

UNIVERSITY OF ALASKA ANCHORAGE

CSCE A470

CAPSTONE PROJECT

Project Portal

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Anchorage AK, May 2015



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Abstract

The purpose of this paper is to document Project Portal. Project Portal is a web application that is designed to facilitate simple and effective project collaboration and communication. This paper will discuss the details of the implementation and the process whereby Project Portal was created. The main components of Project Portal are a landing page, a map, a calendar, and a file browser. All of the development for Project Portal was done using Microsoft's .Net web platform.

Acknowledgments

I would like to acknowledge several people who helped me while I was working on Project Portal. While I received help from many different people, I could not possibly acknowledge them here.

I really appreciate the help and support I received from Meghan Card my wife. She put up with all of my complaining and gave me great encouragement. She also was kind enough to help with editing this paper.

I want to thank Dr. Kenrick Mock for agreeing to be my supervising professor. He has been a great help with the project and the requirements necessary to complete this capstone course.

Chris Hamilton was the one who gave me the idea for Project Portal, and assisted greatly in getting project requirements together. He also gave me the full support of Information Resource Management team at the Department of Natural Resources. He also pointed me in the right direction when I need people to help set up the hardware infrastructure.

Dom Kimbell was also instrumental in helping me learn some of the .NET tips and tricks. He helped me set up the project in our continuous integration server that made doing some of the testing and program update much simpler.

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1 Introduction

1.1 Introduction

Web applications, or "web apps", are software programs that run on a web server. They consist of diverse components including traditional and nontraditional software, interpreted scripting languages, plain hypertext markup language (HTML) files, mixtures of HTML and programs, databases, graphical images, and complex user interfaces. [1] A web application is available anywhere a connection to the internet is found. This means a web application is not tied to a specific computer like a traditional software application, allowing for more accessibility and ease of use. The user experience tends to be more consistent with a web application, because user data is processed and stored on the server and the graphical user interface (GUI) is dependent on the web browser.



Figure 1.1 - Simple Web Application Diagram by vTech Solution Inc.

The tremendous reach of Web applications into all areas of communication and commerce makes this one of the largest and most important parts of the software industry. [1] Many software companies now offer both desktop and web versions of their most popular programs. Common examples include Microsoft Office, Apple iWork, and Intuit TurboTax. In most cases, files saved in the online version are compatible with the desktop version and vice versa. For example, if you save a .TAX2013 file in TurboTax Online, you can open and edit the file with the desktop version. [2]

1.2 Application

For my project, I decided to create a web application. My application will be a project portal for teams working on various projects at the Department of Natural Resources (DNR). Each project will have its own project portal and will consist of three main pages. One page will have a map of the project area and the map will have the ability to change which layers are visible to the user. Another page will have a calendar object that will contain the project related activities and meetings. The final page will contain a file browsing object that will display a file location on the server that holds project related files.

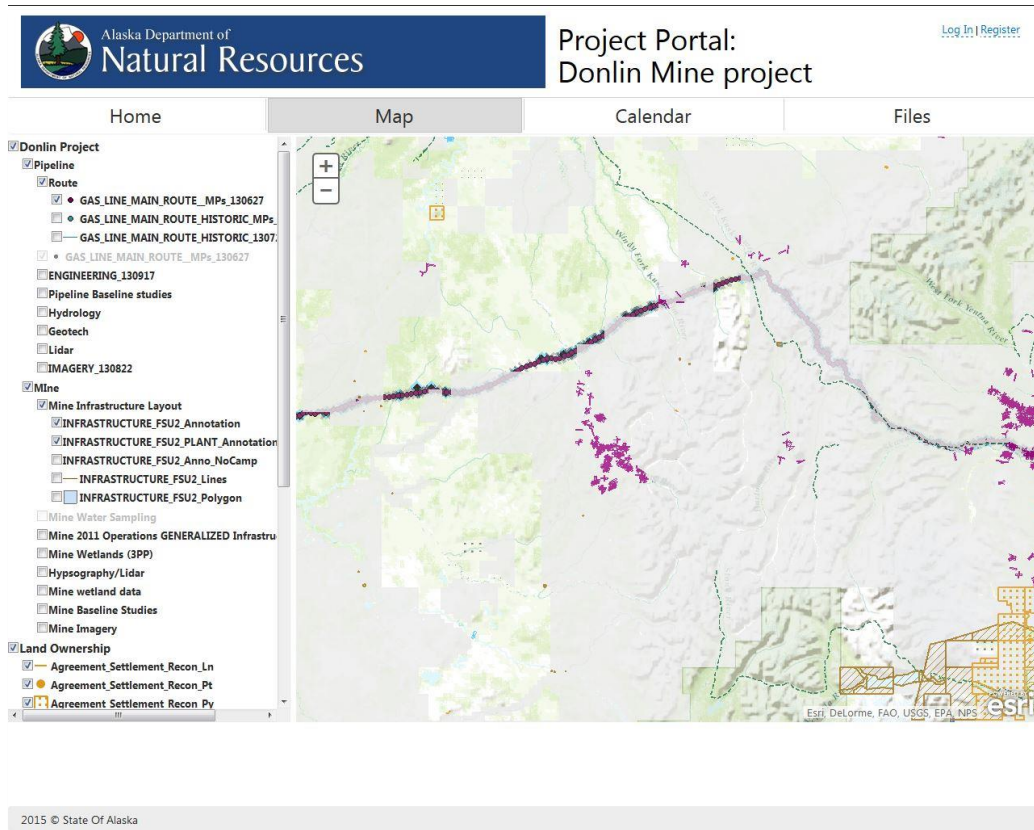


Figure 1.2 - Sample Image of What Maps Page Would Look Like.

A web application can be created using a number of different languages and technologies. The project portal will be primarily built using ASP.NET and C# for server side code. HTML and JavaScript will be utilized to perform client side page rendering services. The file browser and calendar will use third-party libraries from DevExpress.

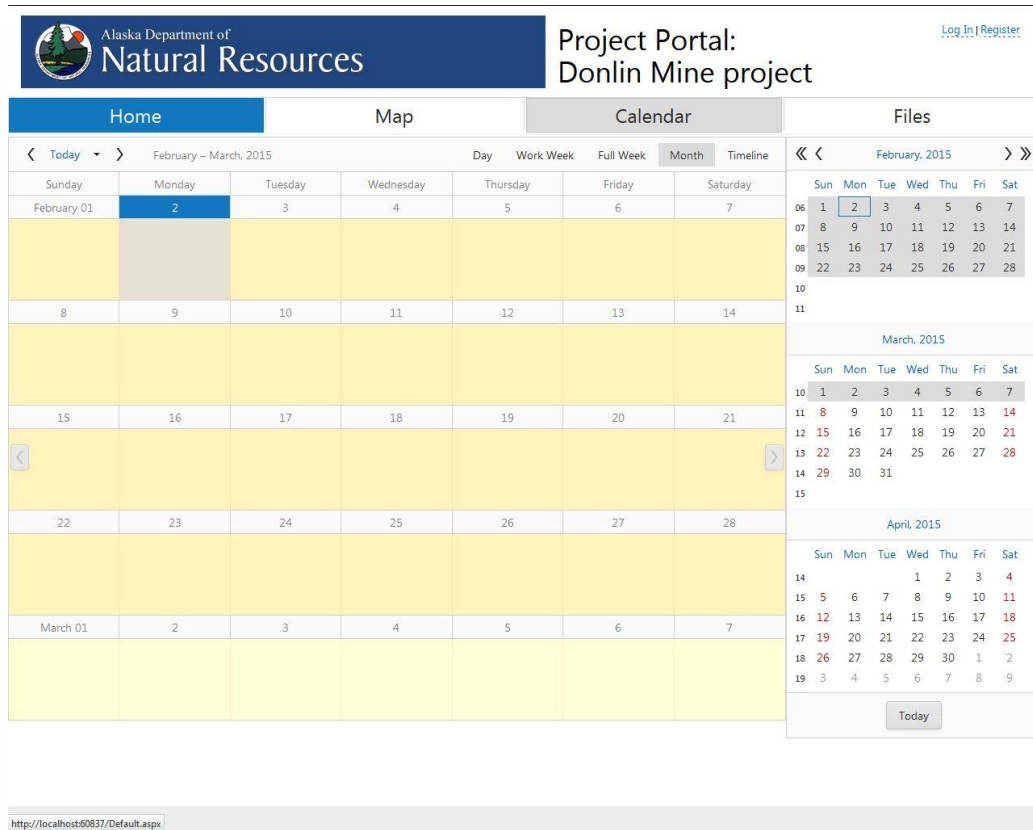


Figure 1.3 – Sample Image of What Calendar Page Would Look Like.

Security requirements can be summarized in two sentences:

- Information should be disclosed only to those meant to see it.
- Actions should be performed only by those authorized to perform them.

Sound simple? So why, with such straightforward goals, is network security deemed one of the tougher areas of computer science? The difficulty lies in the very nature of the goals we've defined. While other areas of computer science aim to enable a certain feature, security is the art of prohibiting unauthorized individuals from reaching beyond the permissions they have been granted. All possible attacks must be considered, analyzed, and prevented. [3] The project portal will utilize user login authentication to provide a minimum level of security. This could be upgraded in the future to use the lightweight directory access protocol (LDAP) user credentials that already exist within the State of Alaska system.

