

System Requirements Document 0.9
Client: Daintree (Group 7)
Project: Ocean Data Aggregation

Horizon Software (Group 2)

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Revision History

Name	Date	Reason for Changes	Version
RD – Initial Document	Jan. 30 2019	Transcribing RFP and elicitation notes to a structured document.	RD 0.7
RD – Formatted Sections	Feb. 1 2019	Formatting notes into sections and filling out more info.	RD 0.8
RD – First Complete Draft	Feb. 4 2019	All sections complete, ready for team review.	RD 0.9
RD – Final Copy	Feb. 5 2019	All sections complete and reviewed, ready for client reading.	RD 1.0
RSD – First Draft	Feb. 12 2019	Made changes that Daintree requested when reviewing RD 1.1.	RSD 0.6
RSD – Second Draft	Mar. 11 2019	Added diagrams.	RSD 0.7
RSD – Third Draft	Mar. 12 2019	Consistency changes.	RSD 0.8
RSD – Complete Draft	Mar. 12 2019	Final consistency changes, ready for client review.	RSD 0.9

1 Introduction

1.1 Purpose

This document describes the requirements needed for the Daintree Ocean Data Aggregation Project. The purpose of the project is to improve the accessibility of Daintree's collection of data. Currently, the lack of a unified solution for data retrieval and visualization hinders User access to Daintree's collection of data. This project will result in the creation of a new data visualization system.

1.2 Project Scope

The Daintree Ocean Data Aggregation Project has two main objectives. The first objective is to visualize the data sets returned by the API. Currently when a customer asks to visualize a new data set, Daintree must develop a unique visualization solution. A centralized system to generate visualizations would benefit Daintree by reducing cost and time spent developing unique solutions for their customers. The second objective is to make visualizations easily accessible to a User through a single interface. Making visualizations accessible would help more people make use of Daintree's collection of data and would align with Daintree's mission of supporting ocean education and public awareness.

The project will look at the current system and the way that the current system allows a User to visualize data sets. The project does not need to change the way that sensor readings are retrieved from sensors, how this data is stored, or how it is accessed from Daintree.

1.3 Glossary

Account Creation Page	Page where a User can create a new account.
Account Credentials	What a User enters into the DOD to log in to their account.
Account Information	Information about a User's account.
Account Information Page	Page where account information can be viewed and modified.
Admin Page	Page only accessible to an Admin User. Where sensor data classifications can be modified, other User accounts can be deleted, and other User accounts can be upgraded to admin.
Admin User	An employee of Daintree who uses the DOD.
Annotation	Text comment which is linked to a single data point. Only a Paid User and an Admin User can create, delete, and view annotations.
Application Programming Interface (API)	A set of functions that programmatically access the contents of Daintree's databases. The API is an existing system which is maintained by Daintree.
Daintree	Client for the Ocean Data Aggregation Project.
Daintree Ocean Dashboard (DOD)	Name of the new system.
Dashboard Page	Main Page of the DOD where the User can filter/search/view visualizations.
Data Classification	Every sensor has a data classification within the DOD. A sensor's data classification determines what User types are permitted to visualize a

	data set from the sensor. The classifications are: All Users or Paid/Admin Users Only.
Data Point	A sensor reading at a specific point in time. Consists of a row in a Daintree database table, a single image, or a single video.
Data Set	A set of multiple data points from a single sensor ranging over a User-specified timeframe.
Filter Criteria	Filter criteria is created by the User to query and return a list of sensors matching the criteria. The sensors in the returned list can then be selected to generate a visualization of a data set. A filter criteria consists of location, sensor type, and timeframe.
Free User	A User who accesses the DOD free of charge.
Horizon Software	A team of dedicated systems analysts and developers in the Software Engineering and Computer Science programs at the University of Victoria.
Landing Page	Page where an incoming User begins. From this page a User can access the log in page and account creation page.
Log in Page	Page where the User can enter their account credentials and be logged into the system.
Paid User	A User who pays for access to more data sets, and the annotations feature. A User becomes a Paid User by upgrading from a Free User.
Saved Visualizations Page	Page with a list of saved visualizations for a particular User.
Sensor	A tool that measures a single property of the physical world. Sensors create readings. Every sensor is uniquely identifiable through the API.
Sensor Type	A class of sensor. Some sensor type examples include: temperature, pressure, imagery, video, and radiation.
To Be Determined (TBD)	Awaiting feedback from Daintree.
Visualization	A visual or graphical presentation of at least 1 and at most 50 data sets. A visualization of a temperature data set consists of a graph of temperature against time. A temperature data set can be combined with a pressure data set on the same graph. Images and videos cannot be combined with other data sets. A visualization of an image consists of rendering the image for the User. A visualization of a video consists of rendering and playing the video for the User.

