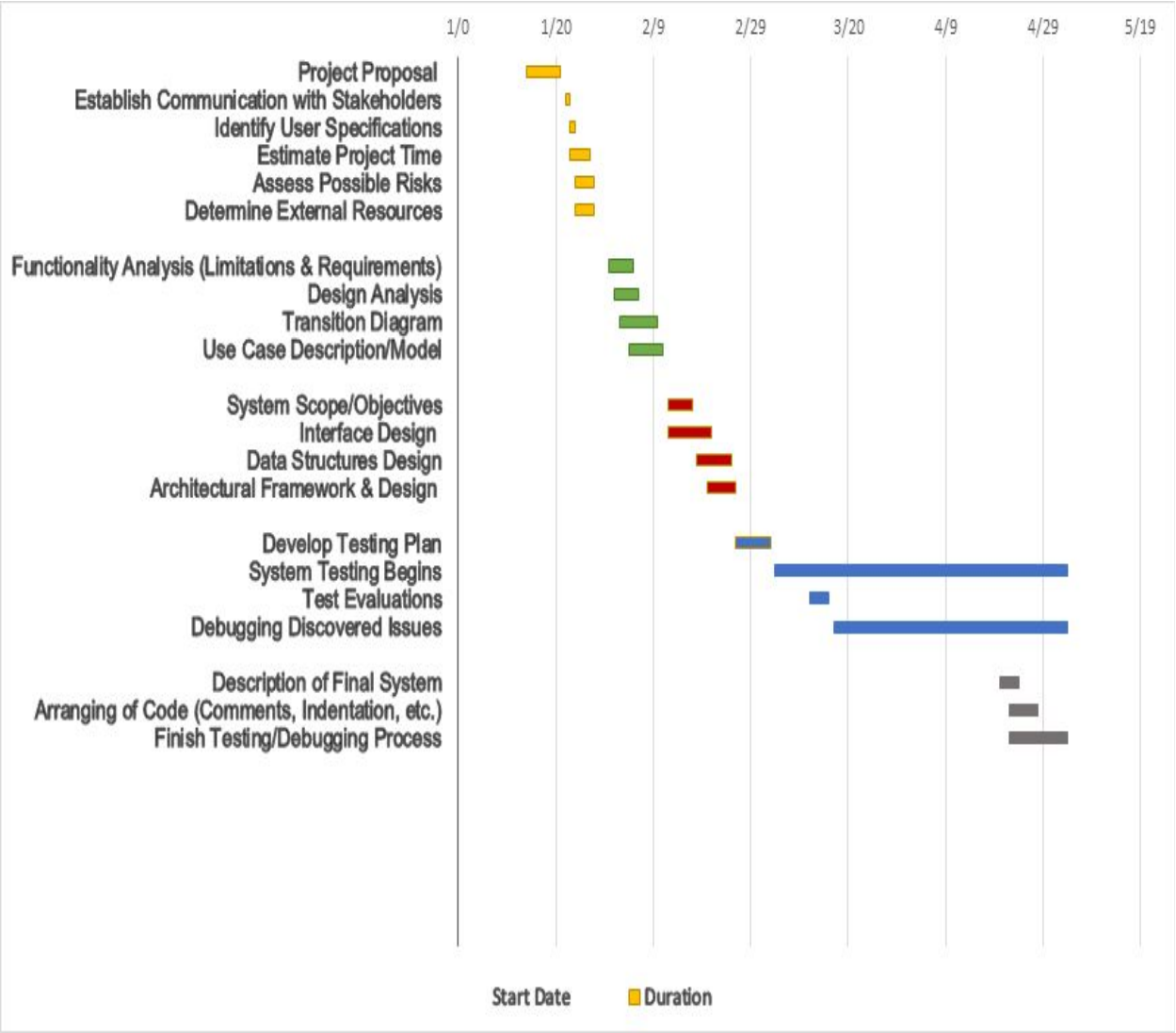
Risk		Probability	Impact	Risk Rating	Action
Scheduling					
Personal schedule conflicts	Team members are students and schedules will differ.	Occasional	Insignificant	Medium	We can utilize group me to figure out times that suit each person.
Estimation and scheduling issues	Software is intangible and unique making it a difficult thing to estimate and schedule.	Likely	Marginal	High	Utilize the processes and techniques learned in class and develop a well thought out plan for each stage of development in order to create a project schedule.
Technical					
Lack of understanding of tools	Tools used may be new or unfamiliar to team members.	Seldom	Marginal	Medium	Questions concerning tools used for management or development will be discussed. Individual face-to-face assistance will be utilized if necessary.
Unclear specifications	The specifications that are received from the stakeholder may be confusing or vague to team.	Seldom	Marginal	High	The team will contact the stakeholders via email to clairify.
Compromising on designs	Team members may have issues agreeing on how to implement certain requirements.	Occasional	Marginal	Medium	Team members will develop a plan. If the plan includes multiple methods of implementing a function the stakeholder will have the final say of how it is to be implemented.
Management					
Poor communication	Members of development team do not communicate with each other.	Unlikely	Insignificant	Low	Each team member is required to use Groupme for communication.
Individual responsibilities unclear	Team members may not be aware of individual responsibilities.	Seldom	Marginal	Medium	Each team member is required to use Trello for management of tasks.
Productivity issues	Team members may have issues motivating themselves to complete assigned tasks.	Unlikely	Moderate	Medium	A team member's performance has to potential to impact their grade in the course.
External					
Lack of stakeholders' input	Team may have issues receiving input about project from stakeholders.	Unlikely	Moderate	Medium	Meetings will be scheduled at different stages and continuous communication will be done by email.
Needs of stakeholders not met	Due to time constraints (semester) a completed product may not be achieved.	Likely	Critical	Extreme	Team will establish realistic goals and prioritize functions that are most needed.
Sudden growth of requirements	Requirements may change and increase depending on the stakeholders.	Seldom	Moderate	High	Team members will give new requirements a priority based on the importance of the requirement and the functionality of the product.

Project Schedule

Project Breakdown Structure



Given from the name of the above chart, the Program Breakdown Structure breaks down the basis of each deliverable. Each deliverable has a set of tasks that align with an overall theme for the development process. This is essentially a path the group will follow throughout the semester. Following these tasks will facilitate us to the end goal of a functional and easy to use website.



