

Use Cases and Requirements

This section outlines in detail the requirements of the overall system and its users, broken down by use case. Each use case has functional and nonfunctional requirements, as well as system requirements and user requirements. Some overlap between these categories is present, but it is important to document them from different perspectives for the sake of clarity.

Use Case: Search Manifest

Summary: A user should be able to search available manifests by given keywords. Upon entering a search request, a user should be able to view all manifests related. This will allow filtering of the numerous manifests to a more specific subset that the user is interested in.

Users:

- Researchers
- Students
- Data Scientists
- System Administrators

Functional Requirements:

- View manifests in an organized manner based upon an executed search.
- User interface is easy to use and tailored to intuitive functionality. In other words, a user should be able to quickly understand what elements on the page are designed to do, rather than needing specific instructions or know-how in order to interface with searching manifests. This includes a search field for a user to input search items and a button to execute a search.
- Valid Display of all relevant datasets to a given search. A user should not be shown irrelevant items to their search, invalid manifests, nor should a user be unable to view manifests that are relevant. For example, if a user searches for manifests based on keyword “twitter”, all manifests related to twitter should be displayed. If any relevant manifests are not displayed, the search itself would not be valid to the user.
- Security should be enforced by the system to protect manifest data and system features from unauthorized access. This will be accomplished through the following methods:
- All searches will query the data, so user input must be sanitized before being queried directly to the database.

- No user will have access to manifests that they do not have permission for. For example, a user may be able to view a manifest, but not edit if they do not have the necessary access to do so.

Non-functional Requirements:

- Search should occur in less than 10 seconds, to ensure a user gets fast response. Should search take longer than 10 seconds, give an error message.
- Search should display up to 25 manifests; more than 25 will result in a button to prompt a user to display more.

Technical Requirements:

- Script or query to search manifests for keywords.

Pre-conditions:

- User wants to search site for data

Main Success Scenario:

Manifests on server have been searched and all relevant manifests are displayed to user in an ordered fashion.

Failed End Condition:

Search takes longer than expected OR no manifests to display with given search terms.

Trigger:

User clicks to initiate a search.

Dependent Use Cases:

- Upload Dataset
- Generate/Upload Manifest
- Contribute to Existing Dataset
- Browse Manifest

Use Case: Browse Manifest

Users:

- Researchers
- Students
- Data Scientists
- System Administrators

Functional Requirements:

- User should be able to view manifests, multiple at a time, with a small subset of manifest information to help identify that manifest.
- Display should be organized in a way that makes it clear to a user where one manifest begins, where the next begins, and what information is related to each respective manifest.
- Date uploaded will be the differentiating factor for multiple sets of SNC files for the same data set. Date uploaded is a required column for information that will be displayed with the manifest.

Non-functional Requirements:

- No more than 25 manifests should be displayed at a time.
- Pressing “view more” should load another 25 manifests.
- The display for the manifests should be no more than 70 percent of the width of the displayed page.

Technical Requirements:

- Button to download each manifest
- Options to sort the displayed manifests by date and relevance

Pre-conditions:

- User has searched for manifest

Main Success Scenario:

Up to 25 manifests are displayed relevant to search, with options to download and view respective manifests, with option to view more if user wishes

Failed End Condition:

No manifests found for given search, so none are displayed

Trigger:

User clicks to initiate a search.

Dependent Use Cases:

- Search Manifests

Use Case: Contribute to existing Dataset**Users:**

- Researchers
- Students
- Data Scientists
- System Administrators

Functional Requirements:

- Place to upload link to data
- Place to upload scripts (if provided)

Non-functional Requirements:

- Redirect to page for contributing to existing dataset should take no more than 5 seconds (provided a decent internet connection)

Technical Requirements:

- Working web server

Pre-conditions:

- User wishes to upload SNC files

Main Success Scenario:

- Dataset has been found on server and files have been successfully uploaded to site and connected to respective manifest

Failed End Condition:

- User is unable to upload OR dataset not found on server

Trigger:

- User clicks contribute to existing database

Dependent Use Cases:

NONE

Use Case: Download Dataset/SNC**Users:**

- Researchers
- Students
- Data Scientists
- System Administrators

Functional Requirements:

- provide access to different formats, if applicable, for files to be downloaded
- display size of download requested

Non-functional Requirements:

- Download should allow up to 1GB size

Technical Requirements:

- copying files to local machine

Pre-conditions:

- User has searched and selected a given manifest

Main Success Scenario:

- Copy of SNC/dataset files are on user local machine

Failed End Condition:

- download fails and copy is not made on local machine

Trigger:

- user clicks download manifest

Dependent Use Cases:

- search manifest
- browse manifest

Use case: Generate or Upload manifest**Users:**

- Researchers
- Students
- Data Scientists
- System Administrators

Functional Requirements:

- Buttons to generate manifest and upload manifest
- include any input fields for all manifest specifications for generation of a new manifest
- dataset exists and has been contributed

Non-functional Requirements:

- If user opts to generate a manifest, redirect should take less than 10 seconds
- form for generating a new manifest should take up no more than 70 percent of screen width

Technical Requirements:

- database for storing manifest files

Pre-conditions:

- user has shared any Dataset and SNC files

Main Success Scenario:

- Manifest generated or present, uploaded manifest, dataset, and snc files that are present

Failed End Condition:

- user does not have a complete manifest

Trigger:

- user clicks upload manifest or create manifest after uploading dataset

Dependent Use Cases:

- upload dataset

System Requirements

- System will need to be accessible through web, 24 hours a day 7 days a week.
- System should be accessible by all common web browsers and compatible with them, such as Google Chrome, Firefox, and Microsoft Edge
- Server to support and store web page files and a back up server in case of an outage on the primary server
- System will need a backend database that is accessible 24 days, 7 days a week
- Database will need to persist data indefinitely
- protection against data corruption from invalid queries, incomplete calls to backend, and service failures
- Site should have HTTPS security in place
- Passwords that users input should be hashed before being stored anywhere in the system
- Internet connection and bandwidth to handle high volume of users at once
- Require back up power supply for server in case of power outtages, this will allow the site to always be available

User Requirements

- Able to search manifests and view searched manifests to find relevant datasets and SNC files pertaining to search
- Ability to create an account
- Able to log in to an account that has been created
- Able to upload a new dataset and optionally SNC files
- Able to see relevant information for a manifest in a preview when browsing
- Able to go to a more detailed view of a manifest and see datasets and SNC files for that manifest

- Able to download Dataset and SNC files for a given manifest
- Able to edit/contribute to an existing dataset and upload those changes
- Able to upload a new dataset and relevant SNC files
- Upload a manifest file of a specification provided or create a new manifest file if one not present

Tables and their data:

Current Iteration of ERD:

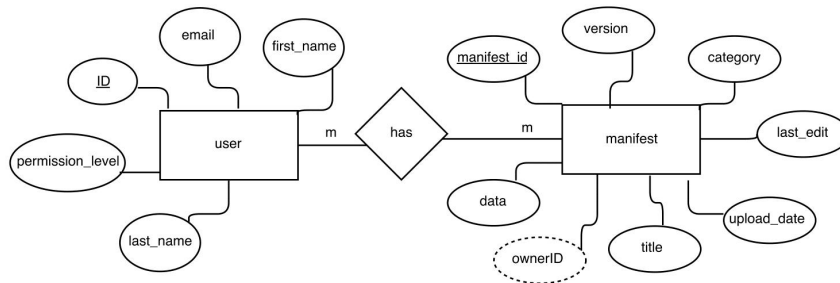


Figure 1: erd

Classes

```

user: {
  first_name: string
  last_name: string
  email: string
  ID (internal tracking ID): int
  permission_level: int
}

Manifest: {
  ID: int
  version : int
  category: enum

```



```
last_edit: date
upload_date: date
title: sting
ownderID: int (match userId)
data: string (this will be a file path to the file on our server)
}
User-Owns_manifest {
  userID: int
  manifestID: int
  upload_date: date
  last_edit: date
}
```

Screens Sketched Out

Welcome page

Page Header

Welcome Message

Login:

<take username input>

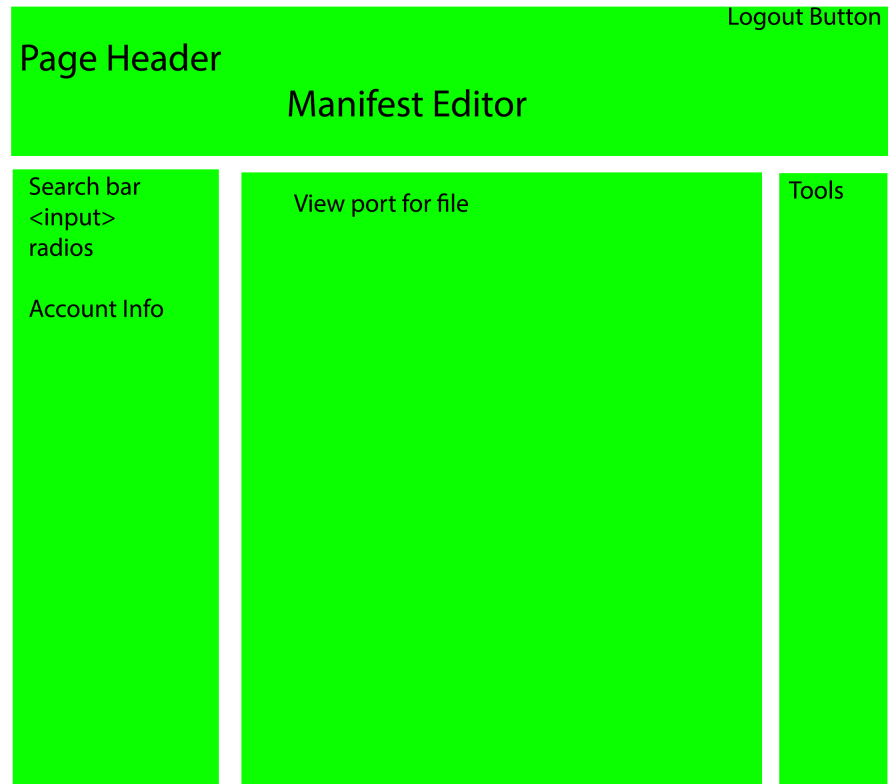
<take password input>

Login button

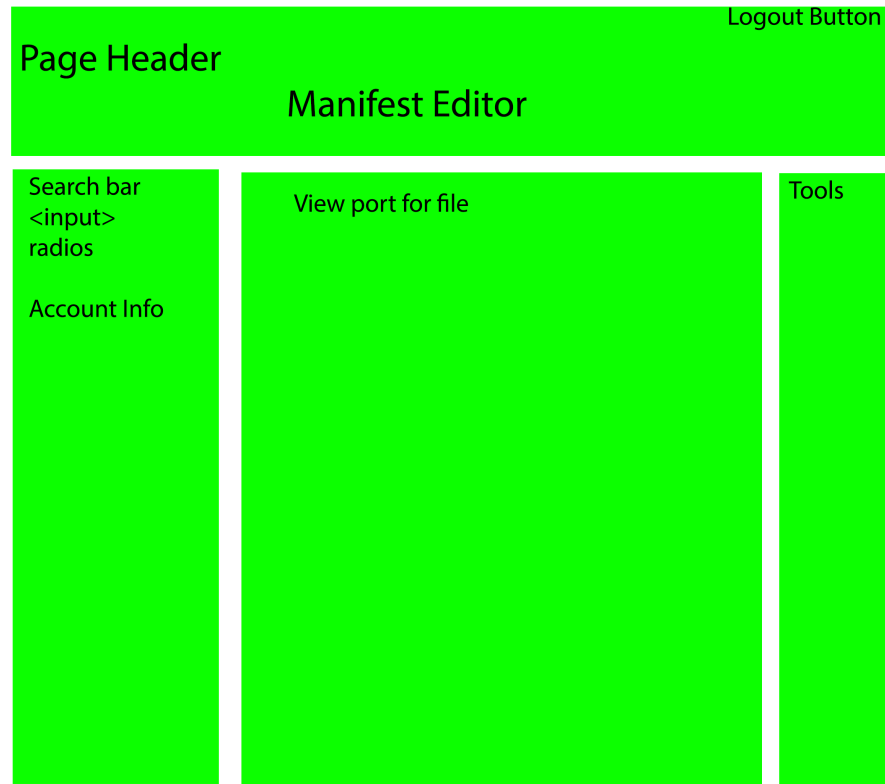
Browse Manifests (This includes search)

Page Header		Logout Button
Browse Manifests		
Search bar		
<take input>		Search Button
radios: username keyword category title		
View Account Create Manifest Edit Manifest	Display Results: result 1 result 2 result 3	

Manifest Editor



Manifest Viewer



Account Info

Page Header		logout button
Welcome <username>,		
Search bar <input> radios	Username list of maifests created list item list item list item	
Create Manifest Edit Manifest		