

My Neutral News

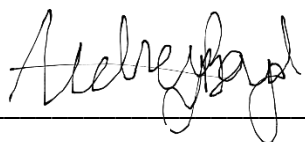
by

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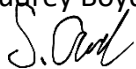
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Abstract

My Neutral News is a web application that is a hub for media regarding popular social justice issues. Its focus is on easily sharable articles and those respective articles having their political leanings identified by a red-to-blue color gradient. To identify media by their political leaning, the redder the article is highlighted on My Neutral News, the more right leaning the source is. On the other end, the bluer an article, the more left leaning an article is. This will make an easy user experience when it comes to trying to find unbiased media, as well as work to disrupt echo chambers present in social media currently. My Neutral News was created using C# on Visual Studio, hosted in an Azure, and visitable via myneutralnews.org. It is based off ASP .Net Core framework the data is held in a SQL server database.

Introduction

Social media is taking a stronghold in the everyday life of Americans, (Perrin & Anderson, 2019). Currently, social justice advocates are using the simplicity of information sharing on social media for their respective social justice causes, ("Social Media", 2020). However, due to strong political divides in the United States, the credibility of the information shared must be put into question. Questions people ask themselves may include, "Is what I am reading bias?" and, "Is it even true?" My Neutral News will provide articles on the most common social justice issues but identify them with a red-to-blue gradient to make it clear where it lies on the political spectrum. My Neutral News will also make it easily sharable to the most popular social media platforms so you can continue the flow of information to your social media ecosystem.

Problem

It is apparent to many that social justice issues are becoming more mainstream. While not new, social justice movements have grown stronger and more established over the last 20 years for many reasons, one being the speed technology provides for sharing incidents that lead to public outcry, (Conner & Rosen, 2016).

Information is constantly being exchanged and is incredibly easy to access with the help of social media. According to a 2019 study from the Pew Research Center, the use of Facebook, Instagram, and Twitter for US adults by percent is respectively 69%, 37%, and 22%, (Perrin & Anderson, 2019). According to Pew Research Center, as of 2017, two thirds of US Adults get

their news from social media, (Gottfried & Shearer, 2017). This equates to tens of millions of adults able to exchange information at their convenience.

A problem that accompanies individuals sharing information quickly regarding social justice issues is that users end up caught in echo chambers, where only the thoughts and opinions from their followers/friends are being circulated (Chen et al., 2020). Additionally, information that can be easily shared can come at the cost of credibility, as less credible sources have found easy ways to become embedded in the social media exchange (Chen et al., 2020). US adults, as well as all social media users, face a serious disservice when they are not presented contrasting, unbiased information from their usual source of social media. While there are news sources that specialize in providing news from unbiased and credible sources, there is not a central location for reliable information specifically related to the social justice topics that have caused echo chambers on social media.

Solution

My Neutral News is a web-based application that allows a user to find information on common social justice issues: Black Lives Matter, Healthcare, LGBTQ+ Rights, and Environmental Activism (“What Are Social Justice Issues?”, 2020). Other social justice issues that will be included are Gender Equality and Human Trafficking, as they are issues the team members are passionate about. The sources for news found on the application will be credible and bias will be analyzed. These factors are determined by verifying it against My Neutral

News's developed system. This will be done by developing an algorithm that works against a database of sources previously collected and categorized by political leaning.

For user interaction, My Neutral News will also allow for users to check articles they find via uniform resource locators (URLs) against the application's verification system to determine the credibility and bias of the source. In other words, users can input a link to an online news source or article, and My Neutral News will verify that sources credibility and bias and return the result to the user. To maintain an unbiased experience, users will not be able to comment on the site. All information on My Neutral News will be easily sharable to the social media platforms Facebook, Instagram, and Twitter.

My Neutral News is targeted to adults searching for information specific to social justice issues. The goal is for this to be incredibly user friendly so it can be of interest to adults of all ages, not just tech savvy people. By focusing on ease of use, the goal is for information from My Neutral News to be able to pierce echo chambers that have been created on social media. The ideal goal would be to have a user who receives the same viewpoint of news from the same kinds of sources in their social media environment to easily use My Neutral News to share a credible piece of news with a different perspective, thereby disrupting the monotonous flow of news.

Project Goals/Brief Methodology

The main goal for My Neutral News is to provide ease of access to unbiased media through a cross platform application. This will be achieved in My Neutral News by creating an

application that has an approachable and stylish design using the ASP.net Core framework and the C# language. This will provide the app with user-friendly functionality and allow cross-platform development. The infrastructure to host My Neutral News will be Azure. Services Azure offers will be used to host My Neutral News in a cost-efficient, secure, and stable way. With the integration of additional features, users will be able to navigate and access information that helps them make informed opinions on social justice topics.

Overview

The remainder of this report outlines the development and creation of My Neutral News. Sections in this final report include analysis on design, methodology, budget, timeline, problems encountered, and future recommendations.