The chart displayed above describes the duration of time the group will spend on each task. It describes past tasks completed along with tasks that will be completed in the future. The colors of the data correspond to the specific deliverable they are a part of. The project consists of 5 different deliverables that describe a set of tasks to enable us to take the next step towards developing the site. Deliverable 1 corresponds to the yellow shaded bars. Deliverable 2 corresponds to the 4 green bars underneath the task set of deliverable 1. The rest of the deliverable tasks fall chronologically on the graph.

Project Estimates

Limitations

The stakeholders are preparing a list of possible tabs for the site. The estimation version 1 is being produced without that information.

Methods

Function Point Analysis (FPA) and the Lines Of Code (LOC) method will be used to determine the project estimate.

FPA

	Weighted Factor	Count
Inputs		
Request on calendar	3	
Email Support	2	
Website search	4	
Member Login* (removed)	0	
Member registration*	4	
		13
Outputs		
external links (youtube/twitter/facebook)	3	
Search results	2	
Log in confirmation*(removed)	0	
Registration confirmation*	3	
Interfaces		8
Navigation Bar	2	
Dynamic Side Bars	4	
Dynamic Home Screen	3	
Logo/Color design (Provided)	1	
		10
Total Count		31

***** Feedback from Stakeholders requested registration for a newsletter with no login.

Using a 1-4 scale of difficulty the UFP = 31.
Total Adjusted Function Points (FP) = UFP * 2.7= 83.7
Language Factor (LF) for PHP/HTML5 = 40
Source Lines of Code (SLOC)= FP*LF = 3,348

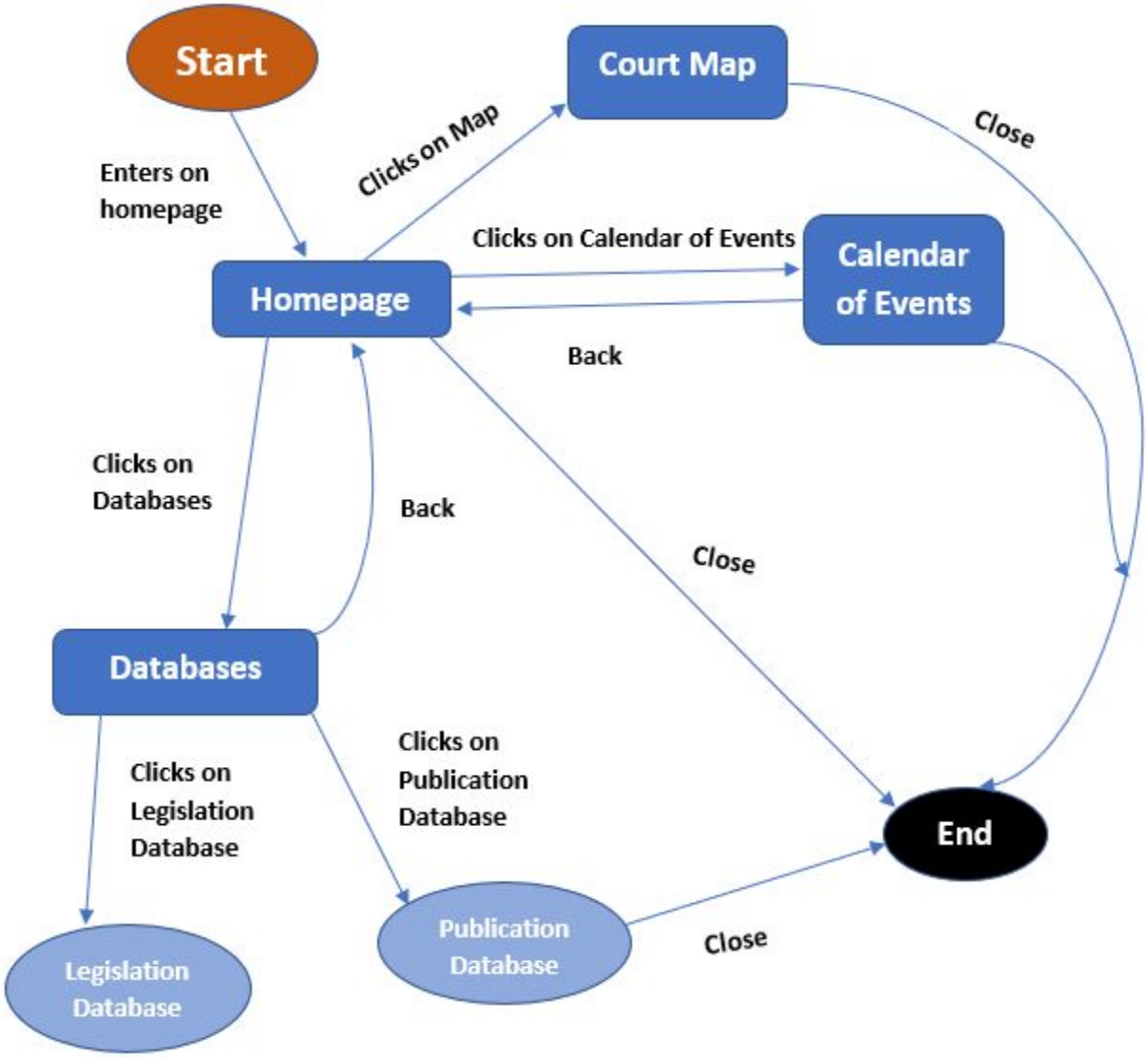
LOC

Function	Estimated LOC
Inputs	2,000
Outputs	1,000
Interfaces	1,000
Total Count	4,000

