First Iteration Plan

- Design the system architecture, focusing on scalability, security, and modularity.
- Build prototypes for key features, such as data ingestion, user authentication, and the main user interface.
- **Deliverables:**
    - Architectural blueprint and documentation.
    - UML class diagrams for all critical system components.
    - UML sequence diagrams for all critical system actions.
    - Account creation and user authentication.
    - Main page allowing users to browse data catalog.
    - Page for each dataset, allowing users to view dataset details.
    - Download dataset functionality.

Next Iteration Plan

API Design:

- Design the initial set of RESTful APIs for accessing and managing data.
- Define endpoints, request/response formats, authentication mechanisms, and error handling.
- Ensure consistency with industry standards and best practices.

Development Strategy:

- Establish an updated development workflow, including version control, branching strategy, and issue tracking.
- Implement continuous integration/continuous deployment (CI/CD) processes for automated testing and deployment.
- Define coding standards and conventions to ensure code quality and maintainability.
- Establish code review practices to promote collaboration and catch issues early.

Feedback Collection, Analysis and improvement:

- Gather feedback from stakeholders, users, and developers on the current version.
- Analyze feedback to identify areas for improvement and new feature requests.

User Experience Improvements:

- Refine and improve user interfaces based on feedback and usability testing.

Security Consideration:

- Incorporate security measures such as encryption, access controls, and threat monitoring into the architecture and development process.

Further Scalability Planning:

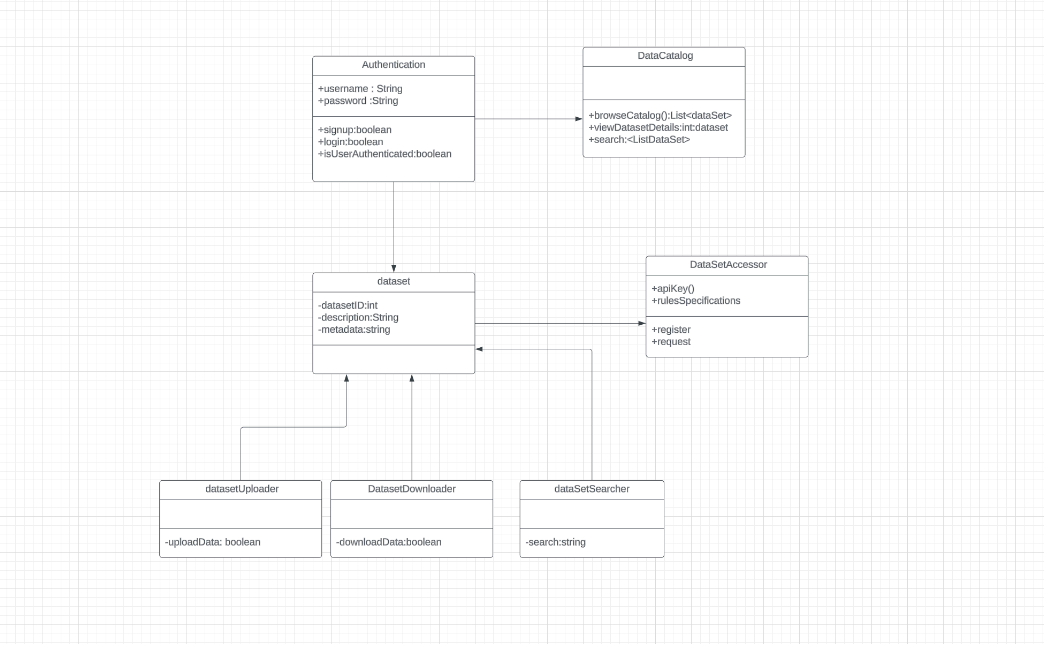
- Testing and updating the current vision to accommodate a larger and more diverse user base.