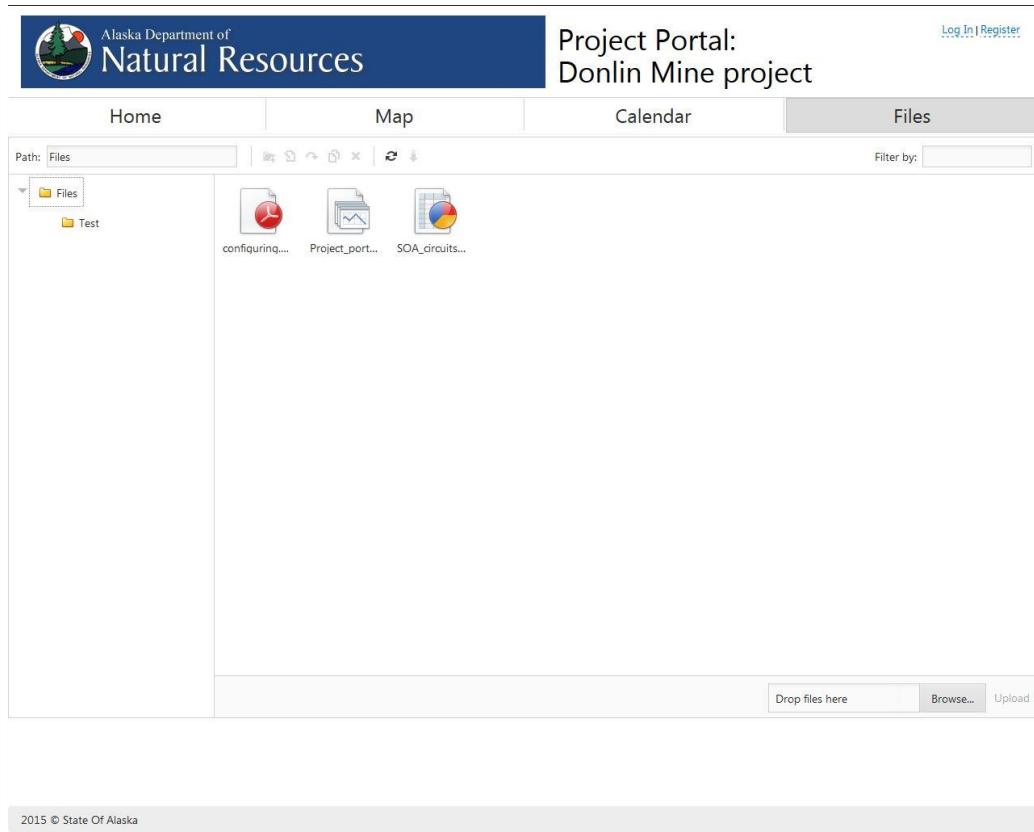


Figure 1.4 – Sample Image of What Files Page Would Look Like.

In Anchorage, .NET is the preferred language for websites and web applications. According to GeoNorth, an Anchorage software development company: “.NET is one of the development languages of choice for high usage sites and sites with complex business rules and workflows. Because it is a compiled language, it can be many times faster than PHP, ColdFusion, or other languages. You may have also heard of ASP.NET, which is the 'web design' portion of .NET, and works in conjunction with C# or VB.NET. If you want a fast site that can scale, or if you have complex business rules that need a lot of CPU power behind them, .NET is the way to go. Many of our Anchorage clients in Alaska use .NET, and we have deployed enterprise solutions as well as small websites and even handheld applications.” [4]

1.3 Motivation

My primary motivation for this project comes from the fact that I am currently employed at DNR and my department manager asked me if I wanted to do this project. I really wanted to do a project that was going to be very practical and this project allows me to do just that. The project

portal is likely to be implemented within the DNR system shortly after its completion and thorough testing. Working with DNR on this project gives me greater access to resources and a knowledge base that would not be available to me otherwise. Doing this project for DNR also gives me the opportunity to work on the project while at work, allowing me to better use my time.

My secondary motivation for wanting to do this project was because my department manager wanted the project done in .NET. I have not used .NET before and am unfamiliar with its features. .NET seems to be used almost exclusively here in Anchorage. Therefore it was important to me to learn how to use it in order to increase my job marketability. Creating web applications is one of the things I am interested in doing for a job, thus being able to put a project like this within my portfolio was very compelling for me.

1.4 Recent Developments



Figure 1.5 – Mobile web development diagram from Techworldsoft.com

The web development sector is always changing and updating with the invention of new technology. The biggest recent change in the web application development area is the addition of mobile computing. Mobile computing presents several challenges for traditional web developers including higher latency wireless networks, small memories, and smaller screen sizes. Mobile devices force web developers to think about things they have never had to think about before. Web applications must now take into account the type of device being used to determine the best

experience for the user. Mobile devices with high-latency connections, slower CPUs, and less memory need to be catered to just as much as desktops with wired connections, fast CPUs, and almost endless memory. Web developers now more than ever need to pay close attention to how they craft interfaces, given these constraints. Byte counts, request counts, memory usage, and execution time all need to be considerations as web development for mobile devices continues to evolve. [5]

1.5 Licensing

Project Portal will use a BSD 3-clause license. This will allow me to limit my liability and the State of Alaska's liability. It also makes it clear that no warranty is provided and that names referenced within cannot be used for promoting a new product containing the code. The code for Project Portal will be completely open source, however databases and files accessed by the code may contain proprietary data. DNR has requested that when source code is shown that references to server names be removed for security reasons.

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2 System Integration and Modeling/Methodology

2.1 System Model

Project Portal is using a design based off of the client-server model. This model specifically describes the interactions between a client computer and a server. The model Project Portal will be using has essentially three different areas that work together to make the application run. I will refer to these areas as client-side, server-side, and back-end.

2.1.1 Client-Side

The first area is the “client-side”, which is the technical way to refer to the user’s local machine that they will be using to access the application. Within the local machine, the user will be using a web browser as the main tool to connect to my application. The web application begins when the user enters the address into the web browser. The web browser then sends a request to the web server for the data required to display the application to the user. The web browser will then

receive the data from the server which will contain instructions on how to display the graphical user interface as well as scripts that need to be processed from the user's machine. Client-side scripts are written in some type of scripting language like JavaScript and interact directly with the page's HTML elements like text boxes, buttons, list-boxes and tables. HTML and CSS (cascading style sheets) are also used in the client. In order for client-side code to work, the client's internet browser must support these languages.

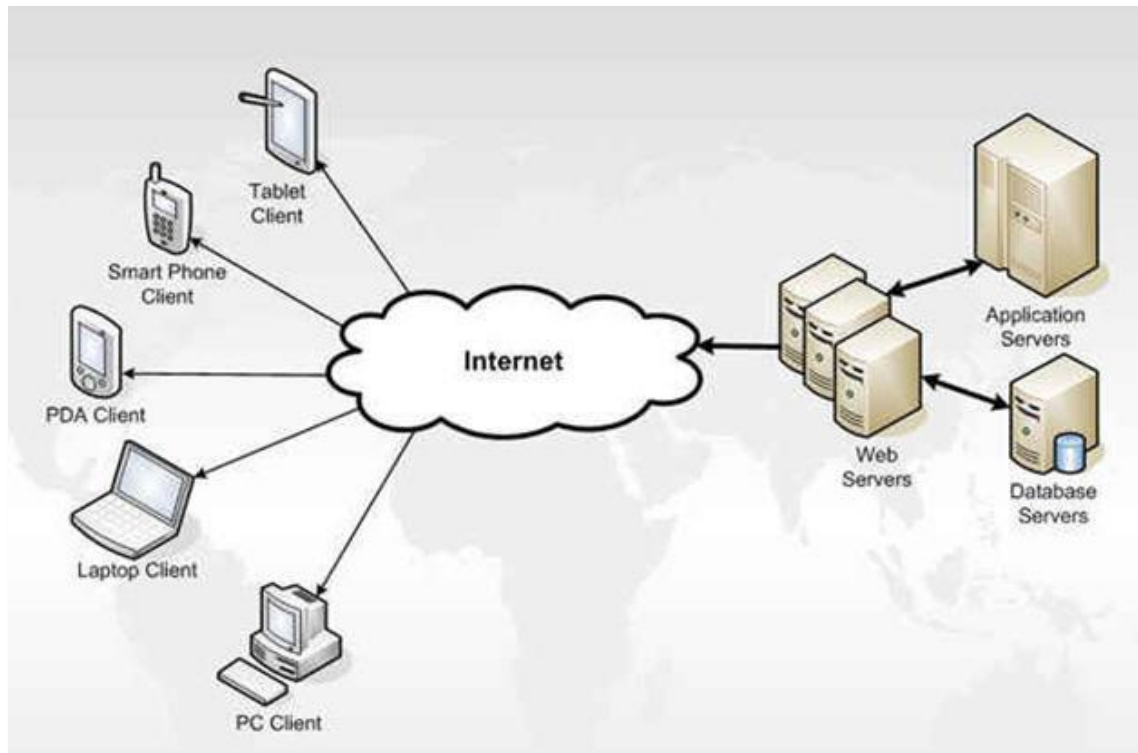


Figure 2.1 - Simple Web Application Model Diagram from techrepublic.com.