With a 4,000 LOC there is an estimated 4 person-months.*

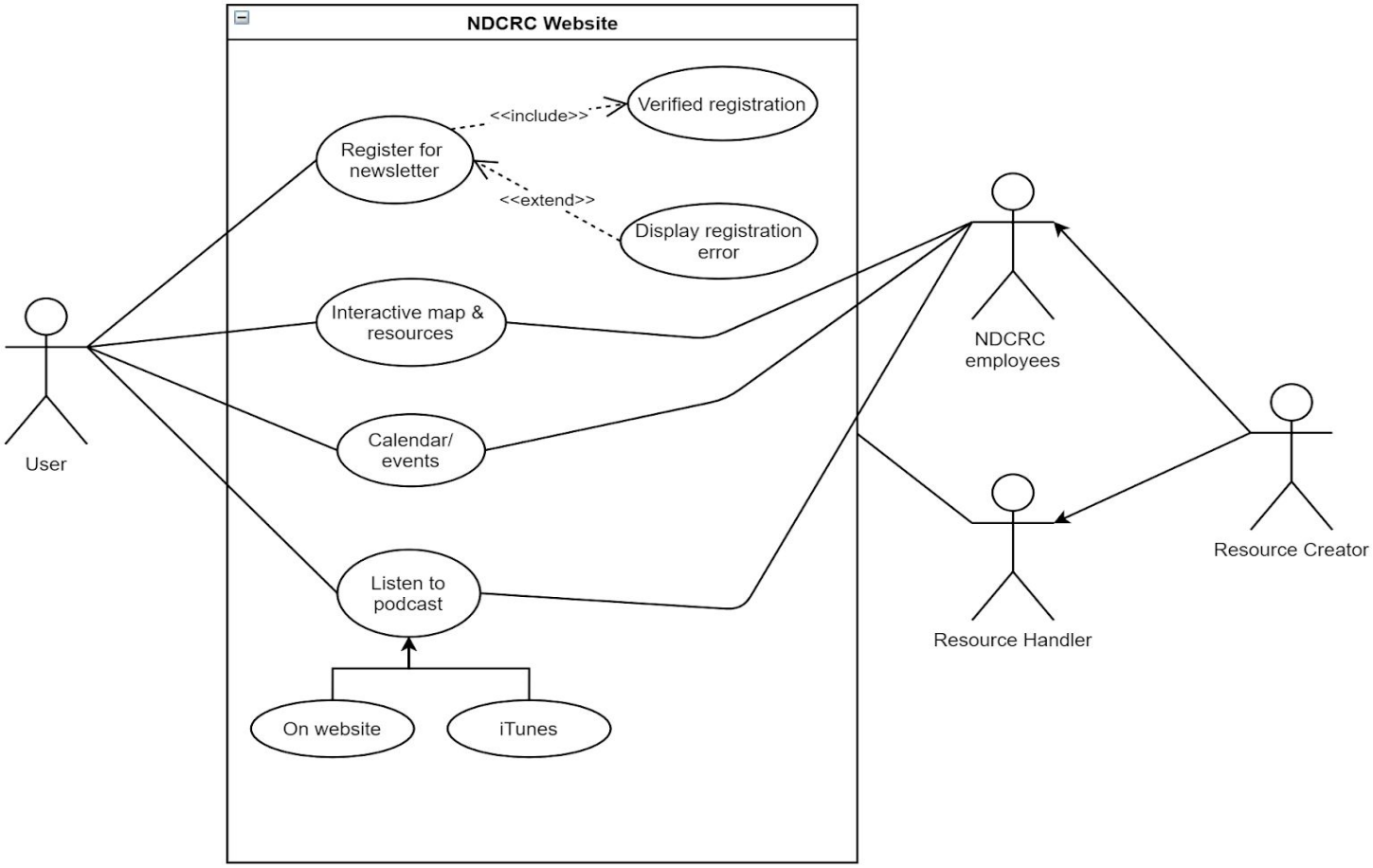
*Project time-line is 4 months and can not exceed this limit.

Behavioral Description



The site will have many different states as illustrated in the above State Diagram. Each state has an action and/or an event that causes the site to be in a certain state**.** In this case, the actions will be the clicks of the mouse to help the user navigate through the site. Following the specifications of the stakeholders, some of the states of the website are an Interactive Map of the courts which displays the courts of each state across the country, a calendar that shows upcoming and future events, and a place to view the databases that will show the user Legislation that has been passed and the Publication database that contains articles and other sources of information.

Use Cases



The user has access to many resources that include: the option to register for a newsletter, interactive map & resources, calendar/events, and listening to podcasts. The user is not required to register for the newsletter, but it will provide additional information. The system will check if the email address provided in the database already exists and if doesn't it will allow the user to register. However, if the email address provided is already in the database then the user will receive an error. The user will have the option to listen to podcasts on the website or on iTunes. The NDCRC employees, resource creator, resource handler are all connected to parts of the diagram. Certain employees may be assigned to specific parts of the website to manage.