Discussion

Project Concept

My Neutral News was created by Audrey Boyd, Shayna “Nicole” Creech, and Meredith Evans. Meredith originally had the thought for a central location where users could go to for reliable information on common issues circulating in popular culture. Audrey suggested making it easy to share across social media platforms, as many get information there. Nicole brought considerations for how the project would store the data and create a base of reliable information to compare the articles My Neutral News will present as reliable. As a group, there

were discussions around the feasibility of this to get an idea of how it would look. There were remarks made on the nature of biases that will come with this project in a time when society is very politically charged. Together, agreement was reached to be mindful of individual biases during the development.

After meeting all together prior to class several times, the group decided My Neutral News was an appropriate project for the skills possessed collectively, and something all members took an interest in. All members had found during the era of mass data experienced throughout their childhood into adulthood, overlapping with a new wave of social justice movements, My Neutral News could serve an important need. Therefore, My Neutral News was founded.

Design Objectives

Throughout the project, a few of the objectives have remained constant while others have been retired. First, the team knew they wanted to host the project in a cloud-based service and eventually did settle on Azure. While the intention was to do all development in the cloud, due to cost constraints, the decision was made to do most testing locally and then in the spring semester begin the move to the cloud. This way, there is still time to work out any integration issues with Azure services, but still limit expenses.

Another core goal was to allow users the ability to view articles within marked categories of each trending social justice issue. This has been upheld, and the site will have separate sections for popular topics.

The sources for the site still will filter out radically bias media as well as show political leaning within the allowed spectrum. This is done by comparing news pieces against a compilation of sources that have been found and identified with a right-to-left political spectrum. They will then be assigned a value that will compare to a color on a red-to-blue gradient. This color will highlight the article on My Neutral News to still provide users that transparency.

There will still be the functionality for users to share articles to social media pages. The application will allow them to share articles between Facebook and Twitter. Disrupting users' echo chambers via social media is a core tenant of the project and has remained such through development.

There will also still be the functionality allowing users to upload their own links to sources and compare them against My Neutral News's database of sources for a reliability score. This is a way users are able to interact with the project without impacting other users' experiences.

One goal that was abandoned was allowing users to create profiles. The team decided to not pursue that avenue because they did not want users to be able to contribute to the site in a way that could affect another users' experience when processing news. This should be a place for unbiased information. There were strong feelings about not wanting political leanings or agendas on one user to affect another throughout the group. This is also the reason My Neutral news will not include the functionality for users to like or dislike articles. The contribution from users should be minimal.

Methodology/ Technical Approach

My Neutral News can be broken down into three, high-level segments: the application, the database, and the infrastructure. Each segment required team members to have previous technical knowledge and required team members to learn new skills to successfully implement the segment.

Application

My Neutral News is a web application build using the ASP .Net Core framework. The language used for back end development is C#. HTML and CSS will be used for the front end to make a pleasant user experience. My Neutral News has the following tabs based off the social justice issues that the application will display articles regarding:

- Home: list of politically neutral sites
- Black Lives Matter
- LGBTQ+ Rights
- Women's Rights
- Climate Change
- Healthcare
- Refugee Crisis
- Human Trafficking
- Contact Us: ability to email the development team and ability to upload own URLs for verification

Database

My Neutral News will be using SQL Server for database needs. There will be three tables within the database.

- Source_Data: News articles will be pulled from across the internet and populated here with necessary variables before being analyzed for their political leaning and credibility
- Reference_Data: compilation of data sources with corresponding scores used to compare Source_Data records against.
- Reliability_Data: News articles that were in the Source_Data table that have then been analyzed for political leaning and provided a score to be used to populate the My Neutral News tabs

The data gathered to start the Reference_Data table was found from Media Bias/Fact Check.

Infrastructure

My Neutral News will be hosted using Azure Cloud. The code for the actual application will be hosted on an Azure Virtual Machine (VM) using Internet Information Services (IIS) on the server. The database is hosted as well on the virtual machine through SQL server. There were original designs for a more complex network architecture, but due to budget and scope, the design was cut down for ease of management. Access for either component, IIS or SQL Server, require a username and password. Against the VM, there are inbound and outbound rules that only allow necessary traffic and end with a deny all rule for security concerns.

User Profile

The four users who will be using My Neutral News are as follows: End User, Web Developer, Network Architect, and Database Administrator. The end user (see Table 1) will be using My Neutral News to get unbiased information as the project intended. Web developers (see Table 2) will maintain My Neutral News after creation. If there are any issues with the app or configuration maintenance, they will need access. The network architect (see Table 3) will also need to have interaction when it comes to any maintenance, either because of back end issues or for updating systems. The database admin (see Table 4) will be responsible for maintaining the integrity of the database as well as updating the source_data table as new sources come in to use for the application.

Table 1

User Profile: End User

This is a table to explore the abilities and interaction between end users and My Neutral News.