There are many advantages to client-side scripting including faster response times, a more interactive application, and less overhead on the web server. Client-side code is ideal for when the page elements need to be changed without the need to contact the database. A good example would be to dynamically show and hide elements based on user inputs. One of the most common examples is input validation. [6] Project Portal is designed to work with the Google Chrome, Microsoft Internet Explorer, and Mozilla Firefox Browsers. Each of the browsers may display certain elements of the web application differently, however the overall look and feel of the web application will be preserved.

2.1.2 Server-Side

The second area is the web server area. A web server is a computer remotely located at a company's chosen location that is specifically designed to handle requests from client. The requests can be for either data to be sent back to the client or data to be processed by the server. Server-side processing is used to interact with permanent storage like databases or files. The server can also render pages to the client and process user input. Server-side processing happens when a page is first requested and when pages are posted back to the server. Examples of server-side processing are user validation, saving and retrieving data, and navigating to other pages. [6] Project Portal will use Microsoft Internet Information Services (IIS) as the web server. The IIS web server will host all of the server-side code and do all the server side processing.

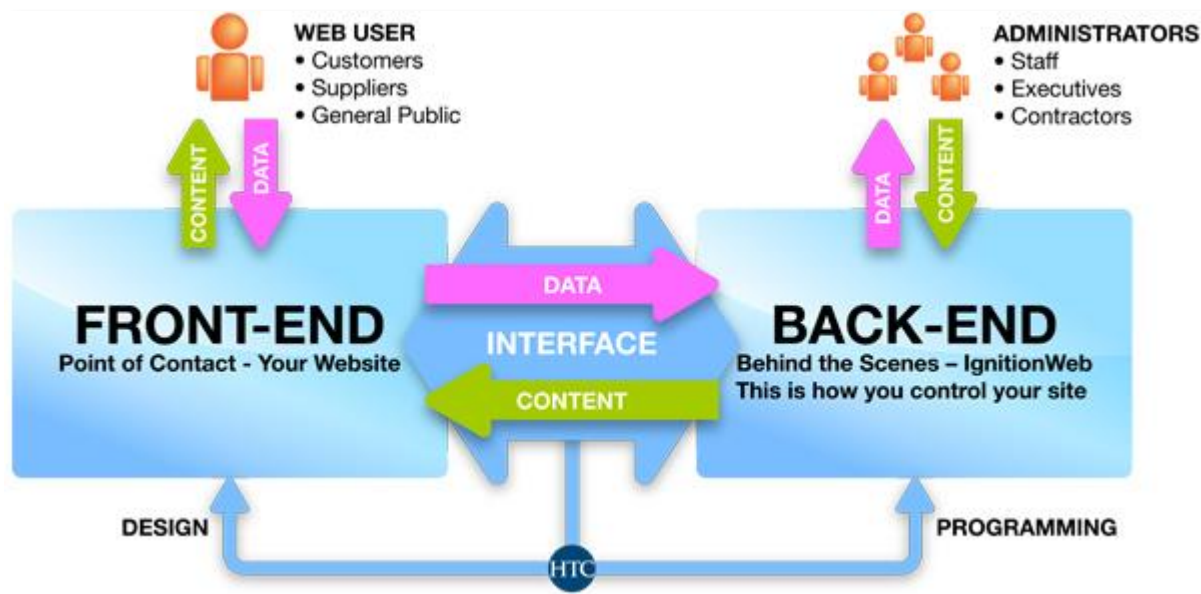


Figure 2.2 - Example Front-end Vs Back-end Diagram from 3nytechnology.com

2.1.3 Back-end

The third area is the back-end. This area is typically comprised of database and file servers that are not directly accessed by the user, but support the web server. The database servers store user data as well as data required for the web application's operation. The file server is used as a repository to store and retrieve any files that may be needed by the user or the web application. Project Portal will use a virtual server running an Oracle database. For the file server, Project Portal will use a Microsoft Windows Server 2012 R2. The file server will be used to handle the

files from the file browser page. In addition to database and file servers, Project Portal will use a Microsoft Exchange Server for mail, calendar, and contacts services as well as and ArcGIS server for published map services. The exchange server will handle and return the calendar data to the calendar page of the web application. All of these servers already exist within the DNR ecosystem.

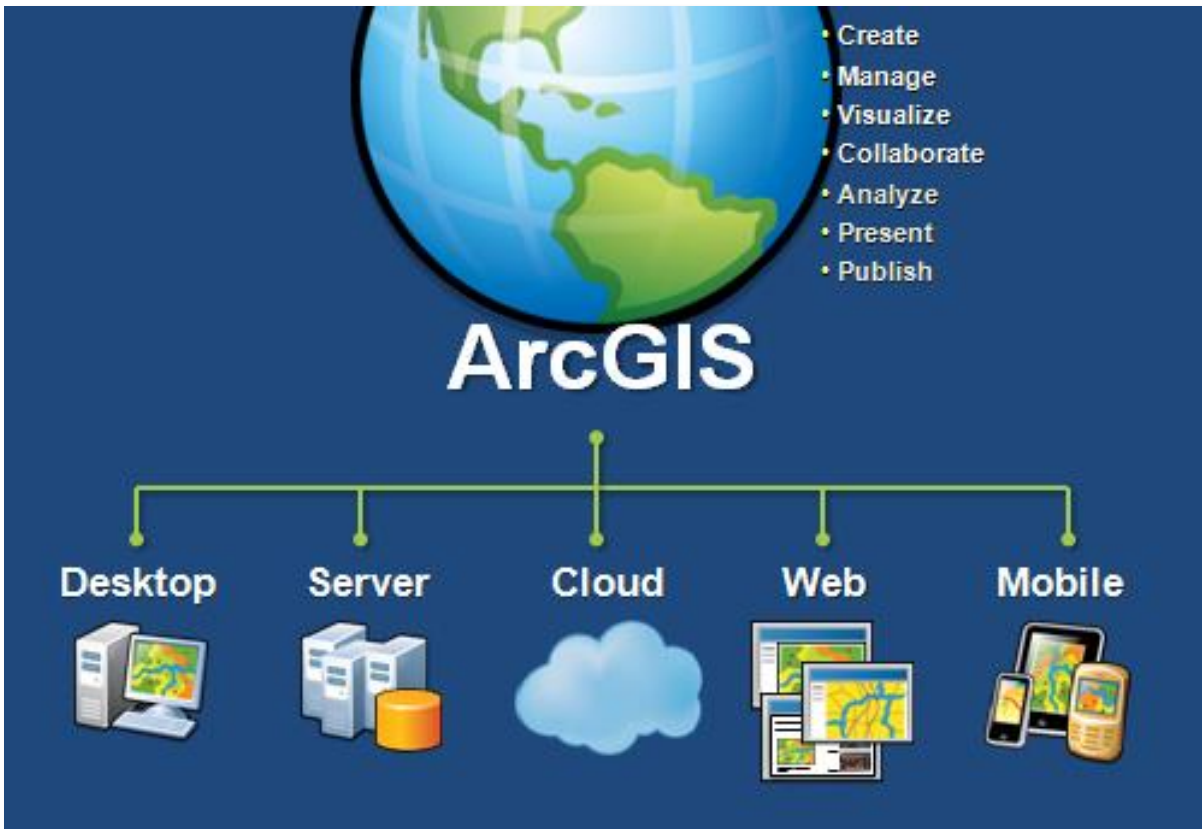


Figure 2.3 - ArcGIS Diagram from ESRI

2.2 Technologies and Components

Project Portal weaves together many different technologies in order to create the final product. These technologies and components come from both the software and hardware groups.

2.2.1 Software

Hypertext Transfer Protocol (HTTP) is used to create connections between the client and the server as well as describe how the data will be transmitted. HTTP is an application-level protocol for distributed, collaborative, hypermedia information systems. It is a generic, stateless, protocol

which can be used for many tasks beyond its use for hypertext, such as name servers and distributed object management systems, through extension of its request methods, error codes and headers. [7] Project Portal relies on this technology for communication between the user's computer and the web server.

The ESRI ArcGIS API is used to display a map as well as the related layers for the map in Project Portal. ArcGIS is a geographic information system (GIS) for working with maps and geographic information. It is used for: creating and using maps; compiling geographic data; analyzing mapped information; sharing and discovering geographic information; using maps and geographic information in a range of applications; and managing geographic information in a database. [8]

DevExpress offers feature-complete UI controls, enterprise-ready reporting systems, IDE productivity tools and business application frameworks for Visual Studio. Our technologies help you build your best, see complex software with greater clarity, increase your productivity and create stunning touch-enabled applications for Windows, Web and next generation Mobile platforms - without limits or compromise. [9] DevExpress UI controls are used to make the calendar object as well as the file browsing object.

2.2.2 Hardware



Figure 2.4 – Windows Server 2012 Logo from Microsoft

The web server will be using Microsoft's IIS server that is built into Windows Server 2012 R2. Internet Information Services (IIS) for Windows® Server is a flexible, secure and manageable Web server for hosting anything on the Web. From media streaming to web applications, IIS's scalable and open architecture is ready to handle the most demanding tasks. [10]

2.3 Agile Methodology

The Agile methodology is a technique for project design. The key concept in Agile is that the developer works closely with the customer to develop small tasks that are completed in frequent intervals. These intervals are small for example two weeks. Keeping the intervals small allows for the development design to be flexible enough to change with customer requirements. This method is much more flexible than the typical approach of the waterfall method which requires the design be specified in the beginning and does not leave much room for change in design.