1.4 References

[1] Daintree Request for Proposal, [Online]

Available: <https://sites.google.com/view/daintree-company/documents>

[2] Daintree Ocean Division, [Online]

Available: <https://sites.google.com/view/daintree-company/home>

[3] Daintree Elicitation notes, [Online]

Available: https://kerfootj.github.io/seng321_designer/docs/Daintree%20Elicitation%20Notes.pdf

[4] Requirements Document 1.0 [Online]

Available: https://kerfootj.github.io/seng321_designer/docs/Requirements.pdf

[5] Requirements Document 1.1 [Online]

Available: <https://sites.google.com/view/daintree-company/home>

[6] RD 1.1 Feedback Meeting Notes [Online]

Available:

https://docs.google.com/document/d/1tiMmNPBjXOE2PWAlO3rgOZH_CATZy3is_ENmKHwTqs/edit

1.5 Overview

This document contains 7 sections and 3 appendices. Section 2 includes an overview of the current system, main product features are described along with project stakeholders, User classes and assumptions about the API. Section 3 describes functional requirements, associated use cases, and associated sequence diagrams. Section 4 contains software systems the DOD must interact with. Section 5 outlines non-functional requirements. Section 6 shows analysis models along with descriptions. Finally, section 7 includes UI mock-ups with associated scenarios.

2 Overall Description

2.1 Product Perspective

Daintree maintains a network of sensors that measure various ocean conditions such as salinity, acidity and temperature. The measurements are collected, processed and stored by Daintree. The data stored by Daintree is accessible through their API. The existing system for creating visualizations involves making a custom application for each customer which is inefficient and costly for Daintree.

The DOD currently being developed by Horizon Software is a for Daintree's existing system for data visualization. The DOD will provide a single interf replacement ace where data sets can be visualized. With the DOD, no more custom applications will need to be developed.

The primary stakeholders for the Daintree Ocean Data Aggregation Project include Daintree, the Users of the DOD and the Horizon Software development team. Other potential stakeholders include research & educational organizations, ocean sensor suppliers, and environmental agencies.

2.2 Product Features

The major features of the DOD being developed by Horizon Software can be summarized as follows:

- Managing and creating accounts.
- Visualizations and access of data set(s).
- Creating, editing and viewing annotations on visualizations.
- Searching for sensors by location, sensor type, and time range.
- Filtering sensors by location, sensor type, and time range.
- Saving visualizations.

2.3 User Classes and Characteristics

There are three User classes for the DOD: Free User, Paid User and Admin User. The User classes are outlined below.

2.3.1 Free User

A Free User does not pay to use the DOD. The Free User typically consists of anyone who is curious about Daintree's collection of data. A Free User has limited access to Daintree's collection of data. A Free User may wish to save visualizations for future reference. It is assumed that each Free User will have varying levels of domain knowledge.

2.3.2 Paid User

A Paid User pays to use the DOD. The Paid User has all of the same functionality as a Free User, plus a few additional features. The first additional feature is that a Paid User has access to Daintree's entire collection of data. A Paid User will also be able to view and create annotations on videos and images as well as delete their own annotations. A Paid User could include the general public, students, researchers, and businesses.

2.3.3 Admin User

An Admin User manages the DOD. The Admin User has all the same capabilities of a Paid User, with some additional features. The first additional feature is an Admin User can modify which subset of data from Daintree's collection of data is available to a Free User. An Admin User also can delete any annotations from any User. An Admin User can delete other accounts and to upgrade other accounts to Admin User status.