Application	My Neutral News Application
Potential Users	End User
Software and Interface Experience	An end user will have used the internet, social media, and likely other news source applications and sites.
Experience with Similar Applications	Google Chrome, Safari, Firefox, Internet Explorer, Facebook, Twitter, Instagram, Snapchat
Task Experience	Experience with computer version and mobile version will include: 1) using mouse or finger to click and keyboard to type 2) posting on social media with link to source 3) fill out form to contact development team

	4) submit own link to get political leaning score via My Neutral News algorithm
Frequency of Use	Whenever people want unbiased news. This could be daily, weekly, or as large social events happen such as protests or big legislation changes
Key Interface Design Requirements that the Profile Suggests	Easily navigable and simple integrations with social media on both computer and mobile versions. Friendly and intuitive design that is similar for both computer and mobile.

Table 2

User Profile: Web Developer

This is a table to explore the abilities and interaction between web developers and My Neutral News.

Application	My Neutral News Application
Potential Users	Web developer
Software and Interface Experience	GUI and command line with Visual Studio Code used to create My Neutral News. SQL Database GUI for integrating the app with the tables in SQL database. Azure command line and Azure portal for Azure VM. This is what hosts My Neutral News.
Experience with Similar Applications	C#, SQL, GitHub, Azure, possibly other cloud platforms
Task Experience	Experience with software and applications above in order to create an application for both computers and mobile devices.
Frequency of Use	After creation, interaction will only be for resolving issues or bugs, updating for security, or updating if a feature arises the team believes is integral to add to the app.

Key Interface Design Requirements that the Profile Suggests	Ability to use software, applications, programming languages, and cloud functionalities (portal and command line) to create and maintain My Neutral News.
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Table 3

User Profile: Network Architect

This is a table to explore the abilities and interaction between network architects and My Neutral News.

Application	My Neutral News Application
Potential Users	Network Architect
Software and Interface Experience	SQL Server GUI for integrating the app with the tables in SQL database. Azure command line and Azure portal for all components of the application including: App Service, Azure SQL Databases, VNet, Subnets, Network Security Groups, and Private link.
Experience with Similar Applications	Linux and Windows command line, SQL, Azure, possibly other cloud platforms, IP addressing for IPv4
Task Experience	Experience with tools and concepts listed above to create and maintain environment for computer and mobile app to reside.
Frequency of Use	Same as web developer. After creation, interaction will only be for resolving issues or bugs, updating for security, or updating if a feature arises the team believes is integral to add to the app.
Key Interface Design Requirements that the Profile Suggests	Ability to use software, applications, networking concepts such as IP addressing, and cloud functionalities for all services, both portal and command line, to create and maintain My Neutral News' environment.

Table 4

User Profile: Database Administrator

This is a table to explore the abilities and interaction between database administrators and My Neutral News.

Application	My Neutral News Application
Potential Users	Database Administrator
Software and Interface Experience	SQL Database GUI in Azure for updating data tables Azure command line and Azure portal for the components of the application that concern the database including Azure Private Link and Azure SQL Database.
Experience with Similar Applications	SQL, Azure, email (to receive updates from customers on new sources), Google Chrome, Firefox, Internet Explorer (to research and update table with source info)
Task Experience	Experience with tools and concepts listed above to: 1) Create and maintain database 2) Maintain the database in the case of any security or availability concerns 3) Take suggested sources from user suggestions via the “Contact Us” form, research them to decide if we should add them to our pool of sources, then update the source_data table for My Neutral News to use moving forward.
Frequency of Use	After creation, interaction will include resolving issues or bugs or updating for security. Monthly reviews of user contributed sources and then update the source_data table to include the new sources My Neutral News can use.
Key Interface Design Requirements that the Profile Suggests	Ability to use software, applications, SQL knowledge, and cloud functionalities for all services, both portal and command line, to create and maintain My Neutral News’ database.

