Software Requirements Specification

for

The ArQive

Revision History

Name	Date	Reason For Changes	Version
First Rough Draft	October 9, 2020	First Document for Review and Approval	1.0
Second Draft	November 8, 2020	Ethics portion, DFD, add requirements	2.0

1.   Introduction

The ArQive is a LGBTQ+ website and mobile application that allows anyone to post fun and interesting events that they took part in. By providing users with the ability to place pins indicating where they have been, The ArQive gives people the ability to mark their place in the world and share their stories!

1.1   Purpose

This document will provide a detailed description of The ArQive mobile application and all underlying software. Each section outlined in this SRS Document will give an explanation of the software implemented to create The ArQive mobile application and will provide an in-depth explanation of what The ArQive mobile application requires in order to function. The requirements specified later in this document are current necessary functions that The ArQive mobile application requires in order to operate properly.

1.2   Intended Audience and Reading Suggestions

This SRS document contains the necessary information for software developers to review to understand the project in its entirety. Project managers will need sections 4.1, 4.2 and section 5 to understand the product. Documentation writers will be looking at the entire document to see if it is written correctly.

1.3   Product Scope

The ArQive is a mobile application that allows users to post personal, historical, and community stories that can be shared and accessed within the application. The software gives users the ability to create user accounts that are used to log into The Arqive. Registered and non-registered (Anonymous) users are allowed to post stories of various categories, which are represented by pins on the map. Each pin on the map corresponds to an individual story previously posted by a The ArQive user, which leads to an individual story page with detailed information about the story. Users have the ability to comment on stories, bookmark stories, follow other users, flag stories for negative content, and flag comments for negative content, as well as receive badges based on personal and community milestones.

1.4   References

- 2020 The ArQive SRS Version 3, Fadi Haddad, Klaudia Hernandez, Nathaniel Suarez, Tony Truong, Justine West
    - https://csns.calstatela.edu/department/cs/project/resource/view?projectId=7248602&resourceId=7672794