2.4 Operating Environment

The DOD will request data from Daintree through their API. The DOD must therefore conform to the specifications for the API requests.

The Users of the DOD are expected to access the DOD interface through their personal devices. The DOD interface will therefore need to be accessible on mobile and desktop environments, supporting the major operating systems: Windows, Mac OS, Linux, iOS, and Android.

2.5 Design and Implementation Constraints

Daintree is very flexible regarding the design and implementation of the DOD. The only constraint on the DOD is that it must be built on top of Daintree's existing API:

- C-1: DOD must request data sets from Daintree's existing API.

2.6 Domain Assumptions

The DOD will be based on the following assumptions and dependencies as outlined below.

2.6.1 Assumptions

In order to generate reliable visualizations, the data sets sent to the DOD from the API must be reliable. If the API responses contain inconsistencies, the visualization being generated will be inconsistent. If the API responses contain errors, the visualizations will contain errors. It is not the responsibility of the DOD to notify Daintree of errors or correct these errors.

- A-1: The API responses provided by the API is free of inconsistencies and errors.

2.6.2 Dependencies

The DOD needs to access Daintree's data sets through the API. It is critical that the API is always available, and the API calls must not change often. Should a change to the API specification occur, the DOD must be manually changed to match the new specification.

- D-1: The existing API is robust and consistent.

The DOD will expect data returned from the API to be in specific formats. The DOD must be built to accept data formats currently provided by the API. Any new formats provided by the API will need to be added to the DOD manually.

- D-2: The DOD depends on the existing API's responding with consistent data formats.

3 System Features and Requirements

The DOD will include the following features: account management, to allow a User to create and manage their own account, and to allow an Admin User to manage other accounts as well; visualization of data sets, to present the Daintree's collection of data in a meaningful way; filtering, to allow a User to refine Daintree's collection of data; searching, to allow a User to search Daintree's collection of data for specific data sets; and save, to allow a User to save and return to specific visualizations.

3.1 Account Management

3.1.1 Description and Priority

A User needs to be able to create, delete and manage their own account. Without accounts and the ability to manage accounts there would be no way to distinguish which User is which. A User should have the ability upgrade to a Paid User or downgrade to a Free User.

Priority: High

3.1.2 Functional Requirements

- REQ-AM-1: A User must be able to create an account.
- REQ-AM-2: A User must be able to log in to and log out of their account.
- REQ-AM-3: A User must be able to delete their account.
- REQ-AM-4: A User must be able to update account information.

- REQ-AM-5: A Free User must be able to upgrade their account to a Paid User account.
- REQ-AM-6: A Paid User must be able to downgrade their account to a Free User account.

3.1.3 Models

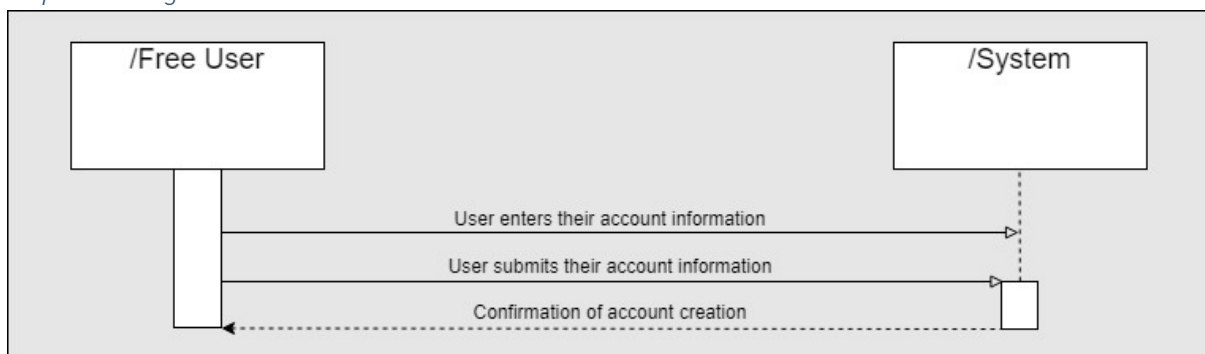
Use Case 1 – Create Account

Actors	A Free User
Preconditions	<ul style="list-style-type: none"> • The Free User has navigated to the account creation page from the landing page
Steps	<ul style="list-style-type: none"> • The Free User enters their account information • The Free User submits their account information
Success Conditions	<ul style="list-style-type: none"> • The Free User's account is created • The Free User is notified that a Free User account has been created • The User is logged into their account
Alternate Paths	<p>2a. The Free User cancels account creation</p> <p>2b. Account information is invalid</p>