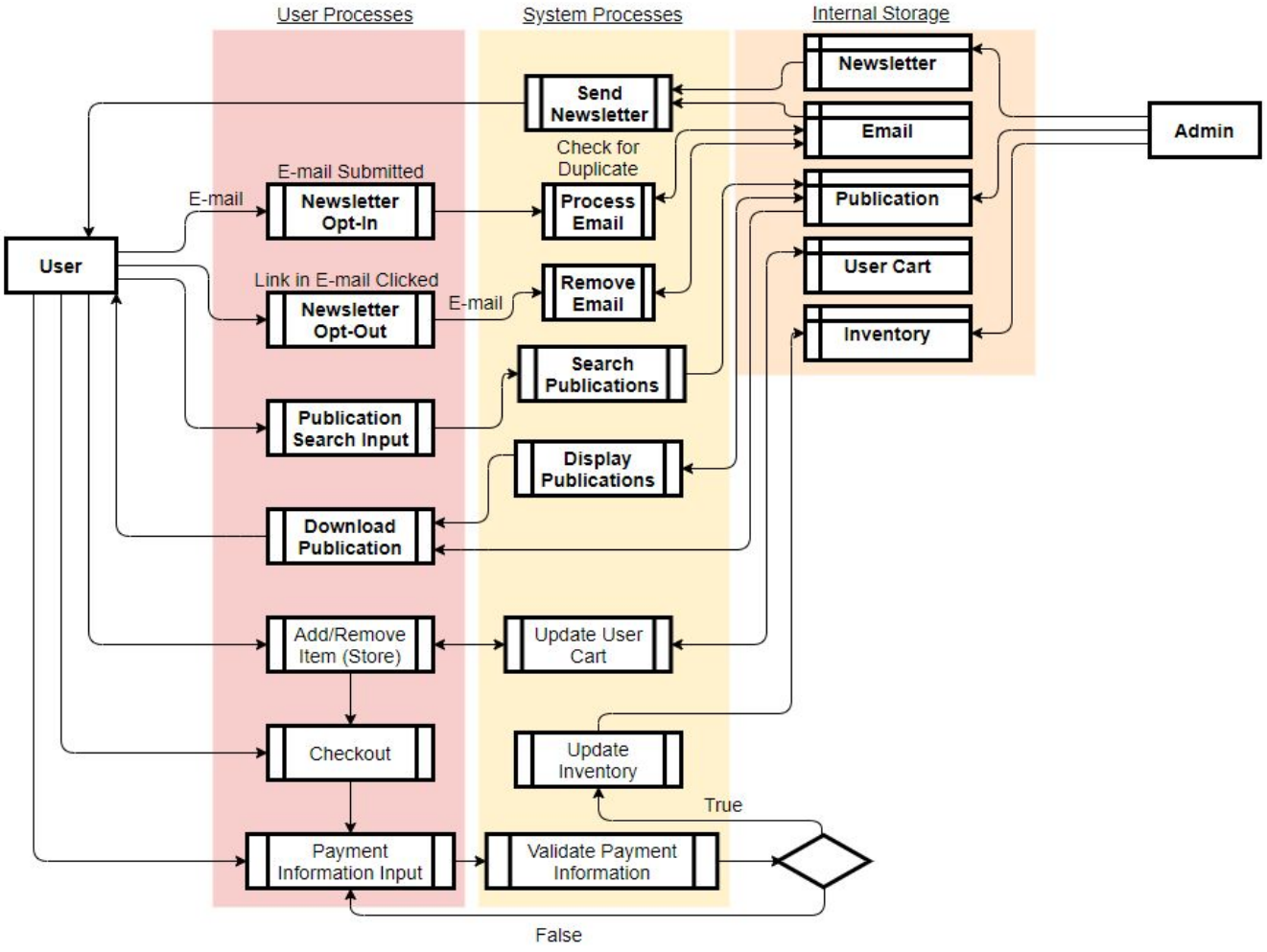
Data Flow

Restrictions/Limitations

Restrictions and limitations will vary with the platform that we choose to utilize in the end. Basic limitations for the construction of the website will include the price of the software used to implement the website design. Our stakeholders will be providing the design elements including graphics, logos, colors, and layout.

Performance Requirements

The web-based application is required to be organized and allow users to access resources by clear and efficient means. In addition to this, the website must be designed in such a way that it is easy to maintain. Regarding the functionality of the platform, it is important that the platform we choose has a built-in calendar system.



The image above is a data flow diagram illustrating the different ways in which information will be processed through the NDCRC website. The users can interact with the platform in many ways, but three actions in particular will result in the transfer of data. Opting-In/Out of the newsletter, downloading a publication, and purchasing from the online store will all result in the transference of data between the user and administrator.

Scope

System Objectives

The objectives that we were tasked with implementing was, first and foremost to allow the user to easily navigate through the site even with no prior visits, an up to date calendar with current and future events, a port to opt-in to receive the newsletter and to opt-out of receiving the newsletter, a comprehensive view of the databases containing publication and legislation pertaining to the NDCRC, and a section for users to purchase items.

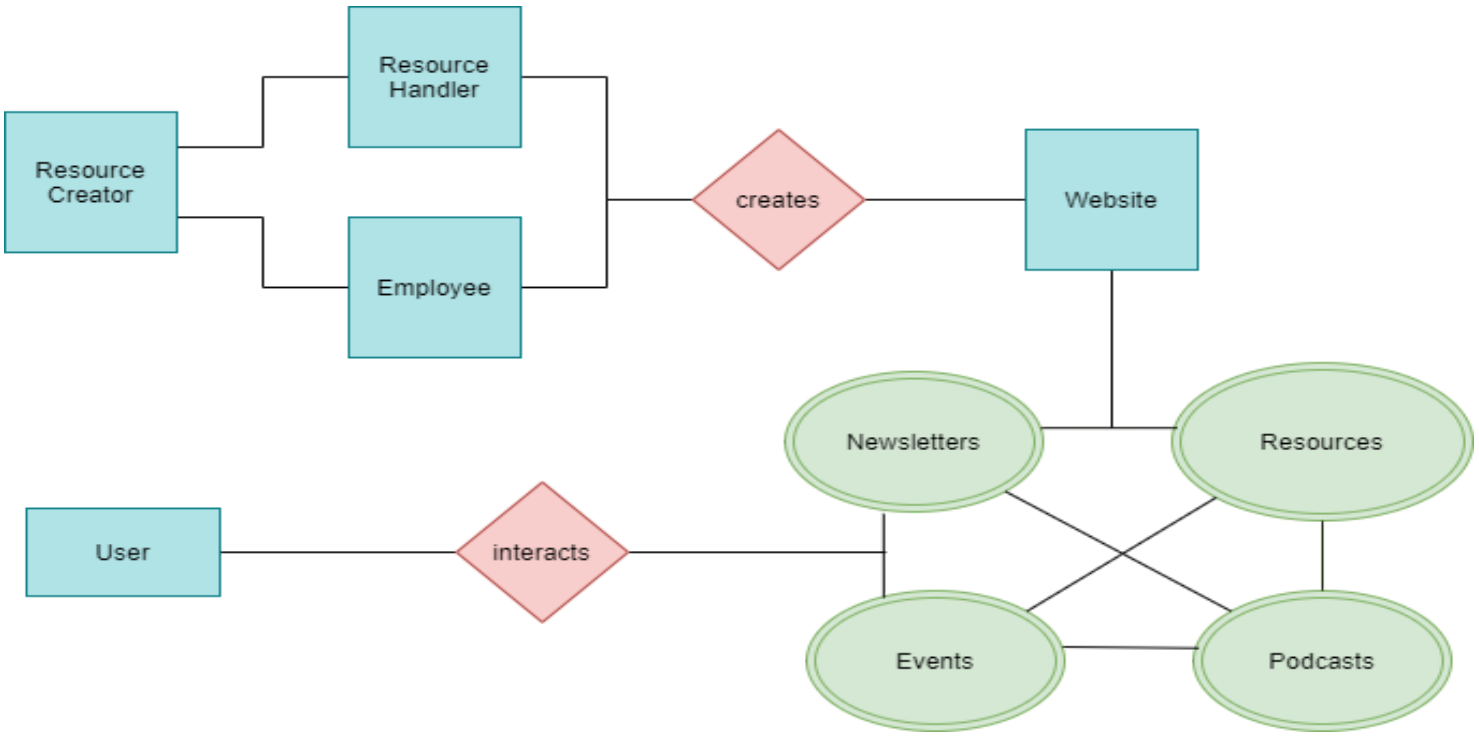
Major Software Requirements

The main requirements from the software being used to make the sites are being able to contain large organized databases that use keywords and phrases when users search for specific material, ability to have a safe and thorough monetary flow between the users and the site, be able to maintain an updated database that contains the users who are registered for the newsletter while removing any who wish to be removed ,and the software used must be able have full and efficient functionality while having high user traffic.

Design Constraints/Limitations

The design constraints/limitations that this project faces are the sizes of the databases that contain the publication and legislation that pertain to the NDCRC, maintaining the current site using WordPress as a platform while keeping track of plugins being used, and any/all of the limitations of the 3 different platforms being used to create the sites (WordPress, Adobe Dreamweaver, and Dudda).