2. Overall Description
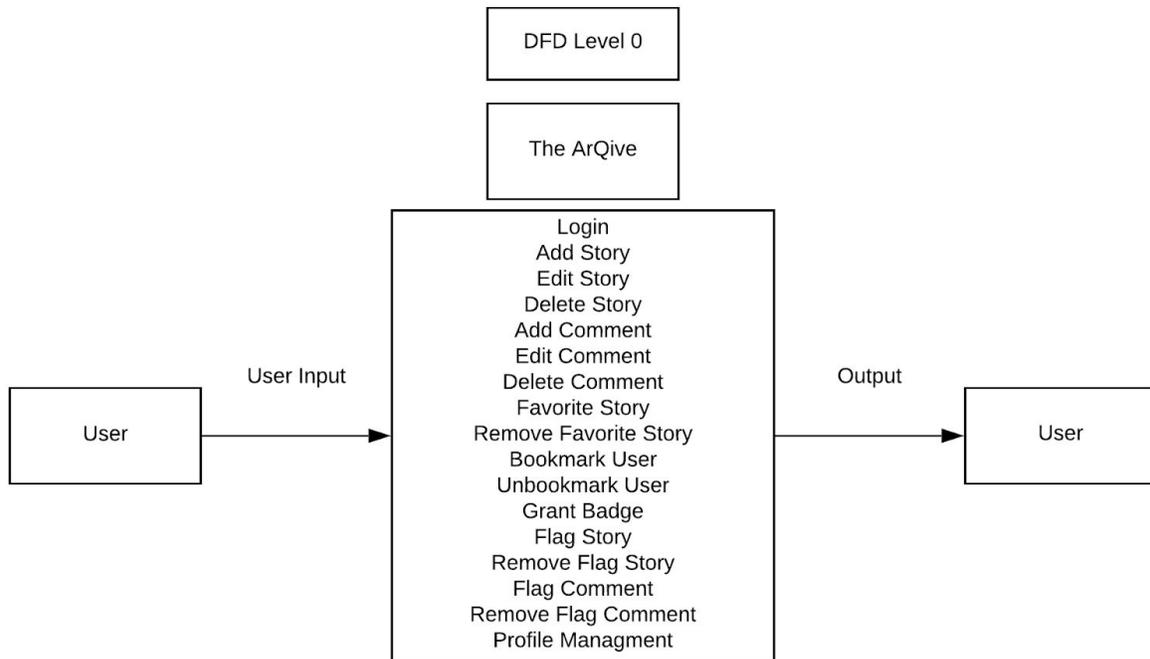
Figure 2.1 Level 0 DFD for The ArQive mobile application

2.1 System Analysis

This software is designed to be an archive of the collective experiences held by members of the LGBTQ+ community from all around the world. It aims to catalogue historical and personal events, along with public resources. The major technical hurdles we have to overcome are: the transmission and storing of data, alongside the management of user privacy, as well as ensuring that the final software can be appropriately moderated. To overcome these we have identified key solutions: the use of a database, AI moderation, and data encryption. Further privacy requirements regarding users are detailed further in the document.

2.2   Product Perspective

This mobile application is intended for social interaction between users. It is intended for users to share their stories with other users, which can be read and commented on. In order to access all the features that The ArQive has to offer. This mobile application will allow users to register within the mobile application itself. Whenever a new user registers, all the required data will be recorded in a database, and will also allow the user to use the same login credentials on the website.

2.3   Product Functions

- Login screen: will allow the user to log into The ArQive
  - Unique username: will allow users to distinguish among each other
  - Password requirements: will ensure that users fulfill the secure password requirements
- Add story: users will be able to add a story pin on the map
  - Location: the user will have to specify a location to add the pin to the map
  - Pin: the user will have the ability to choose what type of pin they will post based on the story they will create (Categorical, Historical, or Personal)
  - User will have the ability to see other users' stories
- Delete Story: users will be able to delete their own posts
- Edit Story: users will be able to edit their own posts
- Comments: users will be able to comment on stories
- Bookmark: users may bookmark posts
- Follow: users may follow users
- Profiles: registered users will have access to their profile, where they can add a profile picture and bio
- Profile Settings: users will have access to their profile settings
- Administrators and Moderators will be able to alter or delete user stories
- Administrators and Moderators will be able to manage content

2.4   User Classes and Characteristics

- Administrators can view, create, edit, and delete any posts, appoint moderators.
- Moderators can view, create, edit, review any flagged content, and delete any content
- Registered users can create and delete their own posts. They can also comment on other people's posts.

- ○ Frequency of use: High
- ○ Technical Expertise: Basic phone application usage skills
- ○ Educational Level: Basic reading and writing skills
- ○ Characteristics: Anyone can see and pin stories
- Non-registered(Anonymous) users can create and view posts

2.5   Operating Environment
Mobile application that is accessible on a smartphone
- Ubuntu 20.04 LTS
- Android
- iOS
- Django Rest
- Python3 3.7
- mod_WSGI
- Apache 2.2
- React Native 0.63

2.6   Design and Implementation Constraints
- Accessibility
  - ○ Might be difficult for users with certain accessibility constraints to use the mobile app
- Security
  - ○ If someone posts content that might put them at risk, there is no guarantee that they will be protected outside of the mobile app

2.7   User Documentation
- The user has the option to create an account.
- the user has the option to log into an existing account.
- the user can tap on a button to create a pin at the users location; if logged in, will post under the user's account, if not, it will post anonymously.
- Users can enable Anonymous mode, which allows users to post and comment anonymously.
- There is an option for the user to post the pin through inputting an address.

- The user can tap on existing pins to view them.
- The user can edit their own pin.
- Other users can comment and vote on other pins.
- Users can search for stories.
- Users can search for users.
- users can edit their profile.
- Users have access to their profile settings.
- Users can comment on stories.
- Users can flag stories.
- Users can flag comments.
- Administrators and Moderators have access to the Manage page.
- Administrators and Moderators can manage content.
- Administrators can submit FAQs.
- Users can submit an email to The ArQive team within the Contact Us page.
- Users can access valuable resources within the Resources page.

2.8   Assumptions and Dependencies

We need to assume that the user can access the internet on their device.
- We must assume the user has basic knowledge of the internet.

We need to assume that the user has a smartphone.
- We must assume the user has basic knowledge of using a smartphone.