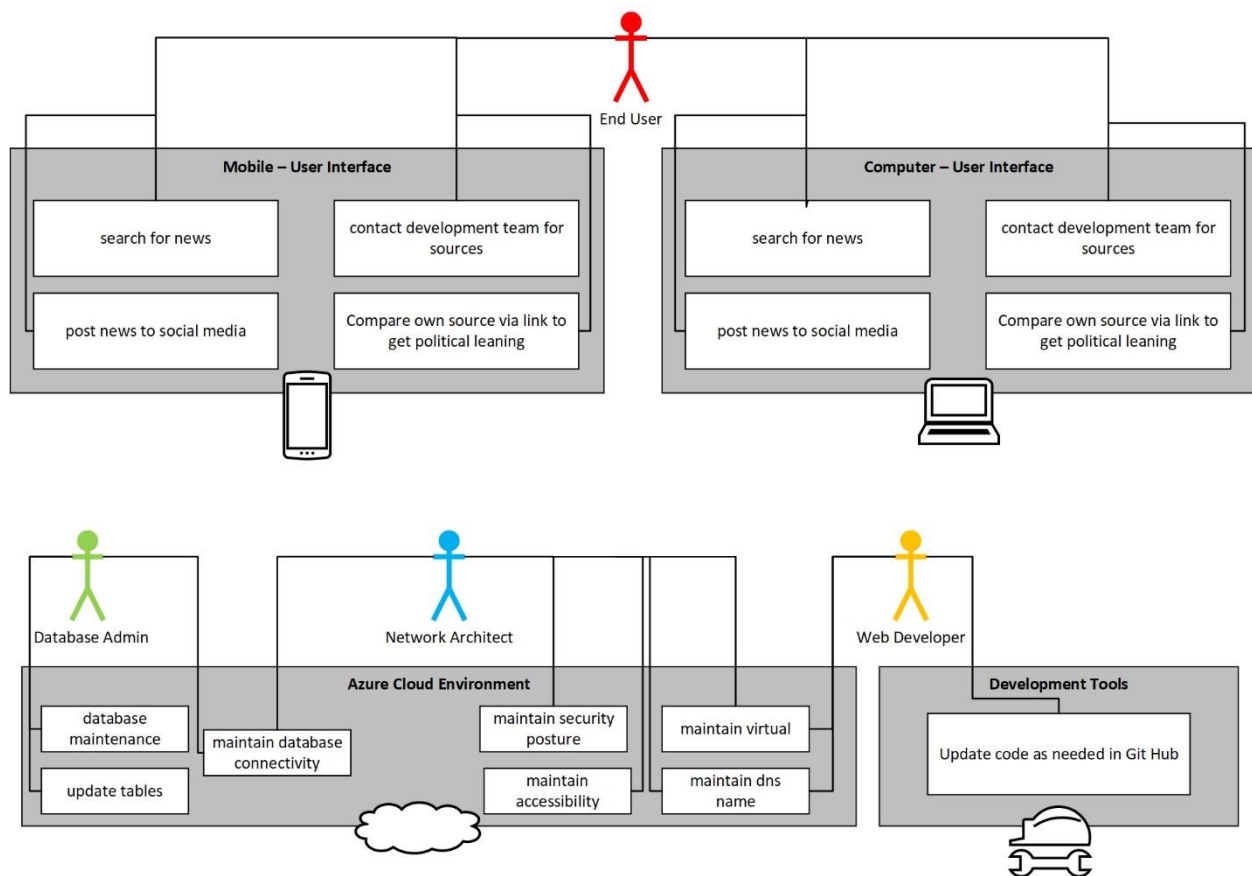
Use Case Diagram

To understand the users better, analysis must be done between the project, its technologies, and the four users: end user, web developer, network architect, and database administrator. Figure 1 shows a visual representation of the tasks these users will complete and what interfaces they will use to do so.

Figure 1

Use Case Diagram of My Neutral News

The diagram shows the four users as explained in Figures 1-4 interacting with My Neutral News and its technologies.



As shown, the user interface on both computer and mobile devices are the only way end users will interact with My Neutral News. The other three user profiles will most often interact with capabilities in the Azure Cloud.

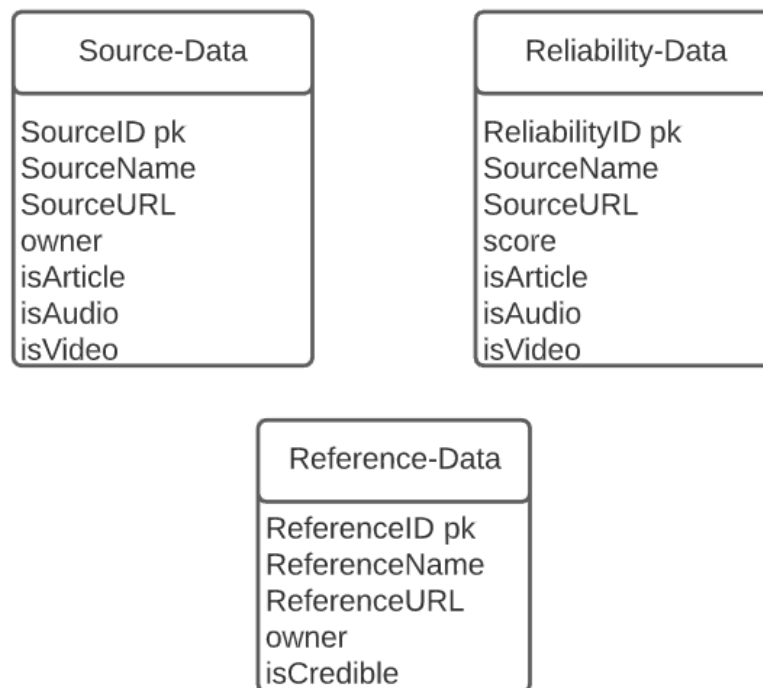
Technical Architecture

Below is the database diagram for My Neutral News. As described in the Methodology section, there are three tables for the database: Source_Data, Reliability_Data, and Reference_Data.

