Asset Management Software

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Objective

- Asset Management Software
- Features
  - Internal/external users with varying access levels
  - Files linked with a tagging system
  - Files stored hierarchically
  - Import/export data to varying file types
  - Search tool with keywords and phrases
  - SQL tool
  - Customizable Data Visualization tool
- Highly scalable: companies of different sizes, research labs, individuals

Cost Estimation

Function Point (FP) Algorithm:

- 4 user inputs, 4 user outputs, 6 user queries, 1 data file/relational table, and 1 external interface
- GFP = 68, PCA = 1.12, so project would take 2 person-weeks.

2 software engineers so the project will take 1 week. The average weekly salary of one software engineer is $1,752 [1], so it will cost $3,504 for personnel plus an additional $25 per month for server hosting [2].

Software Process Model

Incremental model

- First iteration: stores user files
- Second iteration: implement search feature, hierarchical storage
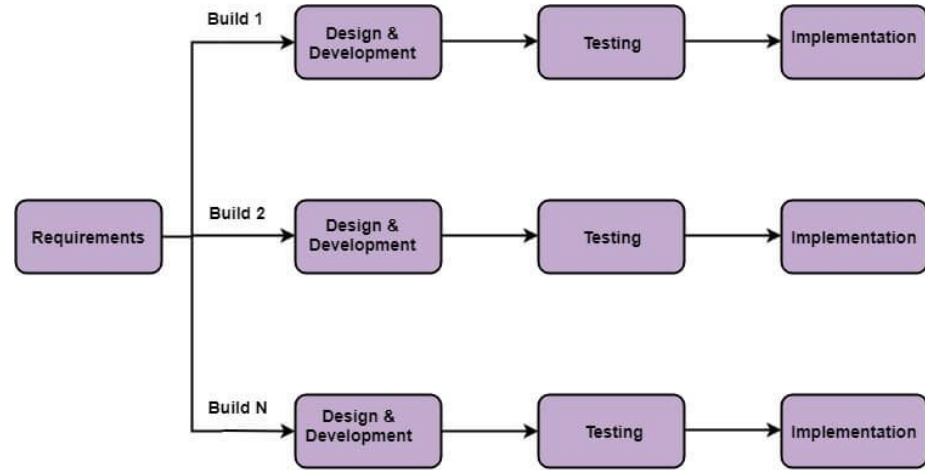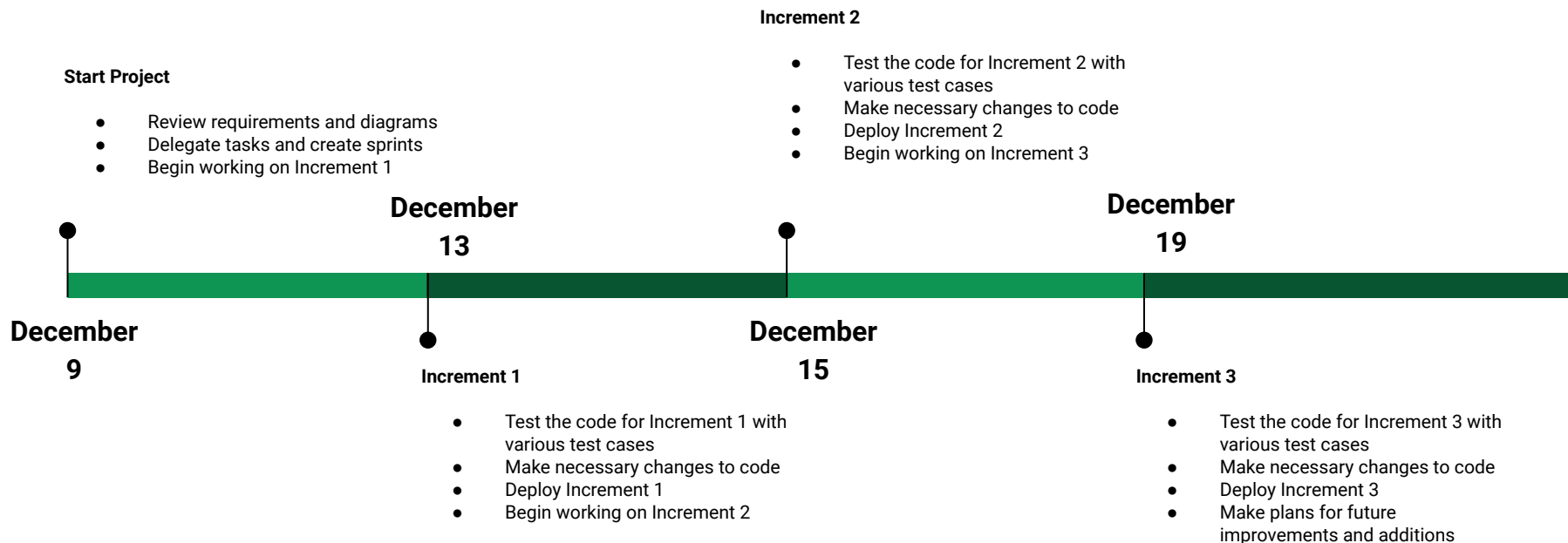- Third iteration: ability to allocate multi-user system