2.9   Apportioning of Requirements
N/A

3.   External Interface Requirements

3.1   User Interfaces
- The user shall see the home page with a navigation bar that shall guide the user to a specific section
- The home page shall contain the map with the story-pins and the ability to read the stories
- The user shall see a profile button located inside the navigation bar
- The user shall see a new post option located inside the navigation bar

- The user shall see a search option located inside the home page that would allow the user to search for specific stories
- The user shall see their profile after logging in located inside profile page, which shall allow the user to edit profile data and see their profile
- The user shall see a login option located inside the profile page if not logged in
- The user shall see an accessibility option in the settings page that shall allows the user to turn on/off accessibility options
- The user shall see an about us option in the settings menu that shall give a little background information about the application
- The user shall see a FAQs(frequently asked questions) option in the settings menu that shall guide the user to the FAQs page
- The user shall see a contact us option in the navigation bar that shall allow users to give feedback by entering their personal email or anonymously
- The user shall see a notification button located inside the navigation bar
- The user shall see notifications within the notification page
- The user shall see a bookmark button on the navigation bar
- The user shall see their bookmarked posts within the navigation bar
- The user shall see their followed users within the navigation bar

3.2   Hardware Interfaces

The ArQive mobile application users must have a current smartphone running iOS or Android with internet access.

3.3   Software Interfaces

- OpenStreetMap API (free)
  - Utilize the map of the world functionality
- Recaptcha API (free)
  - Helps protect the website through spam and abuse
  - Turing test to tell humans and bots apart
- React Native Maps (free)
  - Access geographic coordinates of selected regions of the world map
  - Adding markers to the world map
  - Removing markers to the world map

3.4 Communications Interfaces

Basic communications from the user to the product will require an iOS or Android phone. Users will be redirected to an electronic form where they will submit the necessary information required to post on the phone application. HTTP will be enforced wherever possible in order to secure as much information about the user as possible, but HTTPS will be accepted as well where SSL encryption is required. All accessible information will be stored safely in a database.

4. Requirements Specification

4.1 Functional Requirements

1. User Account Requirements
    1.1. The system shall allow users to create an account
        1.1.1. The system shall verify that each user creates a unique username
        1.1.2. The system shall verify that each user creates passwords with 8 or more characters
        1.1.3. The system shall verify that each user creates passwords with one or more symbols
        1.1.4. The system shall verify that each user creates passwords with one or more numbers
        1.1.5. The system shall verify that each user creates passwords with one or more upper and lower case characters
        1.1.6. The system shall verify that the user is 13 years of age or older by checking that they are of age when asked
    1.2. The system shall allow users to enter an anonymous mode
        1.2.1. The system shall refer to a user's username as anonymous when in anonymous mode
        1.2.2. The system shall not display a user's profile picture when in anonymous mode
        1.2.3. The system shall not display a user's name when in anonymous mode
        1.2.4. The system shall not display anonymous posts on a user's profile
    1.3. The system shall allow users to connect their Facebook, Instagram, Twitter, and Google personal social media accounts to their profile
    1.4. The system shall allow users to display their stories on their profile page
        1.4.1. The system shall allow users to hide stories from their user page
    1.5. The system shall allow users to make their profile public
    1.6. The system shall allow users to make their profile private
    1.7. The system shall display a user's profile picture
        1.7.1. The system shall allow users to upload a new profile picture
        1.7.2. The system shall allow users to alter their current profile picture
    1.8. The system shall display a user bio on a user's profile
        1.8.1. The system shall allow users to edit their bio
        1.8.2. The system shall allow users to remove their bio
    1.9. The system shall allow the user to delete their account

1.10.   The system shall alert users when logging in that their password is incorrect

1.11.   The system shall allow the users to change their password

    1.11.1.   The system shall send an email to users to change password

1.12.   The system shall allow users to follow other users

    1.12.1.   The system shall show users what users they currently follow

2. Gamification

2.1.   The system shall give registered users badges for completing community milestones

2.2.   The system shall give registered users badges for completing user milestones

2.3.   The system shall display a registered user's badges on their profile page

2.4.   The system shall allow registered users to display a badge next to their username

3. Map Requirements

3.1.   The system shall display a map

3.2.   The system shall display all story pins on the map

3.3.   The system shall be able to resize the map

3.4.   The system shall be able to display a map inside individual story pages

3.5.   The system shall allow users to tap on a story pin on the map

4. Story Requirements

4.1.   The system shall allow users to post stories

    4.1.1.   The system shall allow users to edit stories that they posted

    4.1.2.   The system shall allow users to delete stories that they posted

4.2.   The system shall allow anonymous registered users to post stories

    4.2.1.   The system may allow anonymous registered users to edit stories that they posted

    4.2.2.   The system may allow anonymous registered users to delete stories that they have posted

4.3.   The system shall allow users to add stories to certain locations on the map

    4.3.1.   The system shall allow users to add stories to certain locations by entering an address

    4.3.2.   The system shall mask the location of people by searching by zip code for those who do not want to provide an exact location.