Use Case 1 corresponds to the following requirement:

- REQ-AM-1: A User must be able to create an account.

Sequence Diagram 1 – Create Account



Use Case 2 – Log In

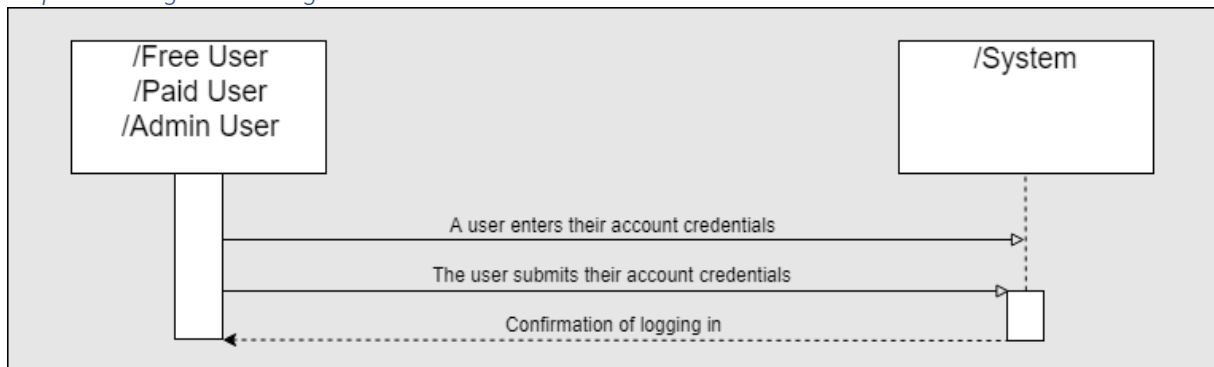
Actors	A User (Free User, Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> • The User has a valid account • The User is not logged in • The User has navigated to the login page from the landing page

Steps	<ol style="list-style-type: none"> 1. The User enters their account credentials 2. The User submits their account credentials
Success Conditions	<ul style="list-style-type: none"> • The User is logged into their account
Alternate Paths	2a. Account credentials are invalid

Use Case 2 corresponds to the following requirement:

- REQ-AM-2: A User must be able to log in to and log out of their account.

Sequence Diagram 2 – Log In



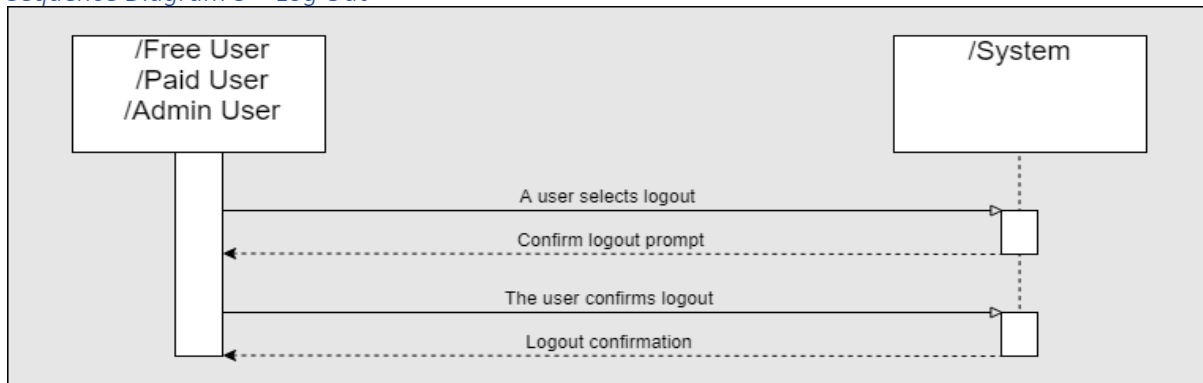
Use Case 3 – Log Out

Actors	A User (Free User, Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> • The User has a valid account • The User is logged in
Steps	<ol style="list-style-type: none"> 1. The User selects log out 2. The User confirms log out
Success Conditions	<ul style="list-style-type: none"> • The User is logged out of their account • The User is on the landing page
Alternate Paths	2a. The User cancels log out