Fig: Incremental Model

Project Timeline

Increment 2

- Test the code for Increment 2 with various test cases
- Make necessary changes to code
- Deploy Increment 2
- Begin working on Increment 3

Start Project

- Review requirements and diagrams
- Delegate tasks and create sprints
- Begin working on Increment 1

December 13

December 19

December 9

December 15

Increment 1

- Test the code for Increment 1 with various test cases
- Make necessary changes to code
- Deploy Increment 1
- Begin working on Increment 2

Increment 3

- Test the code for Increment 3 with various test cases
- Make necessary changes to code
- Deploy Increment 3
- Make plans for future improvements and additions

Functional Requirements

1. The system shall **store assets and data** files in a hierarchical manner, allowing the storage to be sorted by file name or data modified.

2. The system shall **organize data into categories** tagged by category labels.

3. A user shall be able to **search the database** and storage of all assets within the system by specifying a keyword or phrase.

4. The system shall **support SQL** queries.

5. The system shall support **importing and exporting data** files of different types, such as .txt, .xlsx, .pdf, .doc, etcetera.

Non-functional Requirements

- **Usability**: Users shall be able to customize data visualization, such as by prioritizing files or selecting a viewing theme.

- **Performance:** The system shall generate search results of data queries within five seconds of search time.

- **Security:** The system shall contain encrypted file storage and sharing.

- **Operational:** Users shall authenticate themselves using a secure company login, including identification PIN.

- **Development:** The product shall be developed using common web framework technologies, including but not limited to: React.js, Node.js, jQuery, and/or Express.

- **Ethical**: The system shall be implemented in the highest standard acceptable to user expectations and to the general public, as abiding by the IEEE Code of Ethics.
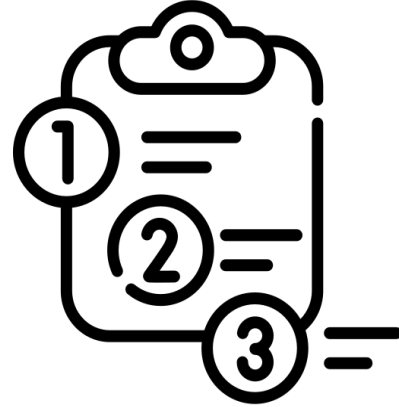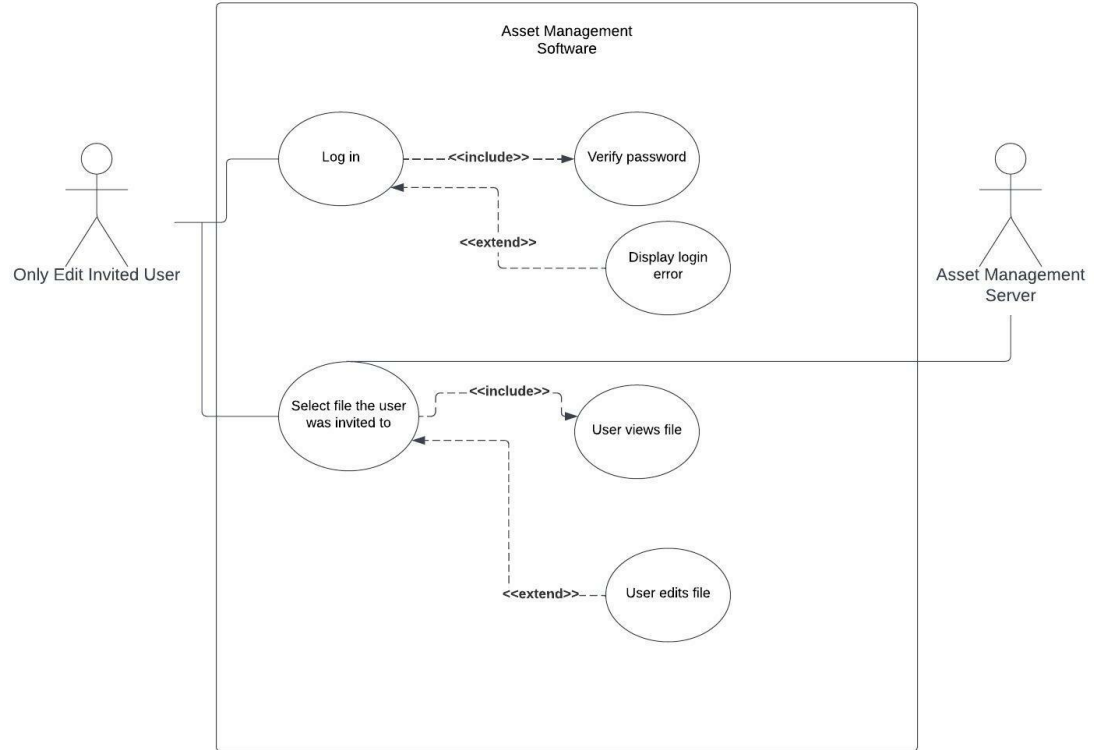
Use Case Diagram