Figure 2

Project Database Diagram

The figure shows the three tables that make up the database “MyNeutralNews” for the project.



Testing Plan

The testing plan of My Neutral News includes details on the methodology, scope, objectives, logs, and a review. The testing as a whole is broken down into user testing, database testing, and security testing.

Testing Methodology

The testing of My Neutral News will focus on user testing, database testing, and security testing. The purpose of focusing on these objectives is to focus on the users that will interact with the web application consistently. User testing will refer to the End User's experience as well as the Web Developer, the database testing is for the Database Administrator, and security testing meets the Network Architect's needs. See *Figure 1* for users in Use Case Diagram.

Scope of Testing

The goal of testing is to test all parts of the project for majority of possible use cases. To make My Neutral News usable and secure, as many interactions as possible need to be tested. This will be done through test cases. For security testing, while typically there is automated tools to run, there are rules of engagements laid out by Azure that give reason to believe security testing will be best handled manually. Because My Neutral News is using App Service, a storage that can be running on the same area as other people's applications, there will be no automated tools used.

Objectives

The objectives for each focus of testing are described as follows.

User Testing.

For user testing, the goal is for the user to be able to access and use the site easily. This can be analyzed by having a user go through the following actions.

Additionally, there will be quality assurance testing to make sure all functionalities are happening in a timely fashion. These tests also meet the needs for testing the Website Developer's interactions with the site.

- Access site via web browser
- Navigate through the site
- Use the upload functionality
- Send an email via the contact us page
- Negative testing to make sure the project upholds against misuse

Database Testing.

The database must be functioning properly and maintaining the data consistently for My Neutral News. Common actions will be run against the database to ensure this.

- Select data from all tables
- Add data to all tables
- Delete data from all tables
- Make sure data is stored in correct form

Security Testing.

While My Neutral News is hosted in Azure, there is still a need to run security tests.

There are a few areas that may be of concern, so tests will be run to ensure they cannot be exploited. The following points are what will be addressed.

- Prevent cross-site scripting from the Contact Us page
- Ensure the site is not vulnerable to SQL injection and Command Injection attacks
- Monitor traffic from test computer to the site in Wireshark to ensure it is traveling securely

Test Logs and Procedures

Below is the log for all test cases. The type of test, abbreviation of the user performing the test, the role of the user, the task, and whether or not the test passed is all recorded.

Table 5

Project Testing Log

The table shows records for each test case against My Neutral News.

ID	Item Type	User	Role	Task	Pass/Fail	Notes
1	user test	j.boyd	User	Navigate to site via URL	PASS	(if failed, why? What regard)
2	user test	j.boyd	User	Scroll through the banner on the Home page	PASS	
3	user test	j.boyd	User	Click on article on the Home page and be redirected	FAIL	Was not redirected
4	user test	j.boyd	User	Go to Social Issues Page from the Home Page	PASS	
5	user test	j.boyd	User	Click on BLM Category and see new articles	PASS	
6	user test	j.boyd	User	Click on LGBTQ+ Category and see new articles	PASS	
7	user test	j.boyd	User	Click on Women's Rights Category and see new articles	PASS	
8	user test	j.boyd	User	Click on Climate Change Category and see new articles	PASS	

13	user test	j.boyd	User	Go to Contact Us page from the Social Issues page	PASS	
14	user test	j.boyd	User	Enter email in the Email address field	PASS	
15	user test	j.boyd	User	Enter text in Ask questions... field	PASS	
16	user test	j.boyd	User	Click Submit	PASS	
17	user test	j.boyd	User	Click Upload a Link! and be redirected	PASS	
18	user test	j.boyd	User	Enter a link in the field-- https://www.cnn.com/2021/02/06/politics/what-matters-february-5/index.html	PASS	
19	user test	j.boyd	User	Click Submit	PASS	
20	QA	n.creech	Web Dev	Access Home page in under 4 seconds	PASS	1 second
21	QA	n.creech	Web Dev	Click link on Home page and be redirected in under 8 seconds	PASS	1 second
22	QA	n.creech	Web Dev	Access Social Issues page in under 4 seconds	PASS	1.5 seconds
23	QA	n.creech	Web Dev	Click on category and see filtering in under 4 seconds	PASS	1.75 seconds
24	QA	n.creech	Web Dev	Search on keyword and see filtering in under 4 seconds	PASS	Functionality removed
25	QA	n.creech	Web Dev	Access Contact Us page in under 4 seconds	PASS	1.13 seconds
26	QA	n.creech	Web Dev	Completed email form submitted in under 6 seconds	PASS	.89 seconds
27	QA	n.creech	Web Dev	Upload link and receive result in under 15 seconds	PASS	.74 seconds
28	negative test	n.creech	Web Dev	Application can handle the unwanted input and user behavior on Home page	PASS	
29	negative test	n.creech	Web Dev	Application can handle the unwanted input and user behavior on Social Issue page	PASS	
30	negative test	n.creech	Web Dev	Application can handle the unwanted input and user behavior on Contact Us page	PASS	
31	database test	a.boyd	DBA	Select * from source_data;	PASS	
32	database test	a.boyd	DBA	Select * from reference_data;	PASS	
33	database test	a.boyd	DBA	Select * from reliability_data;	PASS	
34	database test	a.boyd	DBA	Insert into source_data values x;	PASS	Must manually add ID instead of auto increment.
35	database test	a.boyd	DBA	Insert into reference_data values x;	PASS	Must manually add ID instead of auto increment.
36	database test	a.boyd	DBA	Insert into reliability_data values x;	PASS	Must manually add ID instead of auto increment.
37	database test	a.boyd	DBA	Delete from source_data where value = x;	PASS	
38	database test	a.boyd	DBA	Delete from reference_data where value = x;	PASS	
39	database test	a.boyd	DBA	Delete from reliability_data where value = x;	PASS	