Use Case 3 corresponds to the following requirement:

- REQ-AM-2: A User must be able to log in to and log out of their account.

Sequence Diagram 3 – Log Out



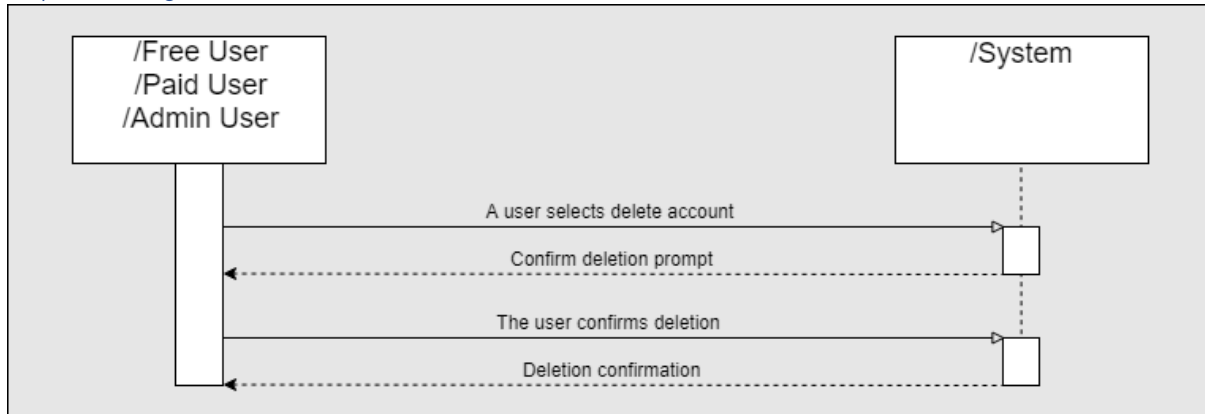
Use Case 4 – User Deletes Their Account

Actors	A User (Free User, Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> • The User has a valid account • The User is logged in • The User has navigated to the account information page
Steps	<ol style="list-style-type: none"> 1. The User selects delete account 2. The User confirms the deletion
Success Conditions	<ul style="list-style-type: none"> • The account is deleted • The User is notified that their account was deleted • The User is on the landing page
Alternate Paths	2a. The User cancels account deletion

Use Case 4 corresponds to the following requirement:

- REQ-AM-3: A User must be able to delete their account.