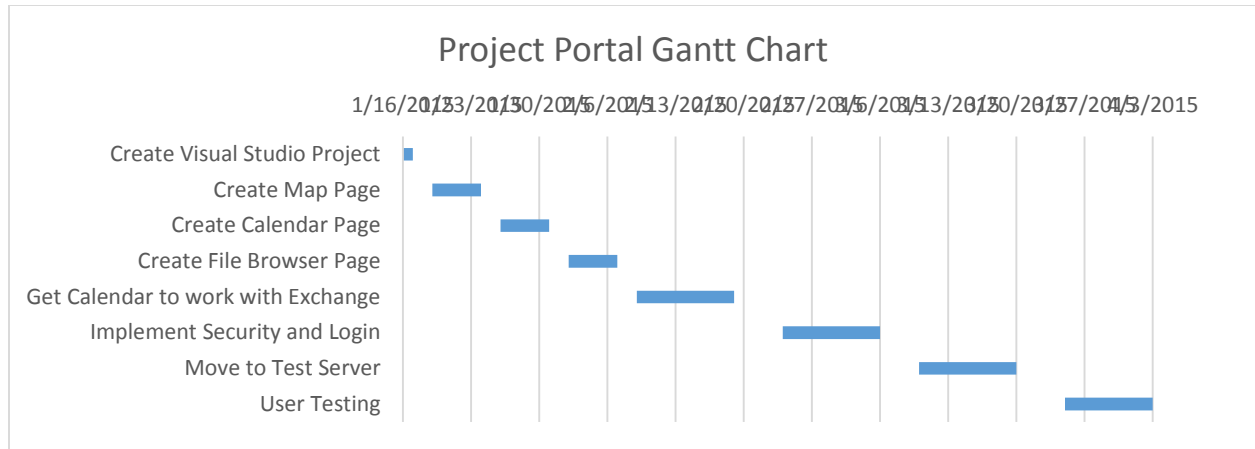


Figure 2.5 - Gantt Chart for Project Portal

The Gantt chart shows the proposed tasks for Project portal. Each task has a starting and end date. They are then charted chronologically with the arrows showing that the prior task must be completed before the start of the indicated task. The red tasks indicate that those tasks are critical to the completion of the project.

3 Design and Testing / User Interface

3.1 System Design

Project Portal's design was created around the idea of simplicity. Besides the idea of simplicity, the design of the project was largely influenced by the specifications I was given for the project. The project specifications were wrapped around the concept of simplicity. I was told that this application was going to be a team collaboration tool. Each tool would need to make communicating and accessing project information very easy. If the application is not simple and easy to use then team members will not use it and creating the application would be a waste of valuable time and resources. Because Project Portal is actually going to be used by teams working on various projects, it was important to get the design correct while giving it the flexibility to adapt to each unique project.

In a study by Google in August of 2012, researchers found that not only will users judge websites as beautiful or not within 1/50th – 1/20th of a second, but also that “visually complex” websites are consistently rated as less beautiful than their simpler counterparts. Moreover, “highly prototypical” sites – those with layouts commonly associated with sites of its category –

with simple visual design were rated as the most beautiful across the board. In other words, the study found the simpler the design, the better. [11]

The design requirements specified at the inception of Project Portal compact down into three main elements. The elements are a map, a calendar, and a place to share files. Those are the main requirements, however the project necessarily grew to include a landing page and a security login.

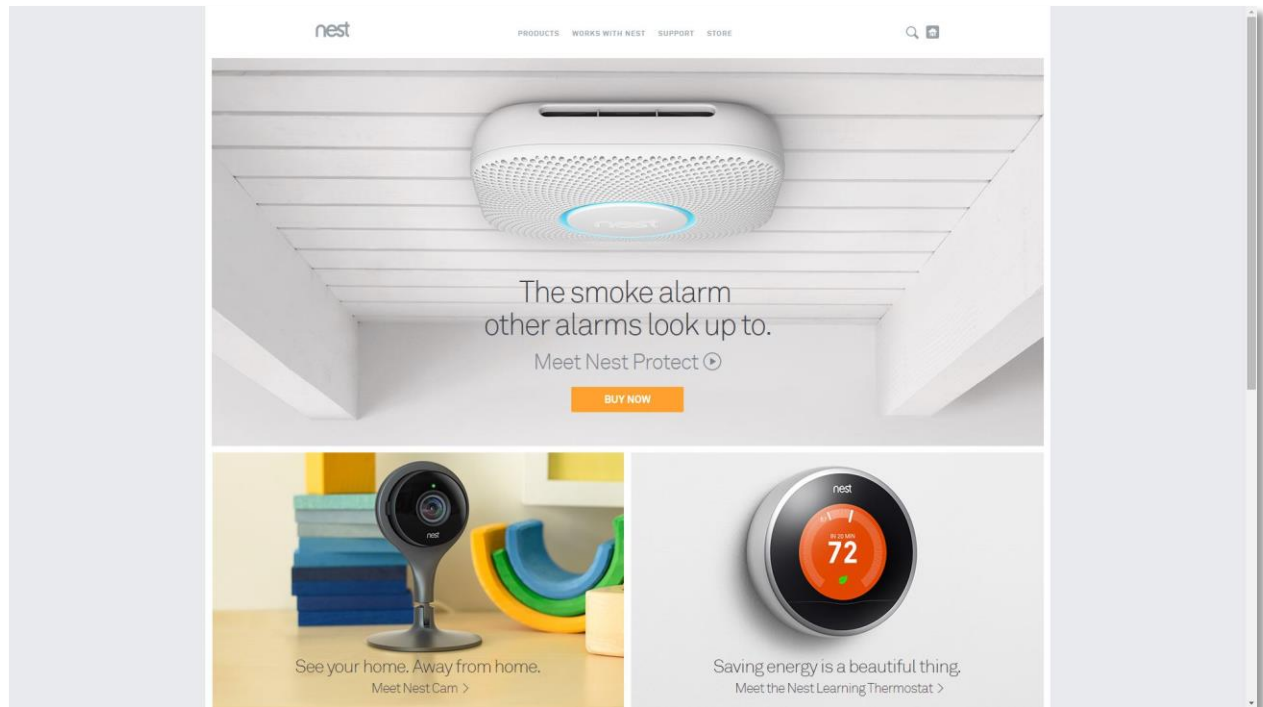


Figure 3.1 – Example of simple web design (nest.com)

3.2 User Interface

The user interface follows closely to the over-arching system design concept of simplicity. I tried to make all the elements on each page simple and intuitive. Simplicity is a basic principle of UI design. The simpler a user interface, the easier it is to use. But keeping user interfaces for business applications simple is a challenge because the apps often have a lot of functionality. The key is to balance functionality and simplicity. Restraint is one of the most efficient ways to achieve this balance: i.e. finding the simplest way to solve a problem. [12] Using the Twitter bootstrap, I was able to achieve the modern look and feel I wanted.

All of the displayed pages have several features in common. They all contain a small State of Alaska header bar. The header bar allows for the State of Alaska branding of the page as well as links to the Department of Natural Resources' and State of Alaska's homepages. Using a header bar was a requirement that I was given. Each page also incorporates a navigation bar with links to all the pages. The navigation bar additionally includes a project title which can be changed based on the project, but is Project Portal in this example. When the user has logged in through the security login, there is a welcome message that includes the user's username displayed in the navigation bar. On the bottom of each page there is a footer

The landing page is the first page the user sees. It contains a welcome message to the user and a large project related image. There is a single button at the bottom of this page. The button takes the user to the security login page.