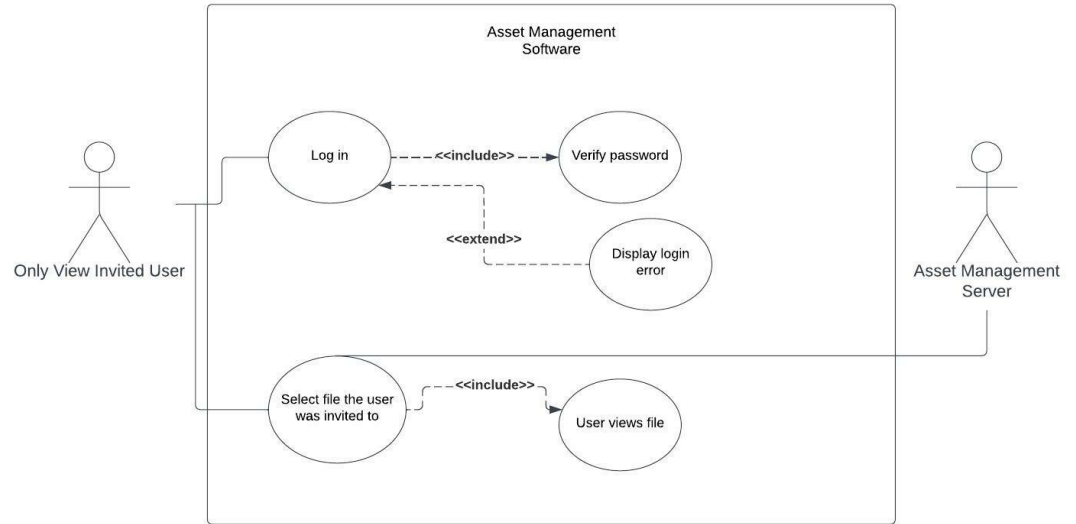This is a use case diagram of a regular user in our software
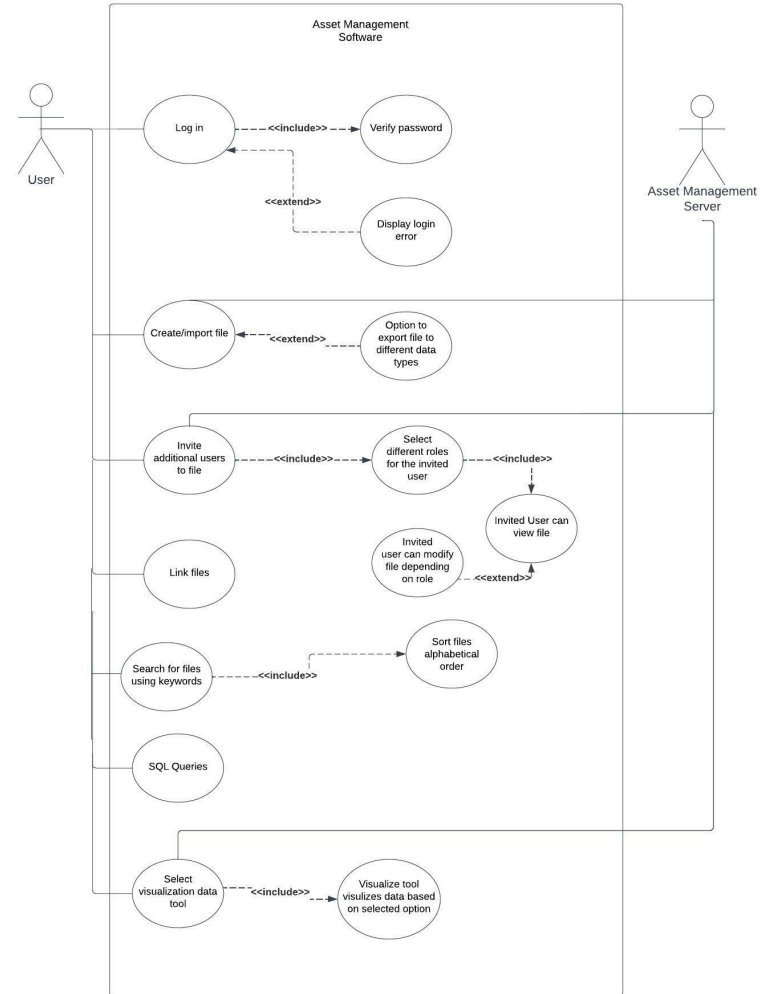
Use Case Diagram