40	database test	a.boyd	DBA	Select column_name, data_type from information_schema.columns where table_name = source_data;	PASS	
41	database test	a.boyd	DBA	Select column_name, data_type from information_schema.columns where table_name = reference_data;	PASS	
42	database test	a.boyd	DBA	Select column_name, data_type from information_schema.columns where table_name = reliability_data;	PASS	
43	security test	m.evans	Net. Arch	On URL upload functionality, submit 	PASS	Using https://www.theatlantic.com/business/archive/2017/04/amazon-app-refund-ftc/522078/
44	security test	m.evans	Net. Arch	Repeat with other variations - <script>, <sc<script>ript>, <scRiPt>	PASS	
45	security test	m.evans	Net. Arch	On URL, add 	PASS	
46	security test	m.evans	Net. Arch	Repeat with other variations - <script>, <sc<script>ript>, <scRiPt>	PASS	
47	security test	m.evans	Net. Arch	Test SQL injection with different upload parameteres set. https://localhost:5001/Upload?=3	PASS	
48	security test	m.evans	Net. Arch	Repeat with other variations - =1 or 1=1 ;	PASS	
49	security test	m.evans	Net. Arch	Test command injection by setting url parameter to cat /etc/passwd	PASS	
50	security test	m.evans	Net. Arch	Access Home page and observe secure packet transfer on Wireshark	PASS	
51	security test	m.evans	Net. Arch	Access Social Issues page and observe secure packet transfer on Wireshark	PASS	
52	security test	m.evans	Net. Arch	Access Contact Us page and observe secure packet transfer on Wireshark	PASS	
53	security test	m.evans	Net. Arch	Submit url thru the site and observe packet transer on Wireshark	PASS	
54	security test	m.evans	Net. Arch	Submit form thru the site and observe packet transfer on Wireshark	PASS	

Review

After completing the test cases, there was reflection on learnings experienced by the team members, project parts reviewed, and additional changes that would be desirable.

Learnings.

After testing, Nicole learned about the research that is required before choosing a specific framework and language to make sure it can meet all application requirements. Meredith learned that the simplicity and minimal user interaction of the project led to a smaller attack surface, and therefore increased security. Audrey learned about the intricacies of databases and how one small step can affect the entire project.

Project Parts Reworked.

The only change made because of testing was an environmental variable changed in CSS. There were two components set to development when one needed to be production and one set to development. After this change, the CSS updated properly, and users were able to complete testing successfully.

Desirable Changes.

In respect to the framework used for the project, ideally it would be changed to ASP .NET Core 5.0 from its current ASP .NET Core 2.1. Doing so would have made the functionality a bit easier and simplified troubleshooting during development.

Another desired change would be allowing for pagination when looking at specific categories of social justice issues. Currently, there is some lag time while the site populates the page with the articles from the database.

Finally, the last desired change would be in respect to the database. It would be better to have changed the ID columns of the three tables to better Identity columns. This would make inserting a new row much easier. At the present moment, the database administrator must figure out the most recent ID used and increment up manually when inserting a new row.

Budget

My Neutral News' budget shown in Figure 3 was assessed using a 5-year return on investment calculation. The costs for the project include manpower, Azure services, and domain name.

Figure 3

Project Budget

The figure shows a breakdown of labor and external costs for My Neutral News over a five-year period.