Data Design



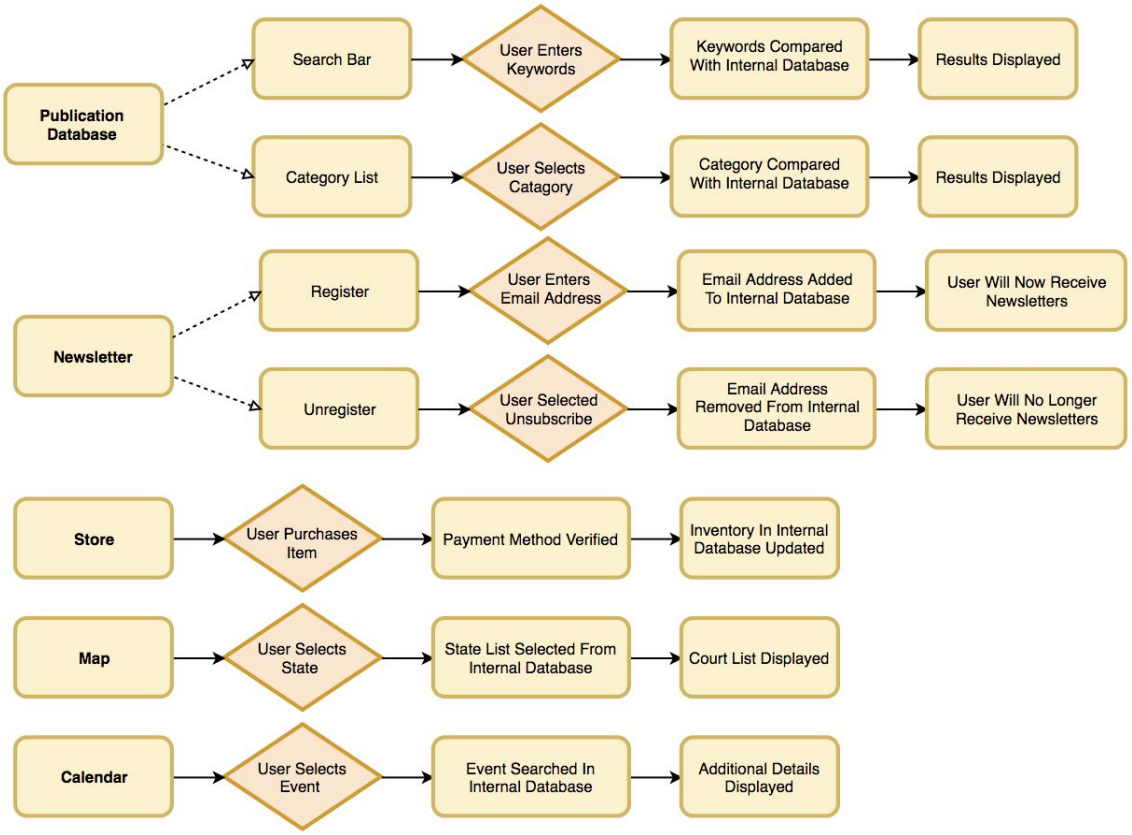
The above diagram shows an Entity Relationship Diagram (ERD). ERD is a visual representation of different entities within a system and how they relate to each other. The entities in this diagram include: Resource Creator, Resource Handler, Employee, Website and the User. The relationships include creates and interacts. These two relationships describe how the entities interact. The multivalued attributes include: Newsletters, Podcasts, Resources, and Events. Multivalued attributes can be characteristics, traits, or property of an entity, relationship, or another attribute.

Interface Design

Human-Machine Interface Specifications and Design Rules

For the user interface that the client will interact with it is crucial that the following criteria are met. The user should be placed in such control that allows flexible interaction that can be undoable, but also prevents access to technical internals. In addition to this, the user's memory load should be reduced, making the paths to resources clear and concise. (i.e. less clicks from point A to point B). The last important rule to note is that the interface should be consistent throughout. If one list is presented to the user in a scrollable field, other lists should be presented the same way where applicable.

Internal Interface Design



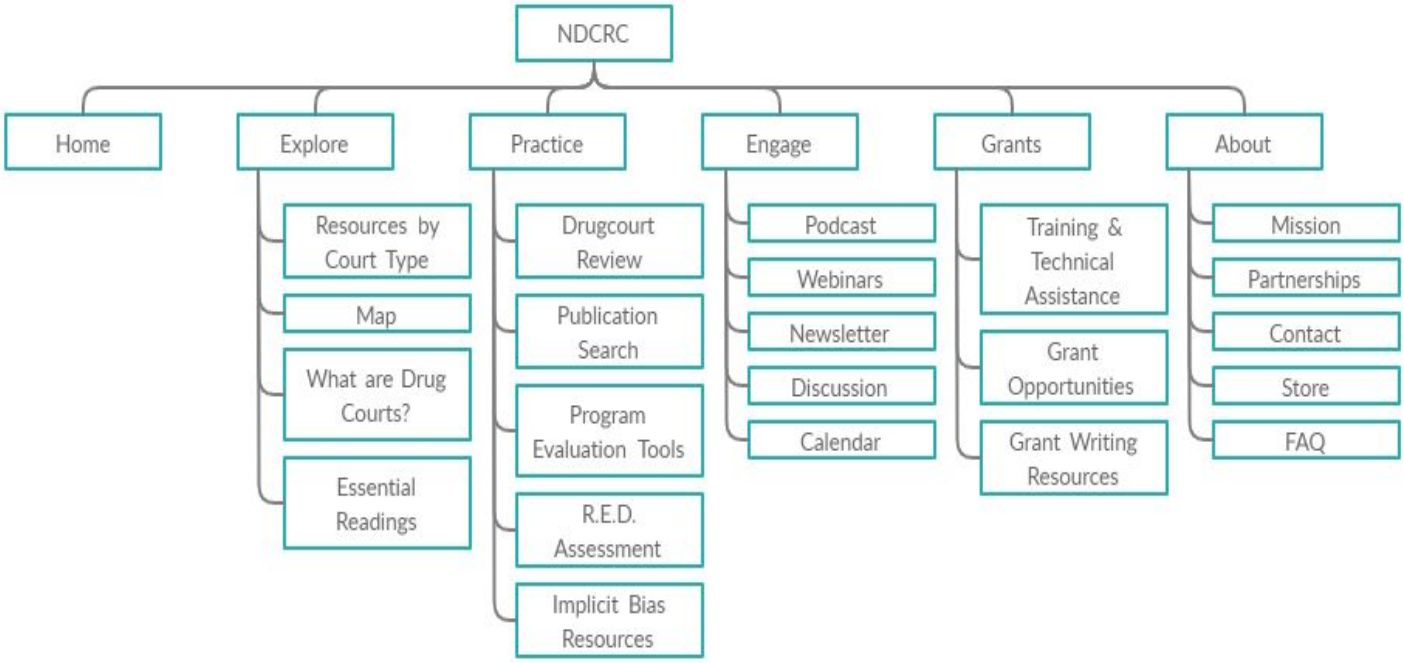
The diagram above displays the functionality of the internal interface.