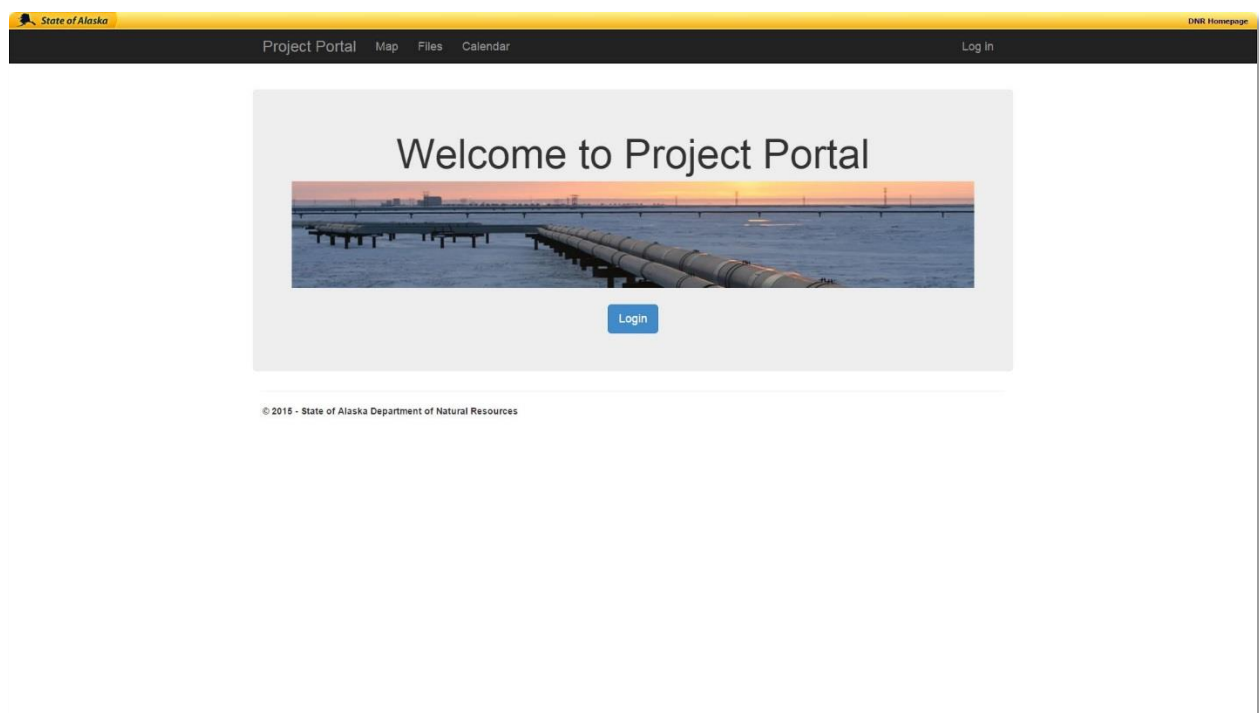


Figure 3.2 – Image of Project Portal's landing page

The next page a user will see is the login page. It contains a simple form for asking for the username and password of the user, which are the same as their LDAP (Lightweight Directory Access Protocol) security credentials. All state employees are given LDAP credentials when they are hired. Outside contractors and other users may be given LDAP credentials if necessary. Before

the user logs in the only have access to the landing page and the login page. Once the user logs in, then they have access to the pages.

The map page primarily consists of a large color map. On the left side of the map is a legend pane that allows the user to select the layers to be displayed on the map. In the legend pane, checkboxes are used as a visual indicator to the user which elements are being displayed. The map itself has controls for zoom and also allows for panning.

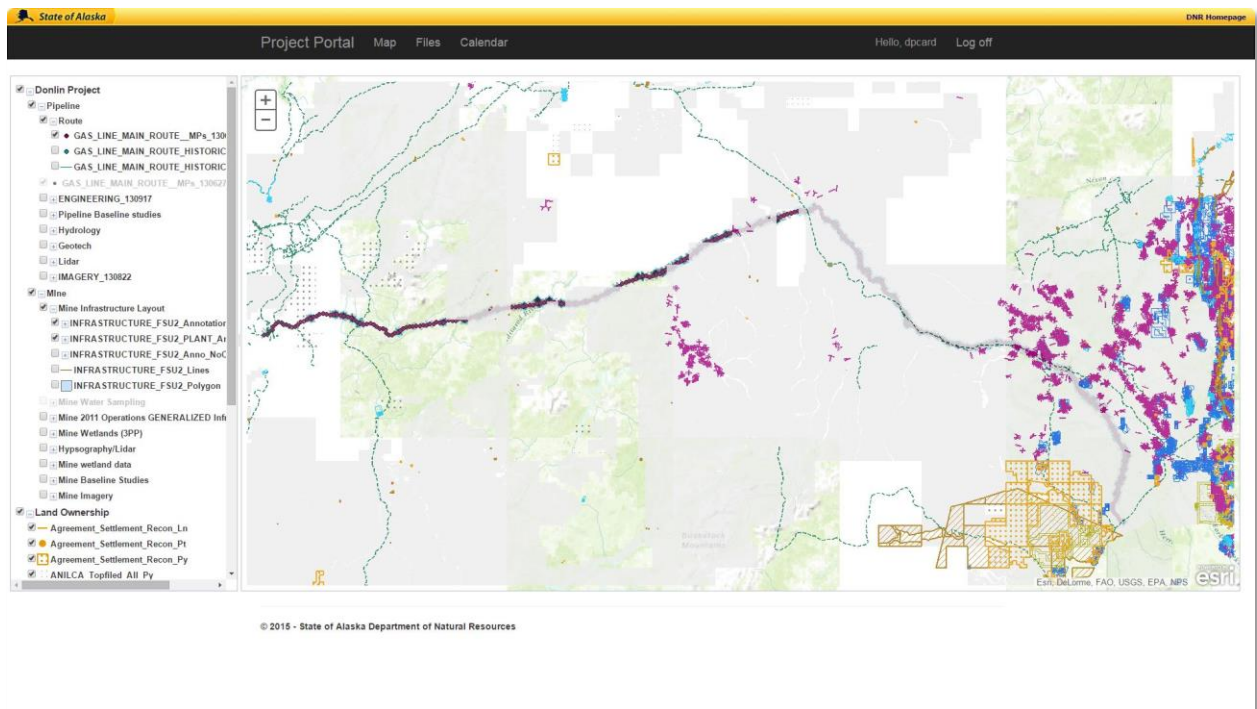


Figure 3.3 – Image of Project Portal’s map page

The file page contains a file browser. On the left side of the file browser is a folder tree that not only displays to the user their location but allows them to relocate themselves by clicking a different folder. In the larger box to the right of the folder tree, the files and directories within the selected folder are displayed. If the user right clicks in the in the content display window they will get a menu with items typically seen within a file browser such as open, delete, rename.

Above the folder and file display panes is a toolbar. The tool bar has buttons to move forward and backwards. It also contains buttons to manipulate folders. There is one for opening a folder, adding a new folder, deleting a folder, and refreshing the folder contents display. Buttons for changing how the contents of how the files and folders are displayed such as in a list or in

thumbnails are also in the toolbar. All of the buttons on the toolbar use easily recognizable icons so that users identify which button they need. The buttons also have tooltips if the user hovers their mouse over the button.

The final button available on the toolbar is a button for uploading files. When the button is clicked a small window pops up with options for uploading files. The window also displays the maximum file size and the allowed file types to the user.

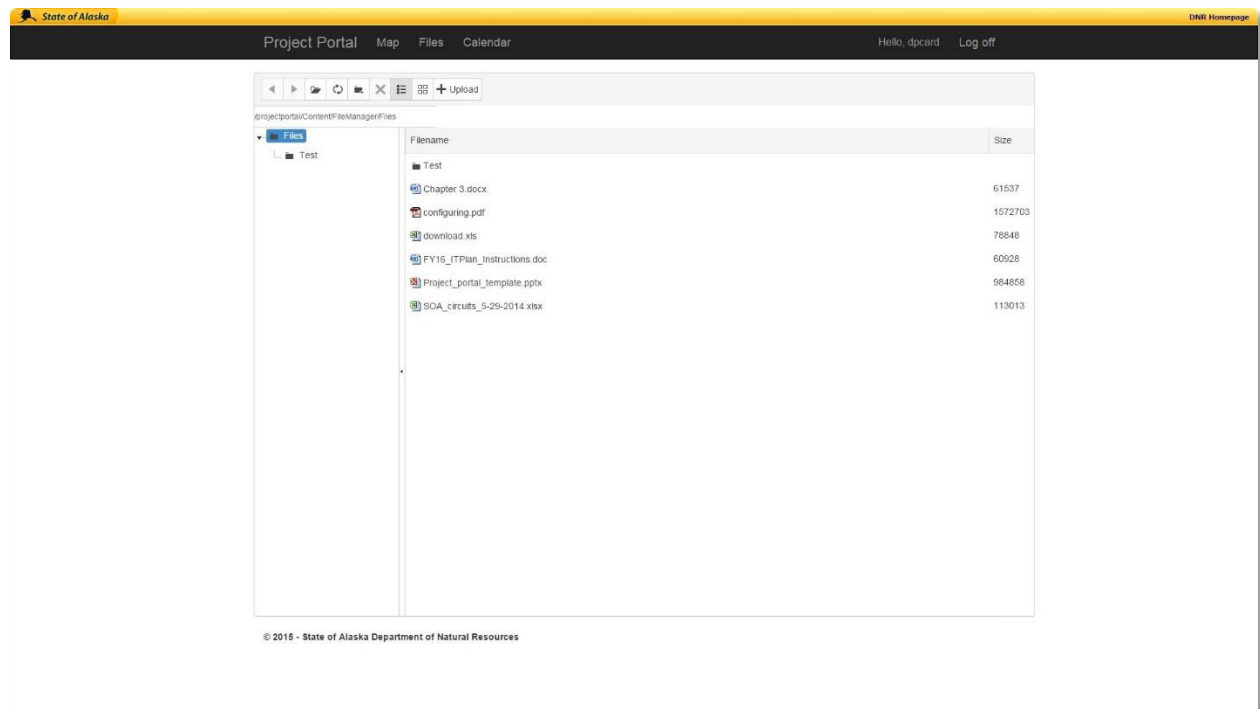


Figure 3.4 – Image of Project Portal's file page

The calendar page displays a calendar similar to a calendar you would find bundled with your email program within the main box. Above the main box is a toolbar with controls for the calendar. On the left-side of the toolbar are buttons for forwards and backwards navigation as well as a datepicker to jump directly to a date. On the right-side of the toolbar are buttons to change the view. The view can be changed to display a day, a week, a month or a timeline. In the timeline view the calendar displays a chronological list of appointments by day.