Estimated Cost Rough Order of Magnitude:							
	Rate Per/Hr	Work Effort (Hours)	1 X Costs	Ongoing Annual			Comments: Outside of our labor costs, our biggest expense is the cost for Azure. We have to pay monthly to run our services. I calculate about \$30 per month to keep what we need running.
				Rate Per/Hr	Work Effort (Hours)	1 X Support Cost	
Labor - IT	20	1000	\$ 20,000.00	20	6	\$ 120.00	
Labor - External	0	0	\$ -	0	0	\$ -	
Software - External			\$ 300.00			\$ 300.00	
Hardware - External						\$ -	
Misc.			\$ 20.00			\$ 20.00	
TOTAL			\$ 20,320.00			\$ 440.00	
5-Year ROI Analysis							
Description		5- Year Expected	Conservative (1.5)				
Total Costs		\$ 22,520.00	\$ 33,780.00				
Total Benefit		\$ -	\$0				
Total Costs/Benefit Differential		\$ (22,520.00)					
Conservative Costs/Benefit Differential		\$ (33,780.00)					

As Figure 3 outlines, the biggest cost comes from the hours logged by people to create the project.

Project Timeline

Table 6 is a timeline for the project through both semesters. Fields without dates are due to waiting on dates from the second semester class.

Table 6

Project Timeline

The table shows tasks needed to complete the project as well as duration calculated between the start date and end date, when applicable.

Task	Duration	Start Date	End Date
Create Prototype for presentation	122	8/1/2020	12/1/2020
Project Management and Deliverables	268	8/1/2020	4/26/2021
Team Building	13	8/1/2020	8/14/2020
Group Discussion and Research on the Problem	5	8/15/2020	8/20/2020
Fall Semester Assignment 0: Team Members & Project Name	4	8/20/2020	8/24/2020
Project Name	4	8/20/2020	8/24/2020
Fall Semester Assignment 1: Team Contract	7	8/24/2020	8/31/2020
Project Approval	7	8/24/2020	8/31/2020
Project Logo and Branding	14	8/24/2020	9/7/2020
Gantt Chart	7	8/31/2020	9/7/2020
Work Breakdown Structure	7	8/31/2020	9/7/2020
Determine Project hosting space	7	9/7/2020	9/14/2020
Fall Semester Assignment 2: Project Abstract for Tech Expo	35	9/7/2020	10/12/2020
Fall Semester Assignment 3: Team Contract Resubmission	35	9/7/2020	10/12/2020
Chose Cloud vs On Prem	1	9/14/2020	9/15/2020
Determining Infrastructure environment	7	9/14/2020	9/21/2020
Chose Cloud Provider	2	9/15/2020	9/17/2020
Chose Server	1	9/17/2020	9/18/2020
Determine Necessary Resources	4	9/17/2020	9/21/2020
Chose Database	1	9/18/2020	9/19/2020
Chose Firewall	1	9/19/2020	9/20/2020
Chose Domain	1	9/20/2020	9/21/2020
Determine Framework	1	9/21/2020	9/22/2020

Research any security requirements	3	9/21/2020	9/24/2020
Background Research	28	9/21/2020	10/19/2020
Research Software Requirements	7	9/21/2020	9/28/2020
Determine Security Requirements	7	9/21/2020	9/28/2020
Determine Language	2	9/22/2020	9/24/2020
Determine Application layout	4	9/24/2020	9/28/2020
Determine best security practices in environment	4	9/24/2020	9/28/2020
Create Network Diagrams	7	9/28/2020	10/5/2020
System Design	21	9/28/2020	10/19/2020
Create System Diagrams	21	9/28/2020	10/19/2020
Create Database Diagrams	14	9/28/2020	10/12/2020
Create Interaction Diagrams	14	9/28/2020	10/12/2020
Create Wireframe Diagrams	14	9/28/2020	10/12/2020
Fall Semester Assignment 4: User Profile	7	10/12/2020	10/19/2020
Fall Semester Assignment 5: Use Case Diagram	7	10/12/2020	10/19/2020
Development	28	10/12/2020	11/9/2020
Create hosting environment	28	10/12/2020	11/9/2020
Set up Homepage	7	10/12/2020	10/19/2020
Set up separate pages for each cause	7	10/12/2020	10/19/2020
Set up server	14	10/12/2020	10/26/2020
Set up tables for database	28	10/12/2020	11/9/2020
Set up network security groups	21	10/19/2020	11/9/2020
Compile Sources for Reference Table	13	10/19/2020	11/1/2020
Fall Semester Assignment 6: Draft Report	21	10/19/2020	11/9/2020
Add red-to-blue gradient	36	10/26/2020	12/1/2020
Semester Assignment: Draft Report	10	10/30/2020	11/9/2020
Fall Semester Assignment 7: Final Fall Semester Report	21	11/9/2020	11/30/2020
Fall Semester Oral Presentation	0	11/30/2020	11/30/2020
Add CSS Design Features	50	1/1/2021	2/20/2021
Regression testing from computer	7	1/21/2021	1/28/2021
Regression testing from phone	7	1/21/2021	1/28/2021
Create API	28	2/2/2021	3/2/2021
Spring Semester Assignment 1: Testing Plan/Report	4	2/4/2021	2/8/2021
Spring Semester Assignment 2: Final IT Expo Abstract	3	2/12/2021	2/15/2021
1 Presentation Practice	14	2/14/2021	2/28/2021
Spring Semester Assignment 3: Draft Tech Expo Poster	3	2/26/2021	3/1/2021
Update Database and connect to project	28	3/1/2021	3/29/2021
Migrate Progress into the Azure Cloud	31	3/1/2021	4/1/2021
Spring Semester Assignment 4: Final IT Expo Poster	3	3/12/2021	3/15/2021
Create functions for automated jobs to populate database	15	3/14/2021	3/29/2021
Presentation Practice	1	3/21/2021	3/22/2021
Spring Semester Assignment 5: Course Final Presentation & Visual Aids	14	3/22/2021	4/5/2021
SQL Injection testing	3	3/29/2021	4/1/2021