External Database Design

The main external databases that this website will be utilizing involve the Legislation Search and podcasts. When a user accesses the Legislation Search they will be redirected to the National Conference of State Legislatures database. In addition to this, the podcasts will be hosted on an external server, not associated with the NDCRC. Similarly, when a user selects a podcast, the website will contact an external database to provide the selected media.

Architectural Design

The diagram below shows the navigation and the contents contained within the product.



Test Plan

What to test

The products that need to be tested are the NDCRC site and the WordPress tutorial for creating a simple site. For the website, we will test the functionality and how the site is structured visually. For the tutorial, we will test if the instructions are thorough enough for people who have no WordPress experience to be able to create a simple site.

When to test

They will be tested until we present the product to the stakeholders. Meetings with the stakeholders have been made to demonstrate the site and the WordPress tutorial.

How to test

Both products will be tested in roughly the same manner, in which they will be shown to the clients who will be taking control of the site. The WordPress tutorial will be shown to the clients who do not usually interact with the upkeep and maintenance of the site to ensure that the instructions are thorough enough that anybody can create a simple site through WordPress. There will also be instructions that are targeted to certain functions that will be implemented on the site. To get the ideas for what to include in the tutorial, we got in touch with the clients to see if there were any specific topics that they would like to be included. For the NDCRC site, a meeting with the clients will be set up for a run through of the current site to see if their specifications and expectations were met. This run through will also demonstrate the functionality and will show the new look of the new site when compared to the old version.

Functional Testing

Test Data and Techniques

During the walkthrough of the website, we will navigate through the tabs created to show where information will be displayed to the user and demonstrate the functionality of the website. The tabs contain ports where information about the court's purpose and resources for other courts will be for users to explore. These ports where users will explore the resources the NDCRC site offers include the Court Map, Publication Search, Podcast, Newsletter, etc..

Test Cases/Input Data and Expected Results

The test cases for the media function are being able to subscribe to a newsletter, and to unsubscribe to the newsletter. Subscribing to the newsletter will store your name into a database where you will be sent weekly newsletters with the option to unsubscribe and take your name out of the database. Other cases include going to the interactive Map where users will be able to view the courts of each state, a Publication and Legislations databases where users will be able to search for relevant publication and legislation using keywords and phrases. The expected results for the functional tests are for the implemented functions to be working fully and efficiently.

Structural Testing

Coverage Criteria

The criteria for the structural testing will be about how the site will be laid out. The layout of the site will be displayed to the stakeholders to see if it meets their expectations of being a visually appealing site for new users.

Test Data and Techniques

The techniques used for the structural testing will be mainly centered around the layout of site tabs and information. During the walkthrough of the site, we will navigate through every tab and page that is added to ensure that each tab and page meet their requirements. Not all tabs will contain information but the stakeholders will be providing the information once the site is completed and ready to be made public.

Test Cases/Input Data and Expected Results

The test cases will be each page that the site currently contains. These pages include the Home page, the About page where the information about the NDCRC are located, the Calendar where future events will be kept, Interactive Court map of the country, Publication database search, and more. The input data that will be received is the navigation through the site itself. This shows the different tabs and pages of the site to the stakeholders. The expected results from this is that the site is visually appealing enough that the stakeholders approve of the layout.

Integration Testing

Integration Strategies

Once the site is fully pieced together with all of the tabs, pages, and functions implemented, the site will be presented to the stakeholders for them to look at what has been developed. This will show how the site and the users will interact with each other when certain actions and events happen.

Test Drivers & Stubs

There were no test drivers and test stubs for the testing. We tested the product in a meeting with the stakeholders where we navigated through all the tabs and pages of the site with all of the functions/modules added.

Test Cases

The test cases for the Integration Testing is the combined product of the site with all the functions implemented that was requested by the stakeholders. With all of the functions are together within the site, the users will navigate through the site to all of the pages. The Calendar of Events, Publications Database Search, Legislation Database Search, United States Court Map, About page, and all the other pages will be the test cases for this test because of how they will work when integrated together in the site.

Test Evaluation

Test Cases & Test Results

The Test Cases for all of the different tests are the site and the different pages contained within the site, the functions implemented within the site itself, and the WordPress tutorial on how to create a simple site. During these tests, some aspects of the site were changed. These aspects were mostly layout changes and not any fundamental changes to the functions that are being added to the site. The changes were mostly structural to make the site more appealing to the users.

Structural Coverage Measurement

All aspects of the site are being tested throughout this process. From the functions of the site and how the site is laid out to the appearance and visual aspects. During the walkthroughs of the site, the stakeholders will put their focus on each of the aspects of the site to ensure that it meets their expectations and requirements. A meeting with the stakeholders gave them a look at the current site and the ability to give any requests for improvements in the paces they see fit.

Errors Detected & Corrected

There were changes made by the stakeholder on the site. These were structural changes made for greater visual appeal. The changes made to the site were placing the disclaimer message at the bottom of the page, capitalizing the words “Court” and “Drug” located in the navigation bar, and that information in the Contact Us page be moved to the Staff page.