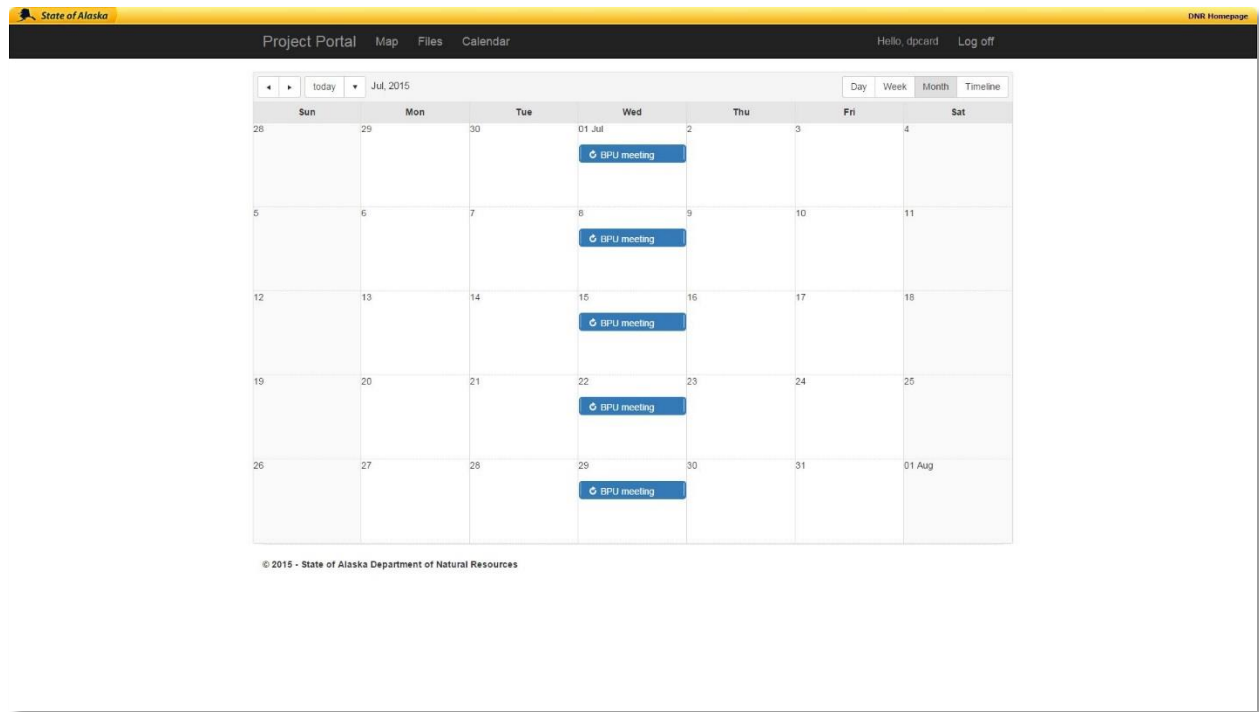


Figure 3.5 – Image of Project Portal’s calendar page

3.3 Testing

Testing is a very important part of the software development process. Testing is designed to reveal errors and defects within the program. Constructing quality products continues to be one of software development’s greatest challenges. Testing, one of the most crucial tasks along the software development life cycle, can easily exceed half of a project’s total effort. A successful testing approach can save significant effort and increase product quality, thereby increasing customer satisfaction and lowering maintenance costs. [13]

Project Portal primarily uses the agile testing methodology. This methodology is used for all the testing including system testing and acceptance testing. The premise of agile testing is that we are doing testing at the same time as we are developing.

The first test type of testing that was used is unit testing. In unit testing, the program is separated into small parts or units. Each unit is tested on an individual level using a variety of inputs and environments in order to make sure the program operates correctly and as required. For Project Portal, I split the project into units based on the logical separation of pages. For example, the

login page was a test unit. I created a test for each part of the test unit that tested the functionality of each piece within the test unit. Unit testing is mainly done during the early stages of the software development process.

The second type of testing used by Project Portal was system testing. The primary idea being system testing is to test the entire program as one complete unit. System testing is considered a black box test. This means that the person testing does not need to have any understanding of how the program works, all they need to know is what to input and what output to expect.

The final type of testing used by Project Portal was user acceptance testing. User Acceptance Testing (UAT) - also called beta testing, application testing, and/or end user testing - is a phase of software development in which the software is tested in the "real world" by the intended audience or a business representative. Whilst the technical testing of IT systems is a highly professional and exhaustive process, testing of business functionality is an entirely different proposition. [14] User acceptance testing includes testing the system both for its functionality as well as if it meets the project requirements. Typically, user acceptance tests are the last tests done on the program before it is released.

Using all of these different types of tests during the project development, allowed me to test the program at various levels. This was a very comprehensive testing methodology. While more testing could have been done, I believe the testing adequately covered the program in order to find the bugs and missing features. The customer was the final person to complete testing on the program therefore if the customer was satisfied that the program meet the requirements and was error free, then the program should be considered complete.

3.3.1 Agile

Agile programming is based off the agile manifesto. The basics of the manifesto come down to being flexible in both project design as well as customer interaction. Agile programming accomplishes the main tenets by using several practices such as test-first programming, frequent refactoring, and continuous integration.

Agile project management is also built upon the agile manifesto. While agile programming focuses on using agile techniques to accomplish the agile methodology. Agile project management focuses on the project as a whole. Agile project management lets software project

managers and employees alike adapt to changing circumstances, rather than try to impose rigid formal controls, as in traditional linear development methods. [15] The main keys to agile project management are to increase customer communication, flexibility, and delivery of a quality product within the shortest amount of time possible.

4 User Guide

4.1 Introduction

Project Portal is a project collaboration web application. The system was designed with tools to allow project teams to communicate project information. Team members can share a calendar, a map, and project-related files. Because Project Portal was created with ease of use in mind, the application can be viewed from any of the primary web browsers: Explorer, Chrome, Firefox, etc.

***Note** - All references in this chapter to server names have been changed to “server”. The reason for this change is due to security concerns by DNR.

4.2 Logging On

To enter Project Portal, open your favorite web browser. In the address bar, enter `http://server/projectportal`. Then hit enter. On the landing page, click the “Login” button. On the login page, enter your LDAP user name and password. If you don’t already have a username and password, you will have to contact your department’s IT professionals or your manager to get

them. Click the “Log in” button. Choose what page to navigate to from the navigation bar/tabs on the top of the page.

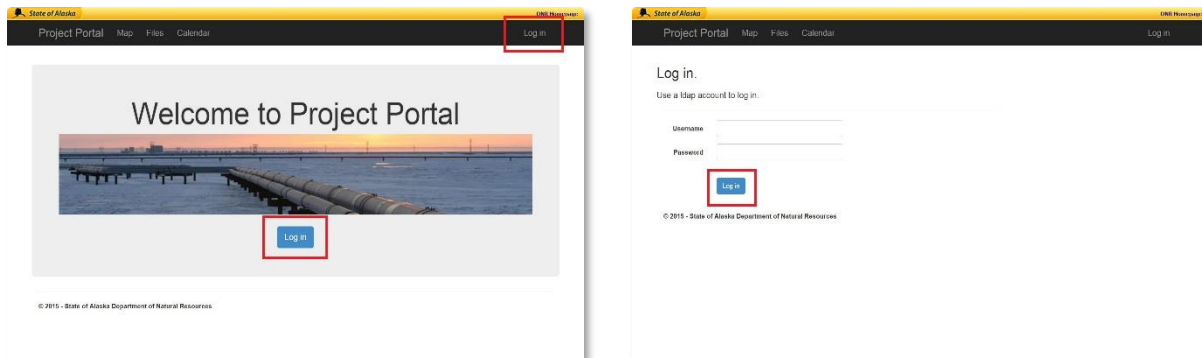
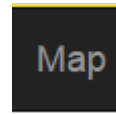


Figure 4.1 – Log in button locations for the landing and login pages.

4.3 Using the Map



Once logged in, click on the map tab in the navigation bar. Wait briefly for the page to load – you should see a map with a legend on the left-hand side. To use the features of the map, see each subheading below.

4.3.1 Zoom



To zoom in, click on the plus button on the map. Likewise, to zoom out, click on the



minus button on the map.

4.3.2 Scroll and Pan

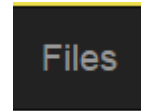
To scroll and pan, left click and hold the mouse button and then move your mouse the direction you wish to move the map.

4.3.3 Changing Map Layers



If you need to change the map layers, click the check box within the legend related to the layer you wish to activate or deactivate. As many layers as desired can be selected; however, the more layers that are selected, the slower the map will load.


4.4 File Browser




First make sure you are logged in. Click on the “Files” tab in the navigation bar. The file browser will now be visible

4.4.1 Navigating Through Folders

To navigate back to a previous folder click on the folder in the folder tree or click on the “Back”

button.  To navigate forward to a previous folder, click on the folder in the folder tree or

click on the “Forward” button.  You can navigate to any folder by simply clicking on the folder in the folder tree. The file path is displayed just above the folder view for additional location information.

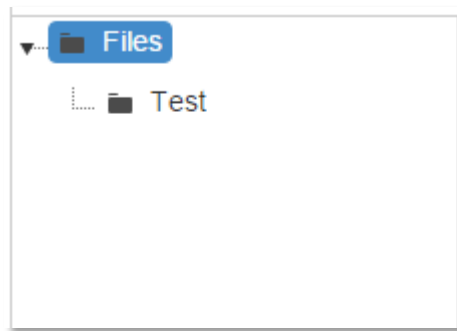


Figure 4.2 – Folder Tree View

4.4.2 Refreshing the Browser view

To refresh the view of the browser, click on the refresh button.