Sequence Diagram 4 – User Deletes Their Account



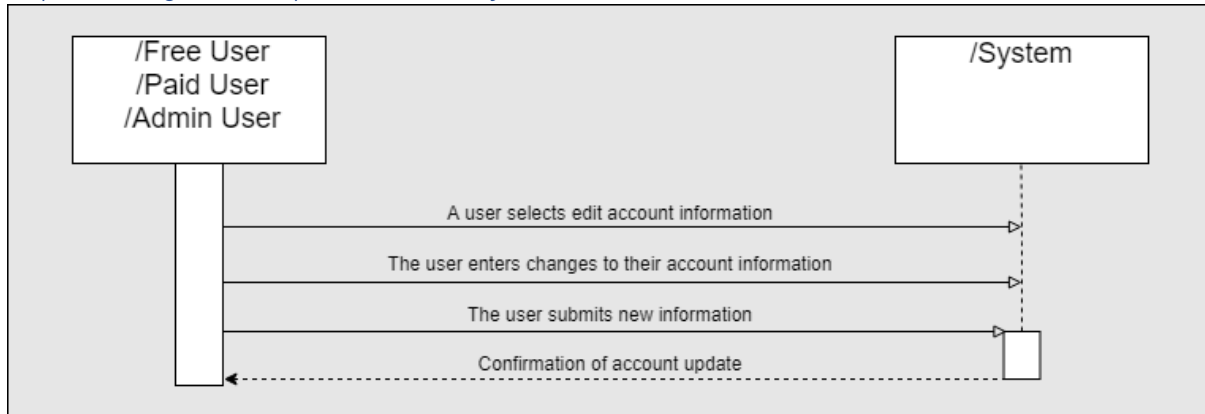
Use Case 5 – Update Account Information

Actors	A User (Free User, Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> The User has a valid account The User is logged in The User has navigated to the account information page
Steps	<ol style="list-style-type: none"> The User selects edit account information The User enters changes to their account information The User saves changes to their account information
Success Conditions	<ul style="list-style-type: none"> The User's account information is updated The User is notified that update was successful
Alternate Paths	3a. The User cancels editing their account information

Use Case 5 corresponds to the following requirement:

- REQ-AM-4: A User must be able to update account information.

Sequence Diagram 5 – Update Account Information



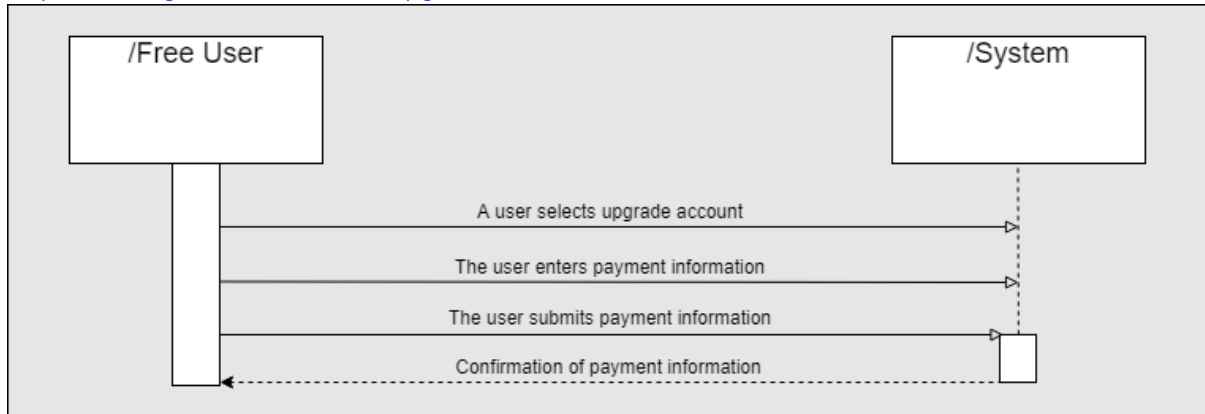
Use Case 6 - Free User Upgrades Their Account to Paid User Account

Actors	A Free User
Preconditions	<ul style="list-style-type: none"> The Free User has a valid account The Free User is logged in The Free User has navigated to the account information page
Steps	<ol style="list-style-type: none"> The Free User selects upgrade account The Free User enters payment information The Free User submits their payment information
Success Conditions	<ul style="list-style-type: none"> The Free User's account is upgraded to Paid User account The Paid User is notified that account upgrade was successful
Alternate Paths	<p>3a. The Free User cancels upgrading their account</p> <p>3b. Payment information is invalid</p>

Use Case 6 corresponds to the following requirement:

- REQ-AM-5: A Free User must be able to upgrade their account to a Paid User account.