Summary of Testing Experience

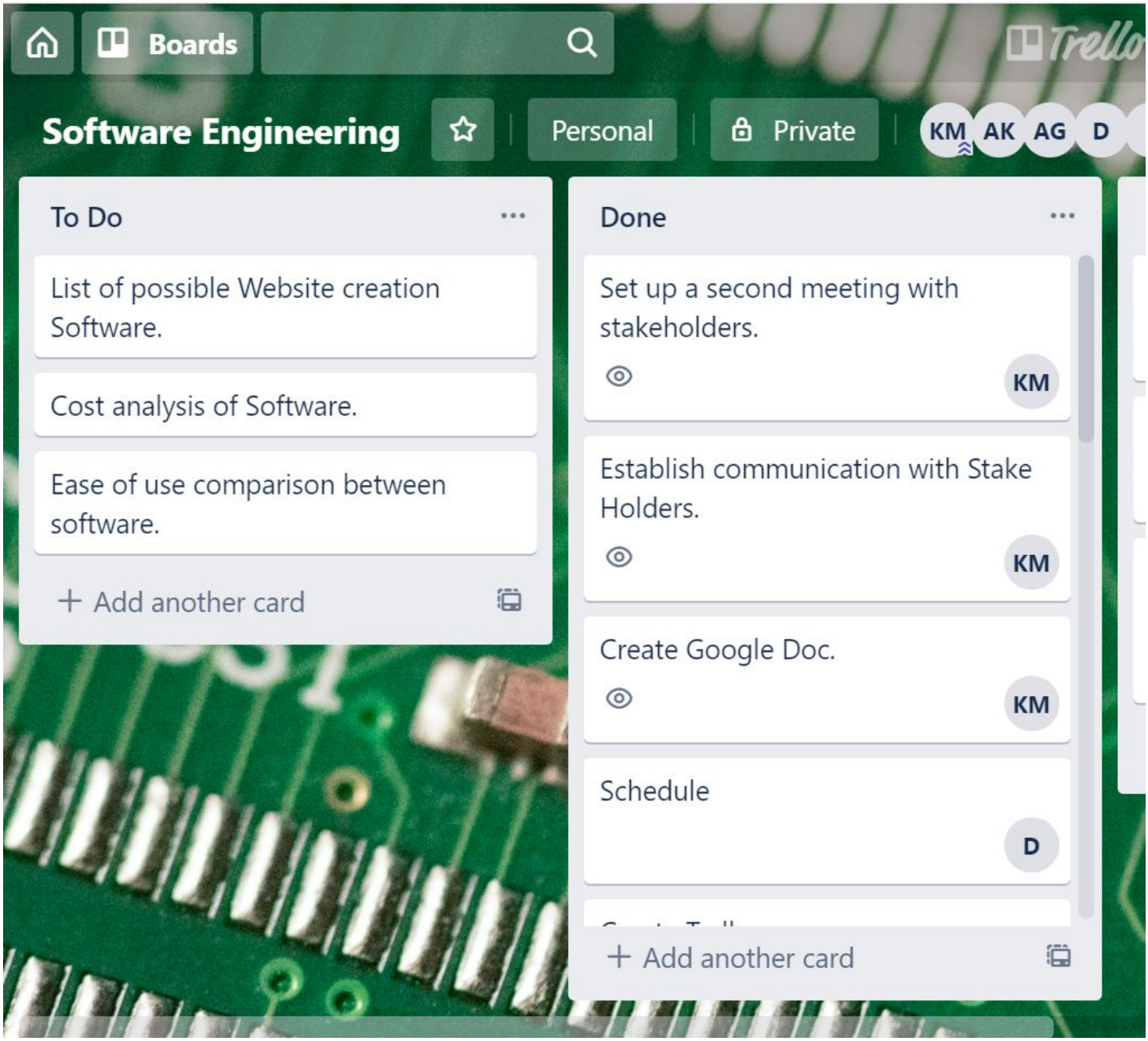
The testing process did nothing but improve the site. The feedback received from the stakeholders helped the team make the site better than it was. Once the meeting was concluded, the changes were immediately made to the site in the way the stakeholders had described. Some of the changes that they wanted were out of our control. These changes dealt with the footer, which was an aspect of the site that was controlled by the graphics designer.

Appendix A:

https://ndcrc.org/

Appendix B:

https://trello.com/b/Rxl4rN7I/software-engineering



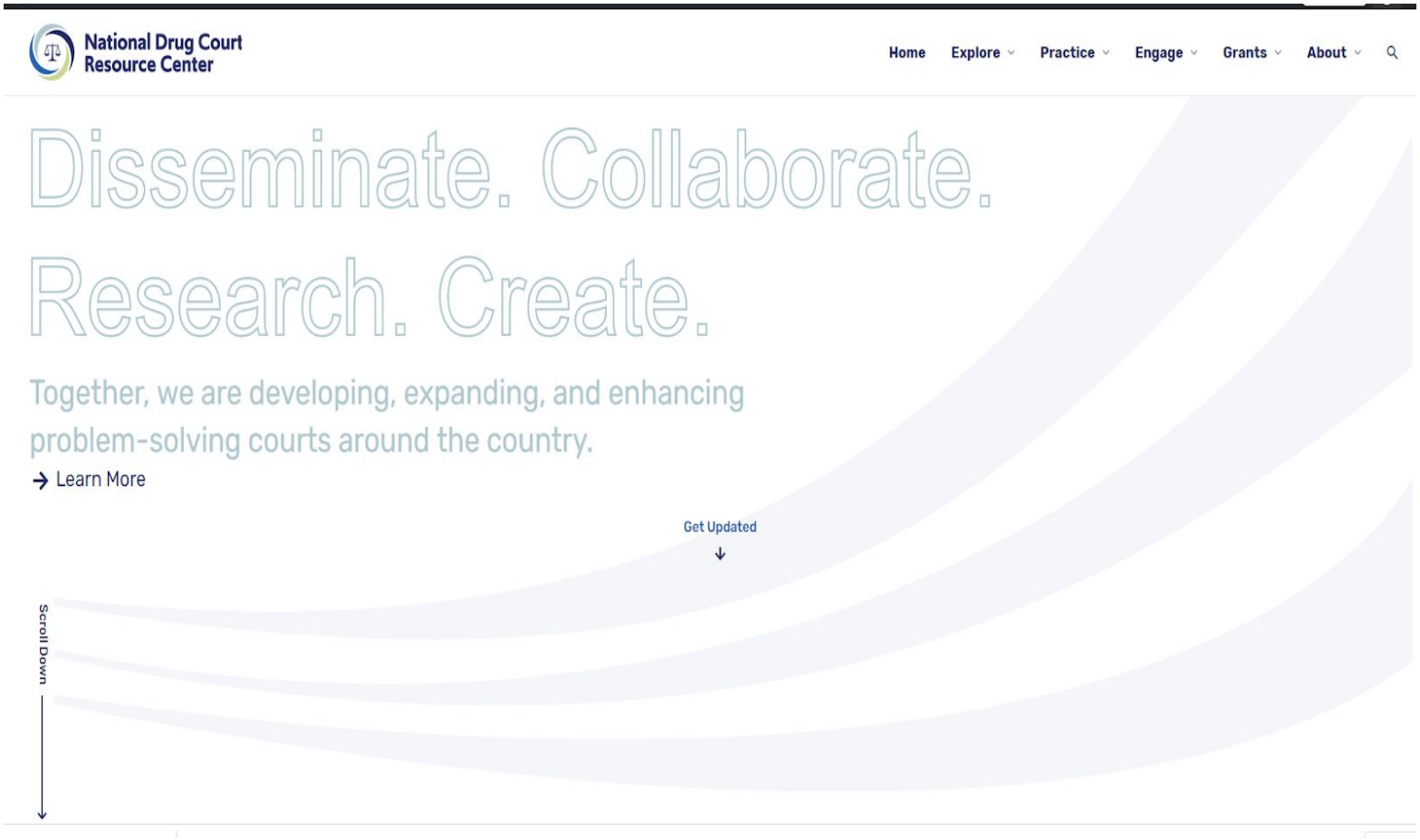
Appendix C:

Name	Pricing per Month	Hosting	Pros	Cons	Recommends	Trial
WordPress.com	$25 Business/ $8 premium	Yes, 200 gb storage	Handles everything/ Easier to build a site then .org/ Just create a site/SEO	Lower flexibility Cost/ Sub-domain of wordpress.com (IE: NDCRC.wordpress.com), Steep learning curve	HTML, CSS	?
WordPress.org	Free	No/ Self hosted	Open source Full control/ Full customization	No support/ Need a Domain and self-hosting/ Coding needed	PHP/MySQL Or MariaDB Apache or Nginex	Free
Squarespace	$18 Business	Yes, Unlimited	Custom URLS/G Suite email/Email campaigns/Analytics/ Full support/ Mobile Friendly/ Social Integrations/ Blog Platform/Easier/ Many more high-end templates/ Coding optional (Drag and drop)/Video Tutorials	Less flexibility then wordpress	CSS/JavaScript	14 days
Wix	$22 Pro	Yes/ 20 gb storage	More intuitive interface then WP/mostly no coding (Drag and drop)/Many video tutorials	One of the least flexible/Not mobile responsive	Javascript/corvid	14 days

Dreamweaver	Adobe $19.99	No	Most flexible choice/ Full control/ No need for third party engine. / Can be used to create wordpress templates	No drag and drop/	Siteground or Bluehost / HTML, XML, CSS and Javascript	UNCW has access
Duda	$22	Yes/ unlimited	Sited hosed on AWS, Email, Chat & Phone support, Team and client management features/ App store/ Team colab. 4/ Ecommerce add on (paid)/ Minimal to no code/ Lots of widgets available/ Maintaining the website and Themes are more intuitive then wordpress. (wordpress lite)/ SEO/Mobile Design can be separate / Like wix but more widgets and easier to code if needed.	Must pay more for widget building/ only several hundred templates instead of several thousands/ Wordpress has more options with the SEO/	HTML, CSS	14 days

Appendix D:

https://ndcrc.wpcomstaging.com/



Once the site is transferred to the old domain, this link will no longer work.

Appendix E:

https://docs.google.com/document/d/1nLpAQgzSuNmbrRrm00kPGbQl93drzgz40d_YOirM1Lk/edit?usp=sharing

WordPress Tutorial
For use with *Business Plan*

Note: Additional Plugins may be incorporated from the start to simplify some of these processes. (i.e. Elementor initiates a drag & drop page builder, that allows for easier customization)

Getting Started

I. Go to www.WordPress.com and select *Get Started* on the top right
II. Enter an email address, username, and password or select the option to create an account using Google or Apple
III. Give your site an address and select the .wordpress.com option
IV. You will now be presented with paid plans, select the option to *Start with a free site,* if the *Business Plan* is unavailable to you.

Changing the Theme

I. On the left hand tab click *Design* then *Themes*
II. To demo the theme click the horizontal 3 dots and click *Live Demo*
III. To pick a theme click *Activate*
    A. For example, click *Yes, Activate Exford*

Adding a Page

I. Open *My Site* > *Pages* and click *Add New Page*
II. Select *Use Blank Layout* or choose from a layout option
III. Begin editing by adding text, widgets, etc.
IV. Select *Publish* or *Save Draft*

Activity Log 2/18/2020

Activity Log

Date	Meeting time	Meeting Minutes	Description
24-Jan-2020	9:00 AM	30 min	Attendees: Dr. Lanier, Dr. DeVall, Anna Gallagher, Kenneth Mcmillan, Dylan Grafius
28-Jan-2020	3:00 PM	15 mins	Attendees: All group members
30-Jan-2020	3:00 PM	15 mins	Attendees: All group members
4-Feb-2020	3:00 PM	15 mins	Attendees: All group members
6-Feb-2020	3:00 PM	15 mins	Attendees: All group members
11-Feb-2020	3:00 PM	15 mins	Attendees: All group members
13-Feb-2020	3:00 PM	15 mins	Attendees: All group members
14-Feb-2020	3:30 PM	1 hr	Attendees: All group members

Date	Name	Reading/Project Time
20-Jan-2020	Kenneth Mcmillan	20 min
22-Jan-2020	Kenneth Mcmillan	30 min
23-Jan-2020	Kenneth Mcmillan	10 min
23-Jan-2020	Amber Kurker	30 min
24-Jan-2020	Jeremy Thomas	45 min
26-Jan-2020	Anna Gallagher	30 min
27-Jan-2020	Amber Kurker	1.5 hrs
27-Jan-2020	Jeremy Thomas	2 hrs
27-Jan-2020	Dylan Grafius	2 hrs
28-Jan-2020	Kenneth Mcmillan	1 hr
29-Jan-2020	Kenneth Mcmillan	4 hrs
29-Jan-2020	Anna Gallagher	40 min
29-Jan-2020	Amber Kurker	2 hrs
29-Jan-2020	Dylan Grafius	2 hrs
29-Jan-2020	Jeremy Thomas	1.5 hrs
2-Feb-2020	Kenneth Mcmillan	1 hr
5-Feb-2020	Amber Kurker	45 min
10-Feb-2020	Amber Kurker	30 min
11-Feb-2020	Anna Gallagher	2 hrs
14-Feb-2020	Amber Kurker	1 hr
17-Feb-2020	Amber Kurker	1 hr
17-Feb-2020	Kenneth Mcmillan	2 hrs
17-Feb-2020	Dylan Grafius	1 hr
18-Feb-2020	Jeremy Thomas	4 hrs
18-Feb-2020	Anna Gallagher	1 hr
18-Feb-2020	Dylan Grafius	2 hrs