4.4.3 Changing the Browser View

For a thumbnail view, click the thumbnail button.



For the list view, click the grid icon.



4.4.4 Deleting a File

To delete a file, click the delete button  or right-click on the file and select the “Delete” option.

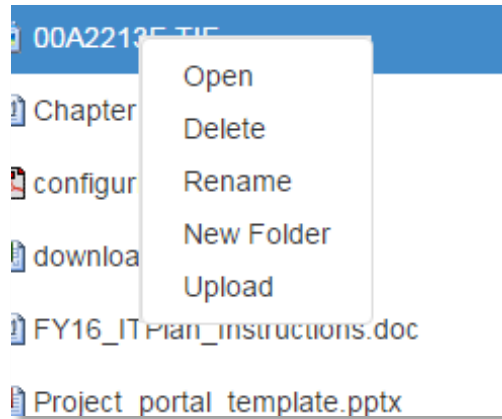
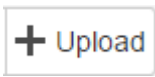


Figure 4.3 – Right click options menu

4.4.5 Uploading a File

To upload a file to the server, click on the “Upload” button  or right click in the browser window and select the “Upload” option from the menu.

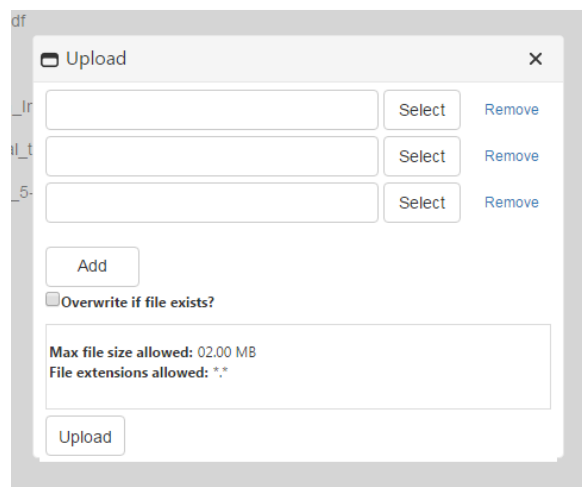




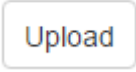


Figure 4.4 – Upload pop-up


After the pop-up is visible, click the top “Select” button  and choose a file to upload.

If uploading more than one file, continue to use the “Select” buttons  in descending order and choose the other files you wish to upload. If you need to upload more than three files,

click the “Add” button.  If you need to remove a file you’ve selected, click the “Remove” button  associated with the file you selected. There is an option to overwrite files if they exist. If you wish to overwrite the files, click the box next to the question. Currently, the maximum single file size allowed for uploading is 2MB. If you need to upload a file greater than that maximum, you will need to contact the application administrator. All file types are allowed at present; however, that may change in the future. After selecting all the files to upload,

click the “Upload” button  on the pop-up. Then verify that your file(s) is/are visible in the browser window.

4.4.6 Creating a Folder

Click the “New Folder” button.  Alternatively you can right click in the browser window and select the “New Folder” option from the menu. Type your desired folder name into the blank on the pop-up window. When finished click the “OK” button.

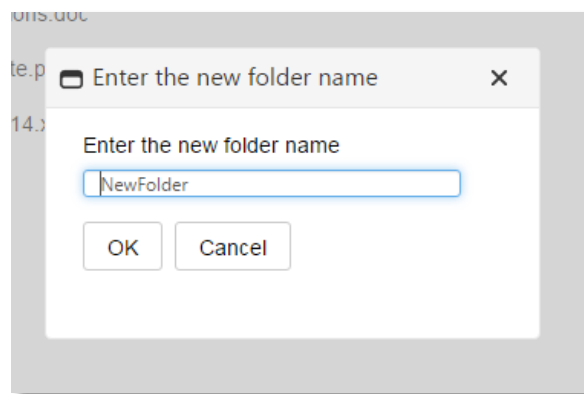



Figure 4.5 – New Folder pop-up

4.4.7 Deleting a Folder

Select the folder you want to delete. Click the “delete folder” button  or right click on the folder and select the “Delete” option from the menu.

4.5 Using the Calendar

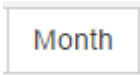
To open the calendar, click on the “Calendar” tab  on the navigation bar.

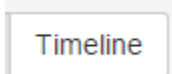
4.5.1 Changing the Calendar View

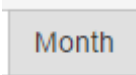
The calendar has 4 available views: day, week, month, timeline. The default view is the month view, it will automatically be loaded when you first open the calendar. In order to change the

view to the day view click the “Day” button.  To change to the week view click the

“Week” button.  You can navigate back to the month view by clicking on the “Month”

button.  The timeline view shows you a list of appointments for selected day along

with the next 2 days. To use the timeline view click on the “Timeline” button.  For


your convenience, the currently selected view option is shaded grey.  In the day and week views there is an option for the calendar to show the full 24 hours instead of the default

8AM to 5PM. To enable this click on the “Show 24 hours” button. 

4.5.2 Navigating the Calendar

In order to move forward by the unit of time currently being displayed click on the forward

arrow button.  Likewise to move backwards by the unit of time currently being displayed

click the backwards arrow button.  To move the displayed view to today, click on the

“Today” button.

today

To choose a specific date to be displayed click on the downwards

arrow.



This will show you a small month view calendar, where you can select the date you wish to display. The current time selection is displayed next to the downward arrow button.

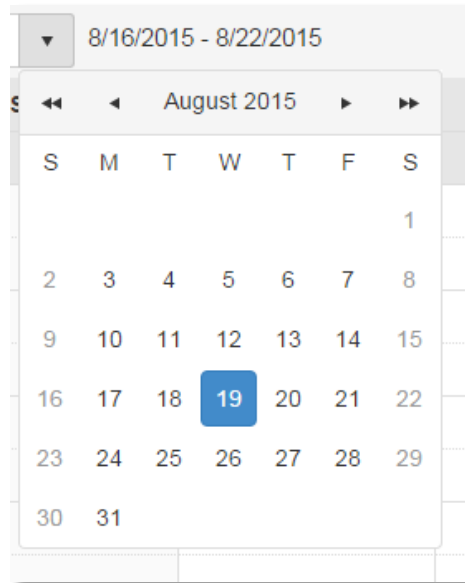


Figure 4.6 – Image of small date picker calendar.

4.5.3 Adding an Appointment

To add an appointment move your mouse over the desired time selection, once your mouse is over a time selection it will become shaded. To select that time spot, double click on the time selection. In the day and week views the default appointment time is 1 hour. In the month and timeline view the default is 1 day. When you double click on a time selection, a small pop-up will appear.

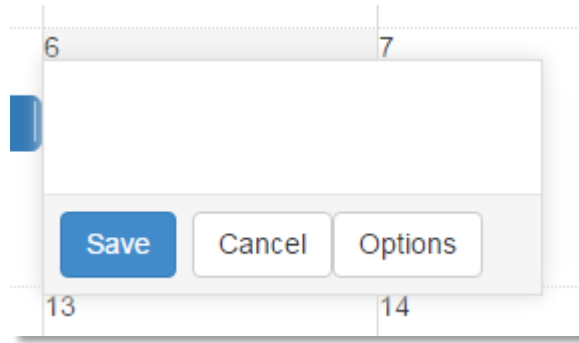
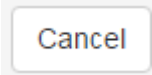



Figure 4.7 – Appointment creation popup


If at any time you decide you don't want to create a new appointment, you can close the pop-up

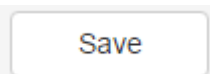
by clicking the “Cancel” button.  In this pop-up, you can enter the subject of the appointment into the text box. Once you have entered a subject, click on the “Save” button

 to create the appointment. If you would like to enter more details when creating your

appointment, then click on the “Options” button  to take you to another screen that allows you to enter more details.

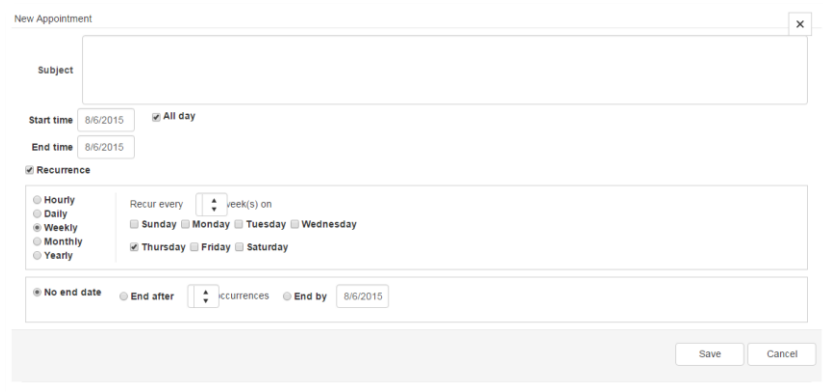
On the detailed appointment page there is a text box for entering an appointment subject. If you entered a subject before clicking the “Options” button it should be already displayed in the subject. You will still be able to edit the subject even though you entered it into the pop-up. If the

appointment is for all day click the “All day” checkbox.  Enter the desired appointment start time into the “Start time” box. Enter your desired appointment end time into the “End time” box. If the appointment is reoccurring, click the “Recurrence” checkbox. When the “Recurrence” checkbox is activated more options for setting the recurrence will appear. Select the options you would like to set for the reoccurring appointment. When all of the options have been selected,

click on the “Save” button  to create the appointment. When the appointment has been created the program will take you back to the calendar that will now display your new

appointment. If at any point you need to stop creating the appointment, you can click the

“Cancel” button  to end the appointment creation.