Sequence Diagram 6 - Free User Upgrades Their Account to Paid User Account



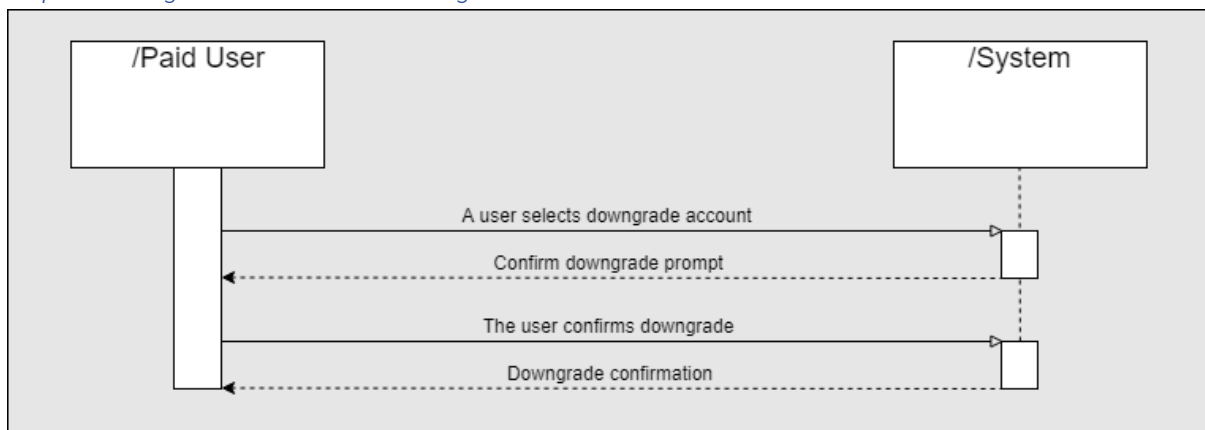
Use Case 7 - Paid User Downgrades Their Account to Free User Account

Actors	A Paid User
Preconditions	<ul style="list-style-type: none"> The Paid User has a valid account The Paid User is logged in The Paid User has navigated to the account information page
Steps	<ol style="list-style-type: none"> The Paid User selects downgrade account The Paid User confirms downgrade request
Success Conditions	<ul style="list-style-type: none"> The Paid User's account is downgraded to Free User account The Free User is notified that account downgrade was successful
Alternate Paths	2a. The Paid User cancels downgrading their account

Use Case 7 corresponds to the following requirement:

- REQ-AM-6: A Paid User must be able to downgrade their account to a Free User account.

Sequence Diagram 7 - Paid User Downgrades Their Account to Free User Account



3.2 Administration

3.2.1 Description and Priority

An Admin User should be able to delete accounts that need to be removed and upgrade other Users to an Admin User. This is critical as if there is a User that needs to be deleted the admin has this ability and if there is a new employee who needs admin abilities, they can be upgraded to an admin account.

Priority: High

3.2.2 Functional Requirements

- REQ-AD-1: An Admin User must be able to delete another User's account.
- REQ-AD-2: An Admin User must be able to upgrade another User's account to an admin account.
- REQ-AD-3: An Admin User must be able to modify the subset of data available to a Free User.

3.2.3 Models

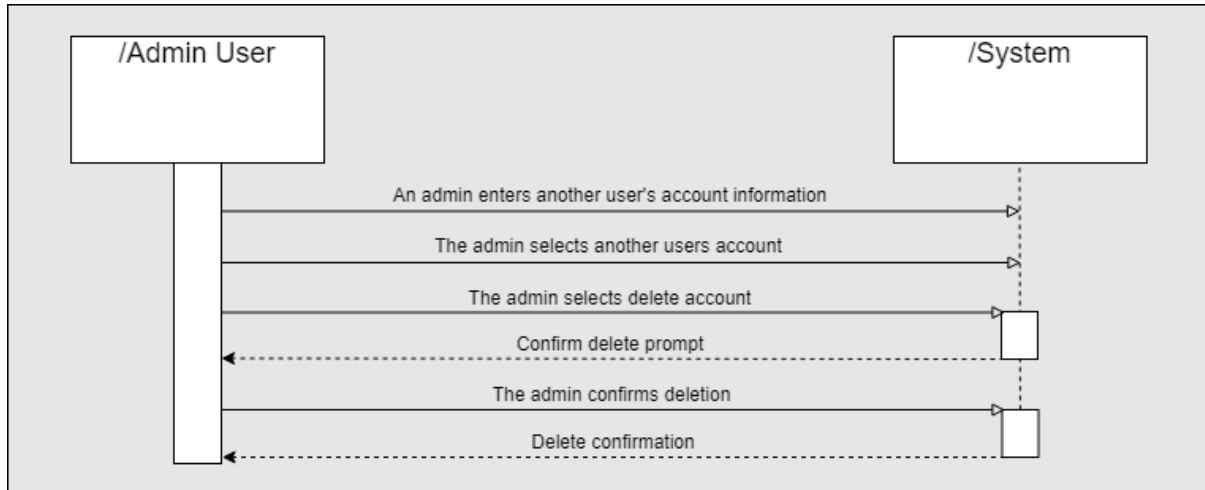
Use Case 8 - Admin User Deletes Another User's Account