    4.3.3.   The system shall allow users to choose no level of anonymity radius

    4.3.4.   The system shall allow users to choose a minimum level of anonymity radius

    4.3.5.   The system shall allow users to choose a moderate level of anonymity radius

4.3.6.   The system shall allow users to choose a maximum level of anonymity radius

4.3.7.   The system shall have the map span out and show a pop up when a story is added

4.4.   The system may allow multiple users to post to a single location that contains all previous posts in that location

4.5.   The system shall allow users to create stories by tapping the option to post a story.

4.6.   The system shall allow users to add dates to stories

4.7.   The system shall allow users to add text to stories

4.8.   The system shall allow users to upload images to stories

4.9.   The system shall allow users to add hyperlinks to stories

4.10.   The system shall allow users to comment on stories

4.11.   the system shall allow users to create pins for different categories

4.12.   The system shall provide additional fields for different types of stories

4.12.1.   The system shall include date as a field for historical stories

4.12.2.   The system shall include date as a field for community stories

4.12.3.   The system shall include data as a field for personal stories.

4.12.4.   The system shall include geographic location as a field for all stories

4.13.   The system shall cluster markers by categories

4.13.1.   The system shall cluster markers by geographic location

4.14.   The system shall allow users to search for stories

4.14.1.   The system shall allow users to search for stories by search term

4.14.2.   The system shall allow users to search for stories by time

4.14.3.   The system shall allow users to search for stories by story type

4.15.   The system shall allow all registered users to submit personal stories

4.16.   The system shall allow all registered users to submit community stories

4.17.   The system shall allow all registered users to submit historical stories

4.18.   The system shall allow users to connect existing social networking sites within story submissions.

4.19.   The system shall allow users to share stories on social media

4.19.1.   The system shall allow users to share stories on Twitter

4.19.2.   The system shall allow users to share stories on Facebook

4.19.3.   The system shall allow users to share stories on Instagram

4.20.   The system shall allow users to bookmark stories

4.20.1.   The system shall show users their bookmarked stories

5. Platform Requirements

5.1.   The mobile application shall be accessible through a smartphone

       5.1.1.   The phone application shall be available on iOS smartphones

       5.1.2.   The phone application shall be available on Android smartphones

6.   Multimedia Requirements

   6.1.   The system shall allow users to submit links within a story

       6.1.1.   The system shall display any links that a user submits

   6.2.   The system shall allow users to upload images with a story

       6.2.1.   The system shall display the images that a user posts

7.   Security Requirements

   7.1.   The system shall encrypt user information

   7.2.   The system shall protect itself from malicious agents

       7.2.1.   The system shall time out users after a certain amount of failed login attempts

       7.2.2.   The system shall require moderator approval of posts beyond some threshold within a time period

8.   Automatic Content Moderation Requirements

   8.1.   The system shall automatically flag stories identified as spam for moderation

   8.2.   The system shall flag stories that contain vulgar or offensive language for moderation

       8.2.1.   The system shall quarantine stories after a certain number of user flags have been detected until moderation approval

   8.3.   The system shall flag comments that contain vulgar or offensive language for moderation

       8.3.1.   The system shall quarantine comments after a certain number of user flags have been detected until moderation approval.

9.   User Role Requirements

   9.1.   The system shall allow specific users to be Moderators

       9.1.1.   The system shall allow Moderators to edit stories

       9.1.2.   the system shall allow Moderators to delete stories

       9.1.3.   The system shall allow Moderators to delete user comments

10.   FAQ Requirements

   10.1.   The system shall display a FAQ section

       10.1.1.   FAQs shall display questions

       10.1.2.   FAQs shall display answers to questions

       10.1.3.   FAQs shall provide information on safety and privacy

11.   About Us Requirements

   11.1.   The system shall display an About Us section

    11.1.1. The system shall display the purpose of The ArQive in the About Us section

12. Settings Requirements

  12.1. The system shall allow users to delete their account

  12.2. The system shall allow users to write a bio to show on their profile page

  12.3. The system shall allow users to make their profile public or private

13. Contact Us Requirements

  13.1. The system shall allow the user to post feedback on the Contact Us page

    13.1.1. The Contact Us page will provide users to share their email for responses

4.2 External Interface Requirements

- The ArQive requires a database to store all the data from its users
- The ArQive requires a backup database to store all data in case the first one fails
- The ArQive shall not disclose any personal information
- The ArQive requires a computer or mobile device with internet access in order for users to access the website
- The ArQive requires a compatible mobile device with internet access in order for users to access the mobile application