Penetration testing	1	4/1/2021	4/2/2021
Spring Assignment 6: IT Expo Recorded Presentation	1	4/4/2021	4/5/2021
Database testing	1	4/7/2021	4/8/2021
Spring Assignment 8: Final Report	5	4/7/2021	4/12/2021
Quality assurance	1	4/9/2021	4/10/2021
User acceptance testing	1	4/10/2021	4/11/2021
Spring Assignment 7: Plagiarism (Turn it In) Review for the Final Paper	1	4/11/2021	4/12/2021
IT Expo	0	4/13/2021	4/13/2021
Spring Assignment 9: Final Library Copy	6	4/20/2021	4/26/2021

Problems Encountered and Analysis of Problems Solved

My Neutral News did present challenges that team members were forced to solve.

Team members discussed all issues as a group and made unanimous decisions to solve these problems with the best interest of the project in mind.

One problem the team encountered was securing funding. The free trial for Azure services quickly ran out and a new plan was needed. My Neutral News decided to open a checking card to set up to the Azure account where each member would contribute funds equally. That way, if there was ever an accidental service left running in Azure that cost more than expected, not one person was required to pay for it all. However, with the increase of mail in ballots for elections causing a drain on the United States Postal Service, there was a delay in receiving the card. The team pivoted and worked outside of Azure. Code was housed in Github and a database was spun up locally. Rather than immediately create network infrastructure, the architecture was diagrammed. However, by the time the card did come in, due to expenses, the team simplified the architecture and pursued a one server route for cost and scope purposes.

Another problem encountered was creating an algorithm that is effective, but still within reason and scope. To create, there was reliance on many discussions as a group and iterate through different database table configurations to find a feasible solution. After trial and error, it is believed there is now something effective to accomplish the algorithm goals using a compilation of data sources that have a predetermined bias scores and using that to populate the site with understood biases showed.

A change that had to be made due to a problem encountered was removing the search functionality. Due to time and scope restraints, it became too challenging to get the ability for searching for specific articles on the site. While this does impact user experience, the team determined this to be lower priority to other functionalities such as the red-to-blue gradient, URL upload functionality, and properly sorted articles based on respective social justice issues.

Finally, the last issue experienced was with database connectivity. All members of the team experienced some issue with this. Data was not being pulled properly into the “Social Issues” page. Also, once the data base put on the Azure VM, it was not connecting back into the project at all. First, specific ports needed opened on the VM to allow for access. Then, to solve for both problems the placement of the connection string needed changed. Rather than having it in the web.config file, it needed to be in the app.settings file of the project. After this change, data base accessible.

Conclusion

Developing My Neutral News has been a rewarding experience for all team members. Lessons were certainly learned about the intricacies of creating a greenfield project, or a project completely from scratch. All members have developed valuable technical skills. While much has been accomplished, there is still work to be done on My Neutral News for its completion.

Lessons Learned

Everyone had to learn about the work required to develop an in-house algorithm. The team had to make decisions about how many data points will be enough for the prototype, how findings would be reflected in a way that is easily understandable for the end user, and how to keep personal biases from creators out of it.

Even from a higher level than just developing an algorithm, the actual undertaking of developing a working application was a lesson for all members. Balancing scope, time, cost, and ability of members was a lesson all continued to learn from beginning to end.

More specifically to the My Neutral News project, everyone also learned about the truth behind many news sources. It was unexpected to realize how many news sources are owned by the same company. It made everyone realize how important this project is when trying to think critically about news presented to the masses.

Skills Developed

Through this project, the entire group has learned about the power that exists in Azure services. The traditional understanding of application hosting and network infrastructure was

not at all what ended up as the project's architecture. All had to be open to adapting to newer technologies to serve the needs of the project and all had to be willing to try and fail.

There were also skills developed in terms of hosting an entire application. Everyone had worked on some parts that go into application creation; together, the group had skills in networking, databases, programming, and security. However, everyone learned how to connect the pieces to create a completely new application.

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