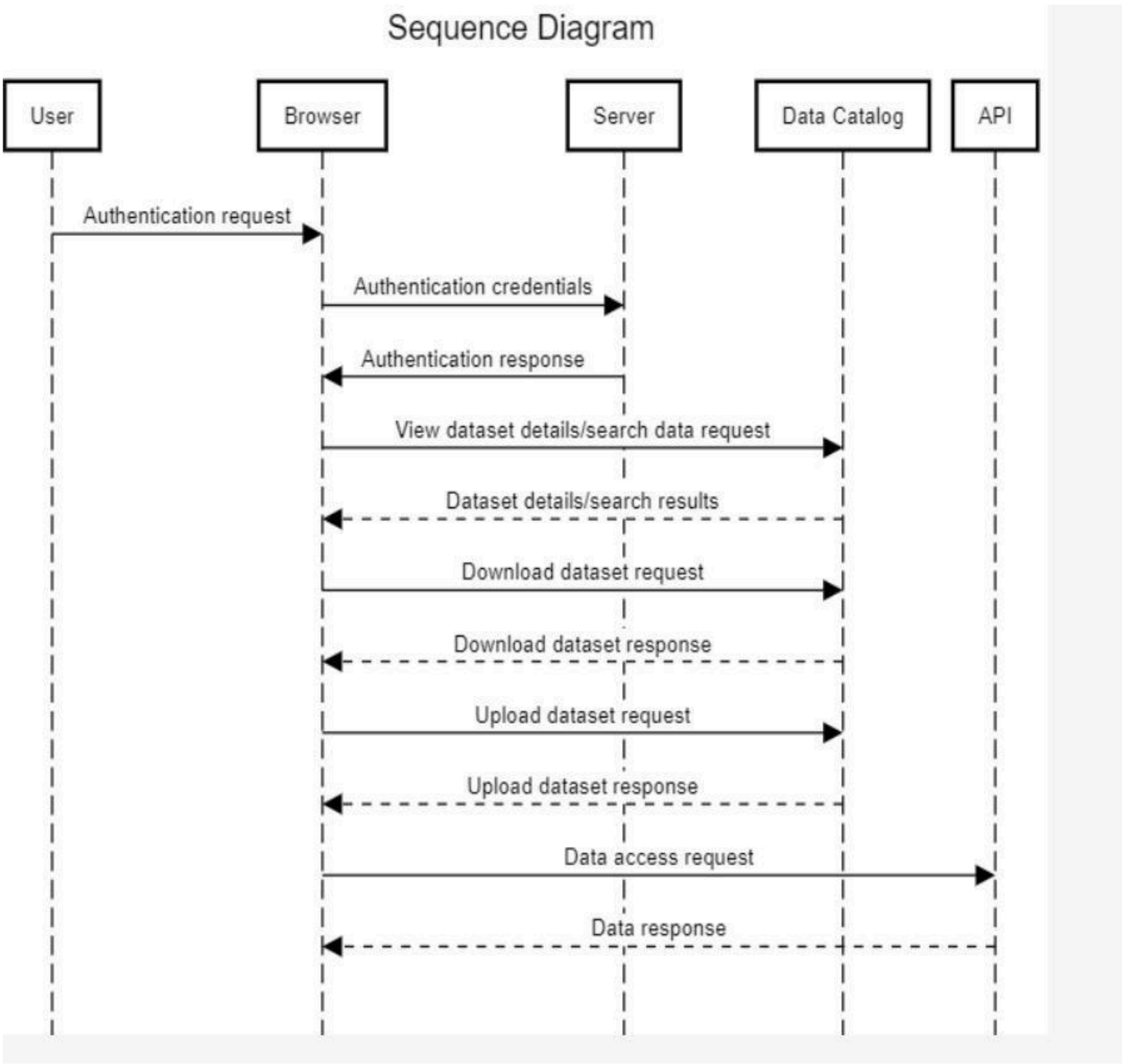
- **Deliverables:**
    - API design document detailing endpoints, methods, parameters, and payloads.

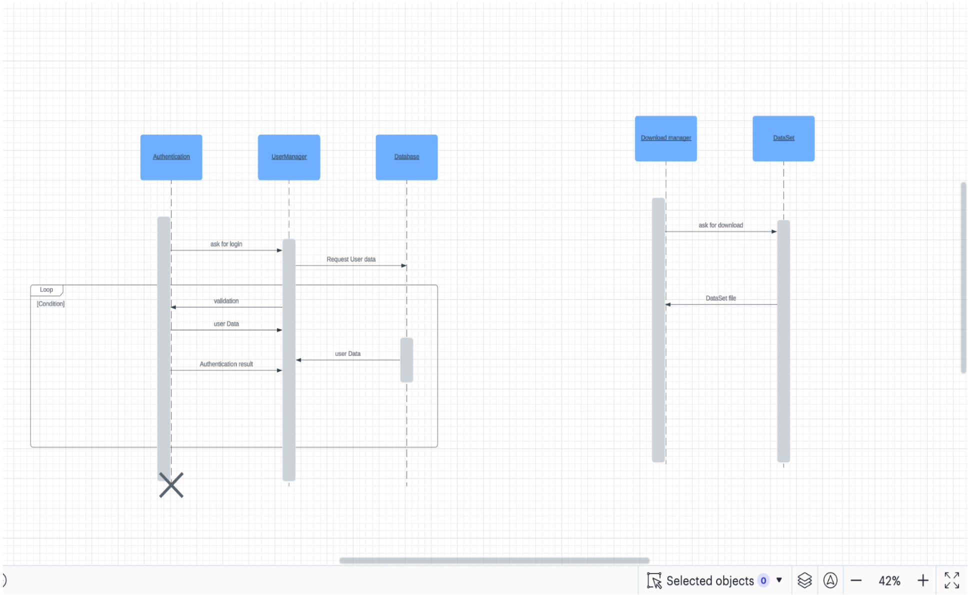
- Development strategy documentation outlining CI/CD setup, coding standards, and code review procedures.
- Improved user experience with enhanced features and functionalities.

UML Diagrams and Documentation

This sequence diagram presents the user, browser, server, data catalog, and API interactions within the system. The browser is the place where users request their authentication. This request reaches the server. When the server receives the authentication credential from the browser, it will send an authorization response which contains authentication data back. Data catalog returns dataset information in response to requests or search terms. Users using the browser can request certain data. The user may request to download data sets which create a query to the data catalog that results in the corresponding commands. Apart from that, the user can simply request the data to the API via the browser, and then the API responds with the required data.




Sequence Diagram
User
Browser
Server
Data Catalog
API
Authentication request
Authentication credentials
Authentication response
View dataset details/search data request
Dataset details/search results
Download dataset request
Download dataset response
Upload dataset request
Upload dataset response
Data access request
Data response


Authentication
UserManager
Database
Download manager
DataSet
ask for login
Request User data
Loop
[Condition]
validation
user Data
user Data
Authentication result
ask for download
DataSet file
Selected objects 0
42%

Development Breakdown and Testing Strategy

Github link: https://github.com/CalderJohnson/3220Project

Tools Used Screenshots

Link: https://drive.google.com/drive/folders/1Bzk9cifojDT4DI1Bf7F8ytm1m0upBotJ

Contributions

Calder	Developed front end.
Nadine	Created UML class diagrams.
Yize	Managed Redmine and created the next iteration plan.
Brett	UML Documentation
Arya	Created UML diagrams.
Omer	Backend development.
Hisan	Assisted with front end development.