The "New Appointment" dialog box contains the following fields and options:

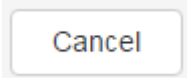
- Subject:** A text input field.
- Start time:** A date picker set to 8/6/2015, with an ☒ for "All day".
- End time:** A date picker set to 8/6/2015.
- Recurrence:** A section with radio buttons for "Hourly", "Daily", "Weekly" (selected), "Monthly", and "Yearly". Below these are checkboxes for days of the week: Sunday, Monday, Tuesday, Wednesday, Thursday (checked), Friday, and Saturday.
- End condition:** Radio buttons for "No end date" (selected), "End after" (with a dropdown), and "End by" (with a date picker set to 8/6/2015).
- Buttons:** "Save" and "Cancel" buttons at the bottom right.

Figure 4.8 – Appointment creation details page

4.5.4 Deleting an Appointment

To delete an appointment place your mouse on the appointment you would like to delete. When your mouse is on the appointment an “X” will now be visible on the right side of the appointment. Click on the “X”. A pop-up will then ask you if you are sure you want to delete the

appointment. If you are sure click on the “OK” button.  Alternatively you can stop the

delete operation by clicking on the “Cancel” button.  If the appointment is reoccurring, there will be options to delete all of the reoccurring appointments or only the selected appointment.

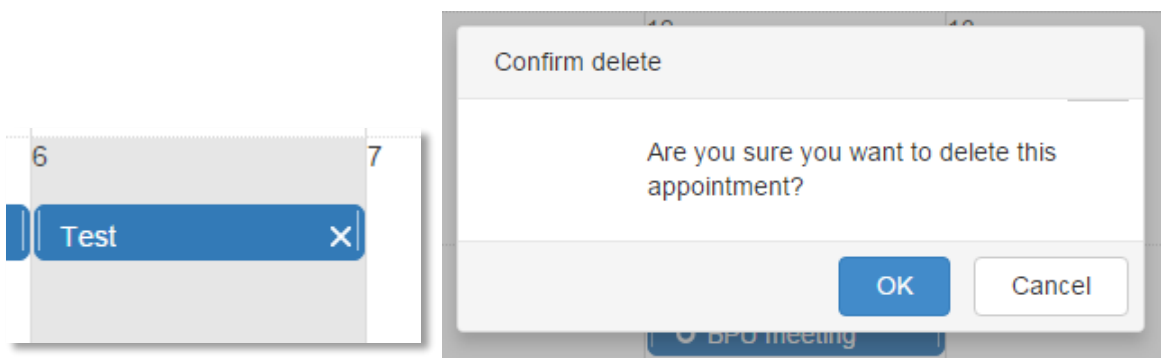
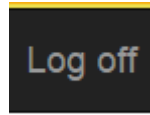


Figure 4.9 – Images of delete sequence

4.6 Logging Off



To log off simply click the “Log off” button in the navigation bar. You can also close the browser. However, we strongly suggest you use the “Log off” button first for security reasons.

5 Conclusion

The idea behind Project Portal was to create a simple tool that would allow project teams to collaborate and share information quickly and easily. Project Portal was to include a map, a calendar, and a way to share files. A map was necessary because most of the projects at the Department of Natural Resources (DNR) are primarily location based. A calendar was requisite in order to have all of the project associated events in one location. The file browser was requested in order to create a place where project related files can be effortlessly shared.

In the planning phase, it was determined that Project Portal should be created as a web application. According to the requirements for Project Portal, the web platform to be used is Microsoft's ASP.NET. The version of .NET being using on Project Portal uses ASP for the code being delivered to the users and employs C# to handle the server-side code. On the hardware side, Project Portal is running on a Windows Server. The user can access Project Portal through any of the mainstream web browsers, for example: Internet Explorer, Google Chrome, or Mozilla Firefox. The security for Project Portal is handled through a login requirement to access any of the pages with information on them. The user account control is handled by the State of Alaska's (SOA) lightweight directory access protocol (LDAP) system.

Before starting Project Portal, I had no experience with .NET. Consequently, there was a fairly steep learning curve in getting this project started. Not only did I have to learn .NET, I also had to learn how to use Microsoft's development software: Visual Studio. Once I got through the initial learning stages, I really enjoyed learning and getting some experience using .NET. This allows me to be a more well-rounded programmer as well as makes me more marketable to employers.

5.1 Implications / Recommendations for Future Development

The impetus for Project Portal was that a project manager asked my boss if there are any software solutions that would allow his project teams to communicate easier. Therefore, my boss asked me to create a team communication tool that ended up becoming Project Portal. The final goal for project Portal is that it would be used by various project teams for project related communications. One of the design requirements for Project Portal was that it be mostly a template design so that it could be adapted to a wide variety of projects thus allowing for easy creation and maintenance. Project Portal will make project teams more productive by allowing for smooth and straightforward collaboration between team members.



Figure 5.1 - Project Collaboration Image from www.liquidplanner.com

Several of the initial recommendations that I had for future development, I was able to fit into the project. Those recommendations included using the LDAP system to login for security and using

the Microsoft exchange server to control the calendar. The main recommendation I have for future development is to modify how the Telerik tools display the calendar. There are some oddities in the way that it displays some of the calendar features. Other recommendations would include adding a team manager's report and a notebook like feature. A team manager's report would be similar to a blog and would allow the manager to "post" project updates. The notebook feature would be a space where any team member could simply post ideas or comments about the project. This could include simple text or could somehow allow for posting of things like pictures, drawings, or web page snippets.

5.2 Conclusion

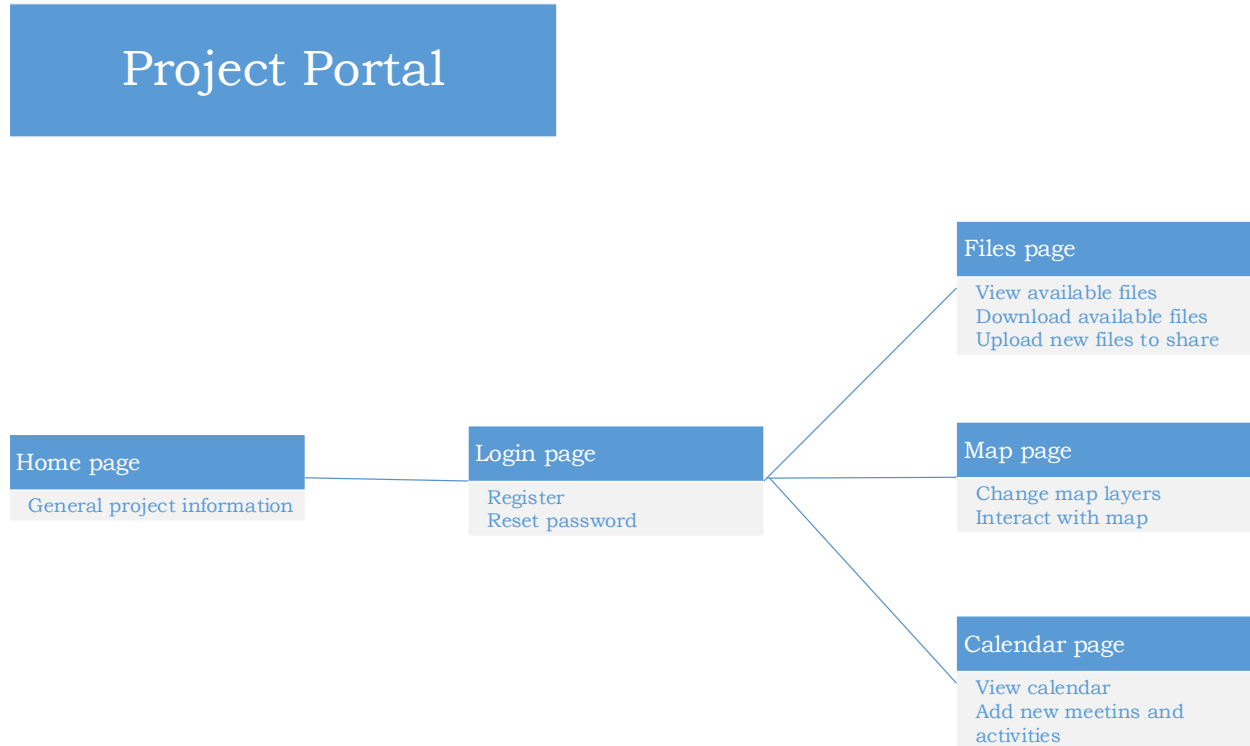
Project Portal was a great real world project for me. The fact that it was actually going to be used provided me with lot of good motivation. I was able to use it as both a senior project to complete my degree and a project for work to demonstrate my abilities. Project Portal granted me the ability to learn .NET as well as how the front-end and back-end work together to display the information to user. Project Portal will be a great asset to project teams at DNR giving them the ability to quickly and simply share project related information. Project Portal and programs similar to it will become increasingly important as efficient team communication and collaboration have become essential in the today's business world.

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Appendix A



Appendix B

For project code please see:

<https://github.com/YukonJack777/CSCE470-Capstone/tree/master/projectsuite>