This is a use case diagram of a user trying to view and edit a file they were invited to
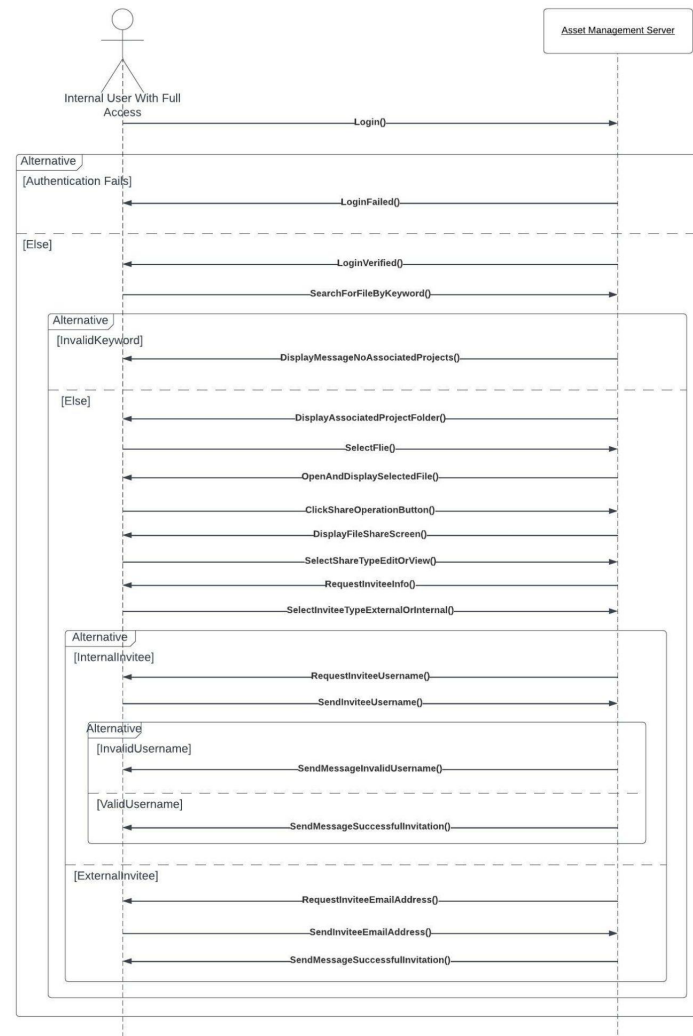