4.3 Logical Database Requirements
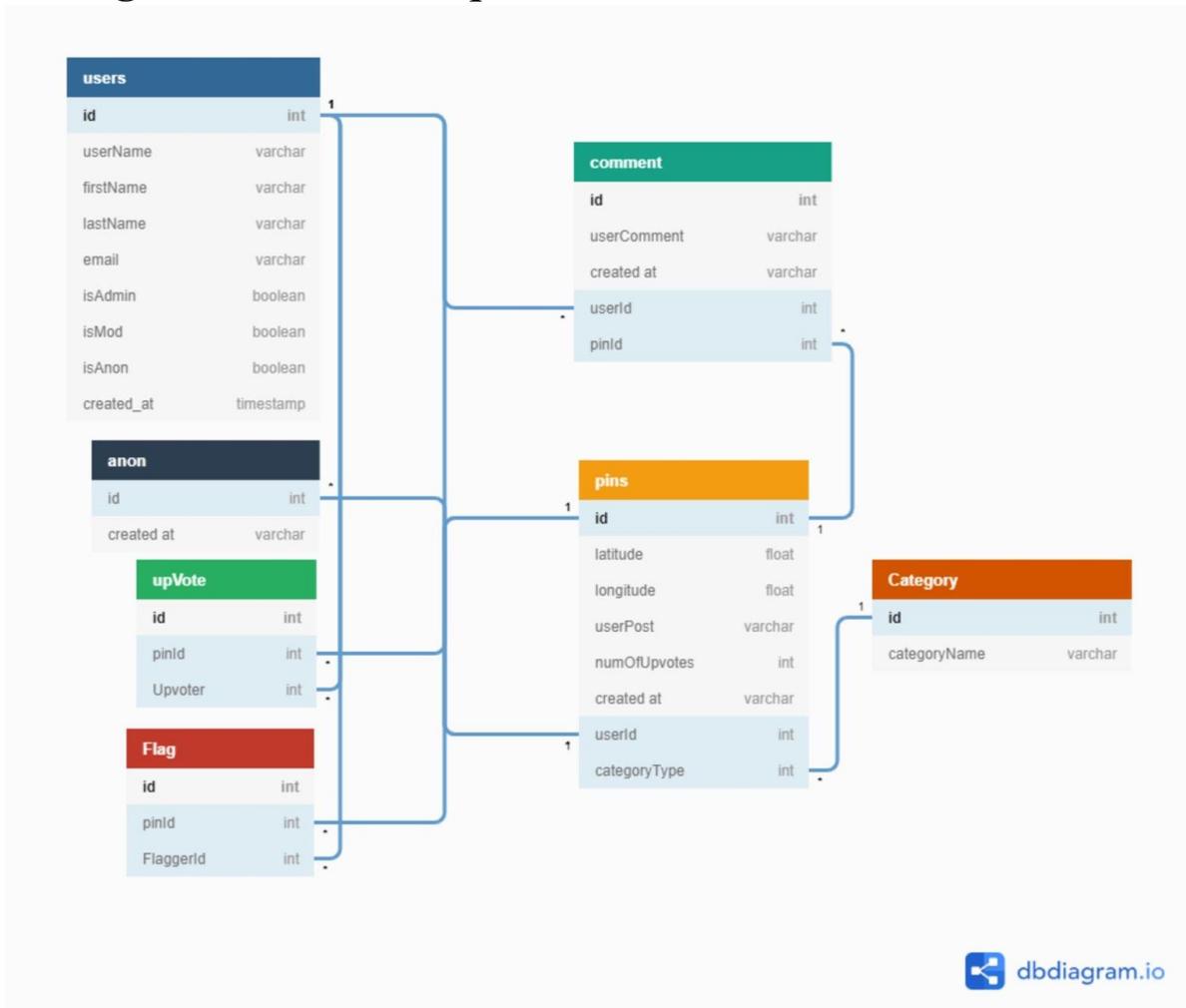
4.4 Design Constraints
● The ArQive can not guarantee the safety of data during an attack
● The ArQive can not guarantee the quality of posts on its website

5.   Other Nonfunctional Requirements

5.1 Performance Requirements
The ArQive mobile application should be able to scale up if most of its users are using the app simultaneously.

5.2   Safety Requirements
Users posting their exact locations in cities, territories, and/or countries where certain sexual orientations and/or gender identities are illegal may result in them facing mental and physical harm. Actions that must be taken in order to ensure the safety of users throughout the world would include implementing safer security requirements. These security requirements could include utilizing a Virtual Private Network(VPN) in order to create a secure connection to another network that would safeguard an individual's internet use from public and private entities. An alternative to using a VPN would be to implement TOR browsing, where the user's IP address will never be stored on our servers, but an IP address masked by multiple nodes through TOR browsing will be.

5.3   Security Requirements
- The user will have a password only known to them
- The system may use a VPN to protect the user's identity and current location
- The system may use Tor to protect the user's identity and current location
- The system shall encrypt private user data
  - The system shall encrypt user emails

5.4   Software Quality Attributes
The mobile application should be accessible and usable to both Android and iOS mobile users. It should be able to correctly update to both of them.

5.5   Business Rules
- Administrators and Moderators can edit and delete posts
- Administrators can edit and delete profiles
- Administrators and Moderators can manage users
- Administrators and Moderators can delete comments
- Administrators and Moderators can view all flagged stories that are flagged more than x times

- Administrators and Moderators can view all flagged comments

6. Legal and Ethical Considerations

Given that The ArQive deals with stories belonging to the LGBTQ+ community it is of utmost importance to provide users with as much security as we can. In many areas of the world they are a group that is often persecuted and any exposed information may lead to dire consequences. Given that statement, it would be unethical to allow users to post and as a platform not ensure that they are protected. To ensure that our users are protected as much as possible we plan to take certain steps, allow anonymous posts, post with an address, and encrypt user data.

When it comes to users, we allow users to sign up with an account containing a username and allow them to post anonymously if desired. Given how in traditional social media, or mobile applications, we assume location data or user data to be public, we allow users to make posts without their username being tied to it. Furthermore, we allow users to create posts not only with their current location, but also through the use of addresses and anonymity radii when the user is in a comfortable and secure location. This would aid in keeping the privacy of our users, and prevent their real location from being exposed to a malicious agent.

In the event that server security is breached we plan to have sensitive information encrypted. By encrypting data we can ensure that even if it is exposed, it is illegible to those that have gained access to said data through improper means. If a user's email were to be exposed, it could be used to find them on social media platforms or to harass them.

In conclusion, maintaining user privacy is a priority in a platform aimed at members of the LGBTQ+ community, especially given that in many areas they are persecuted. The steps we plan to take will help ensure that users can maintain a high level of privacy and anonymity while using our platform. We are sure that this is not an exhaustive list of possibilities, but one we can implement given our time frame.

Appendix A: Glossary

Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.

If this section is very short you may include it in section 1.4. If your list is very long you may include it here and put a reference to this Appendix in section 1.4.

AWS	Amazon Web Service
ER	Entity Relationship
LGBTQ+	Lesbian, Gay, Bisexual, Transgender, Queer, and more.
SRS	Software Requirement Specification
VPN	Virtual Private Network

Appendix B: Analysis Models

Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.

Appendix C: To Be Determined List

Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.

General Template Directions:

- This page should not appear in the final document.
- Replace any **<Insert x here...>** placeholders with the actual text. Yes this also means replacing the angle <> brackets as well. Your document should not have ANY **blue** text in it. If the text had any kind of formatting (bold, italics, font size) keep the same formatting. DO change the font color to black.
- Remove any **<green text>** placeholders. These are descriptions about what to write in each section and may also provide examples of what to write. Do not simply copy / adapt the wording to fit your project. All green text should be replaced with your own text or removed completely in some cases.
- **DO NOT** change the formatting of the document this includes:
  - font sizes
  - font weights
  - italics NOT in angle brackets
  - margins
  - spacing
  - adding or removing sections of the document.
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