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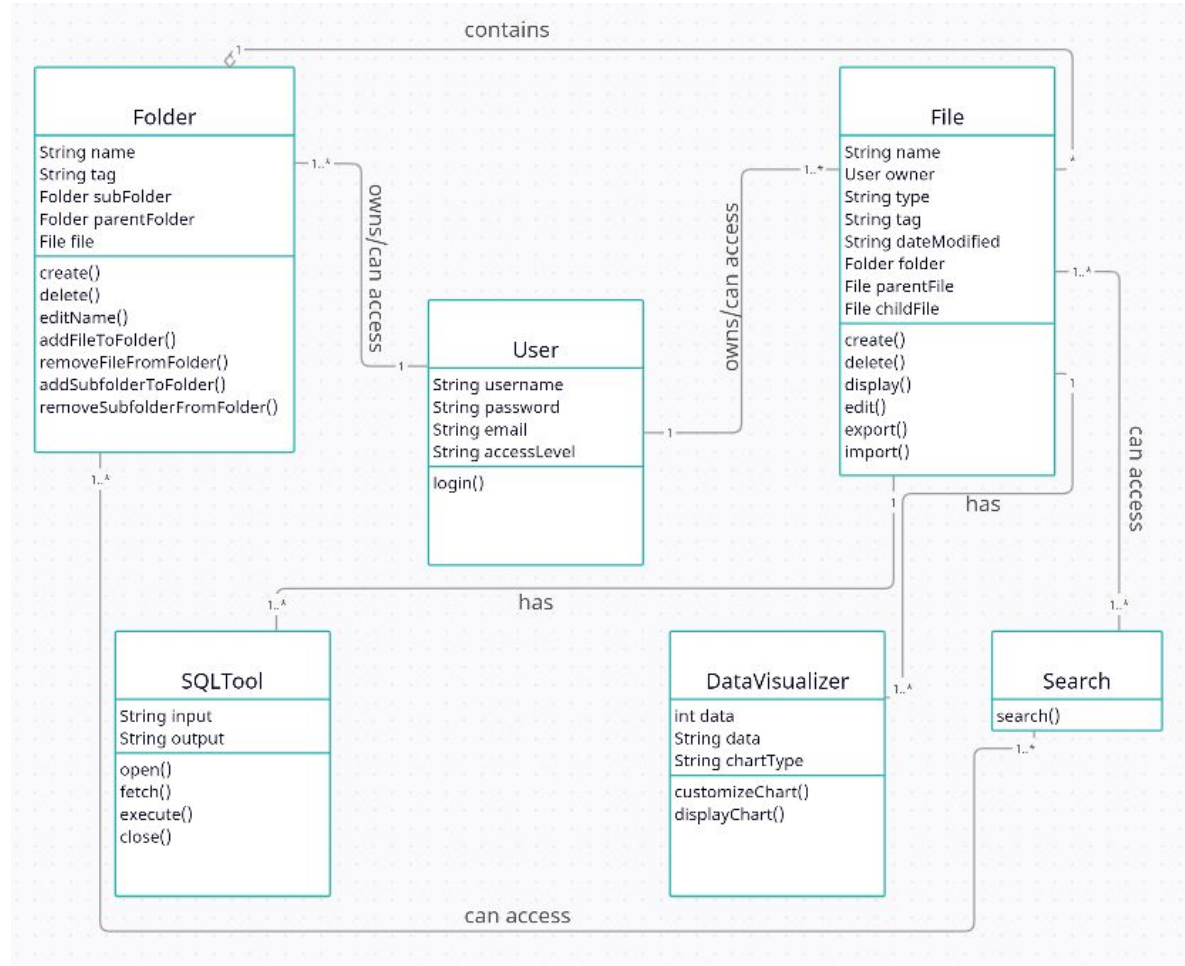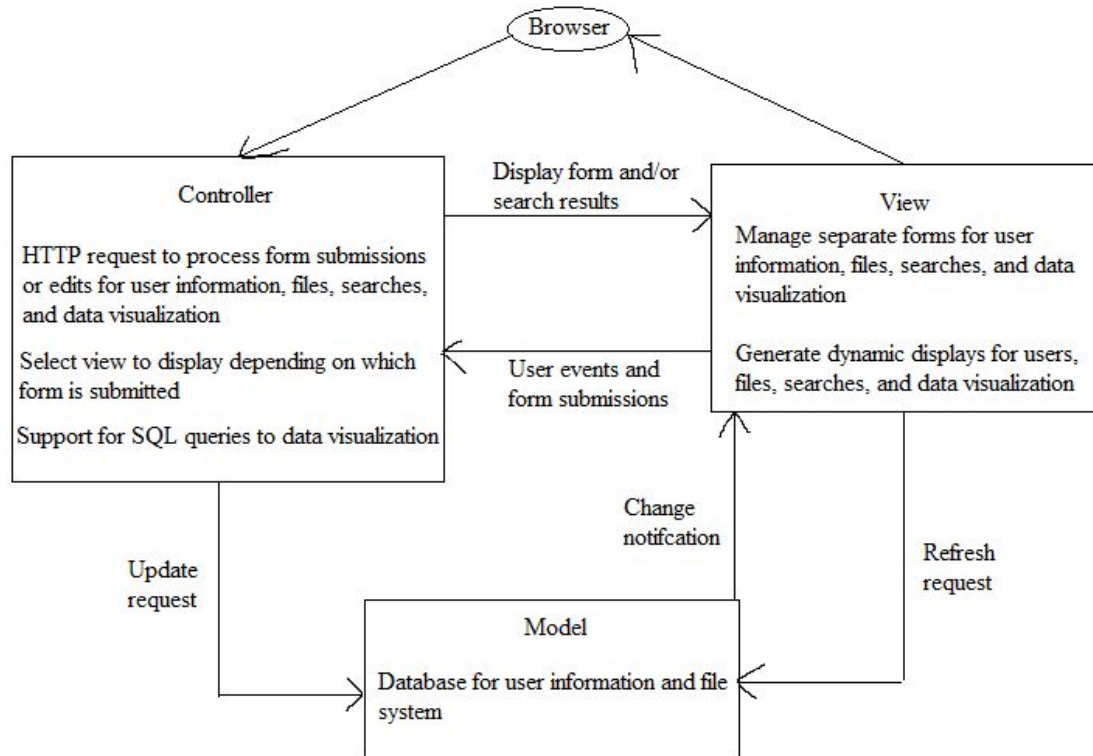
Sequence Diagram

To the right is a Sequence Diagram for inviting a user to edit or view a particular file.
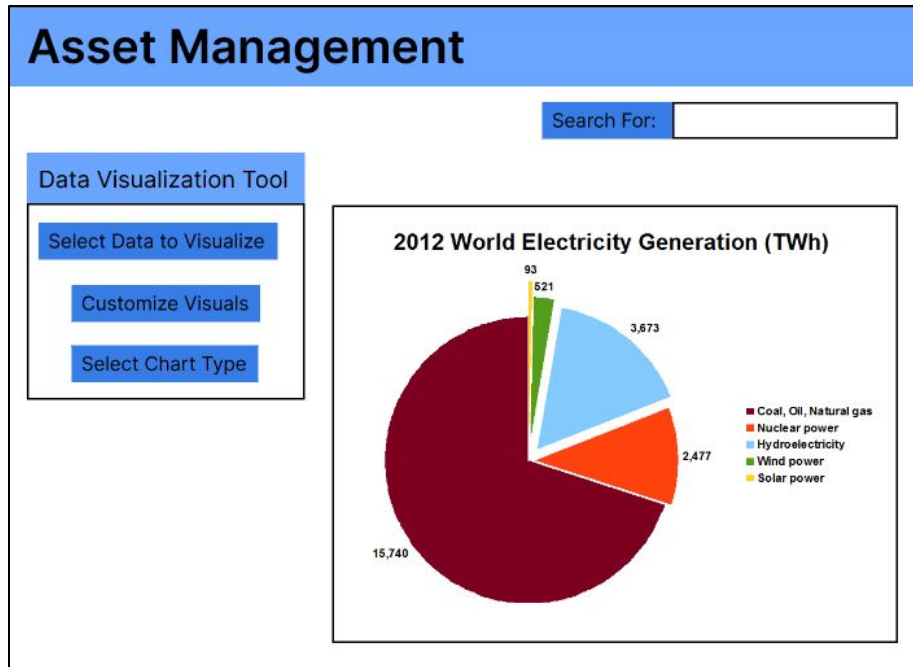
Class diagram

Architectural Design - Model View Controller Pattern

User Interface Demo

A mock UI was developed using Figma. The visuals will be different in an implementation, but this shows some of the screens and a user flow.

https://www.figma.com/proto/awlYQbeRxhFNKDz6tJ6Ewz/Asset-Management-Software?node-id=1%3A24&scaling=min-zoom&page-id=0%3A1&starting-point-node-id=1%3A22

Works Cited

[1] H. Whitfield, "How Much Does It Cost to Host a Website? | Compare 2022 Prices." WebsiteBuilderExpert. https://www.websitebuilderexpert.com/web-hosting/cost-to-host-a-website/ [Accessed 11/9/2022].

[2] "How Much Do Computer Engineer Jobs Pay per Week?" ZipRecruiter. https://www.ziprecruiter.com/Salaries/Computer-Engineer-Salary-per-Week [Accessed 11/9/2022].