Actors	An Admin User
Preconditions	<ul style="list-style-type: none">• The Admin User has a valid account• The Admin User is logged in• The Admin User has navigated to the admin page
Steps	<ol style="list-style-type: none">1. The Admin User enters another User's account information2. The Admin User selects another User's account3. The Admin User selects delete account4. The Admin User confirms deletion
Success Conditions	<ul style="list-style-type: none">• The account is deleted• The Admin User is notified that the account was deleted
Alternate Paths	4a. The Admin User cancels account deletion

Use Case 8 corresponds to the following requirement:

- REQ-AD-1: An Admin User must be able to delete another User's account.

Sequence Diagram 8 – Admin User Deletes Another User’s Account



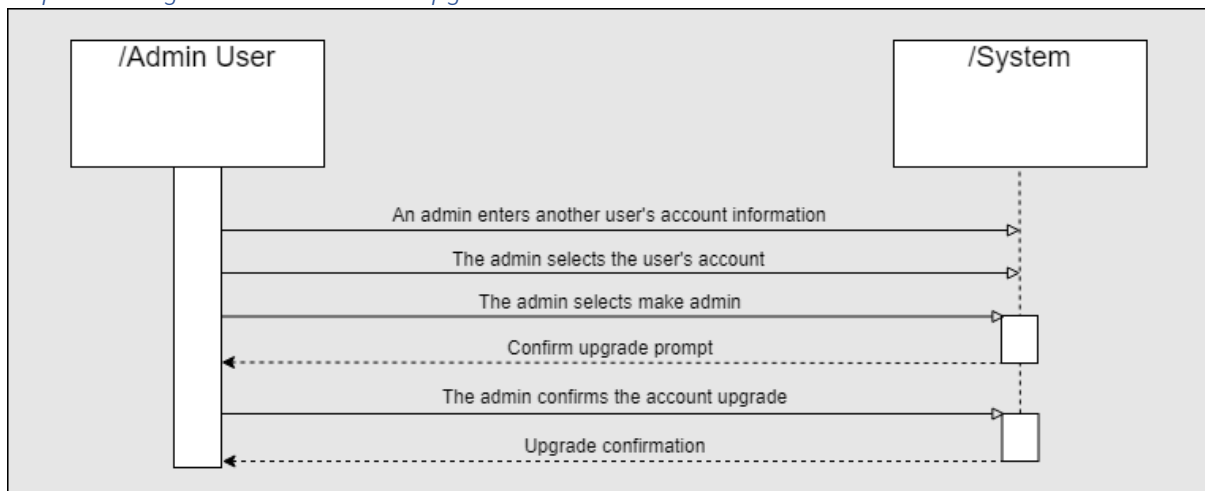
Use Case 9 - Admin User Upgrades Another User Account to Admin User Account

Actors	An Admin User
Preconditions	<ul style="list-style-type: none"> The Admin User has a valid account The Admin User is logged in The Admin User has navigated to the admin page
Steps	<ol style="list-style-type: none"> The Admin User enters another User’s account information The Admin User selects another User’s account The Admin User selects make admin The Admin User confirms the account upgrade
Success Conditions	<ul style="list-style-type: none"> The selected User’s account is upgraded to Admin User account The Admin User is notified that the account was upgraded
Alternate Paths	4a. The Admin User cancels account upgrade

Use Case 9 corresponds to the following requirement:

- REQ-AD-2: An Admin User must be able to upgrade another User’s account to an admin account

Sequence Diagram 9 - Admin User Upgrades Another User Account to Admin User Account



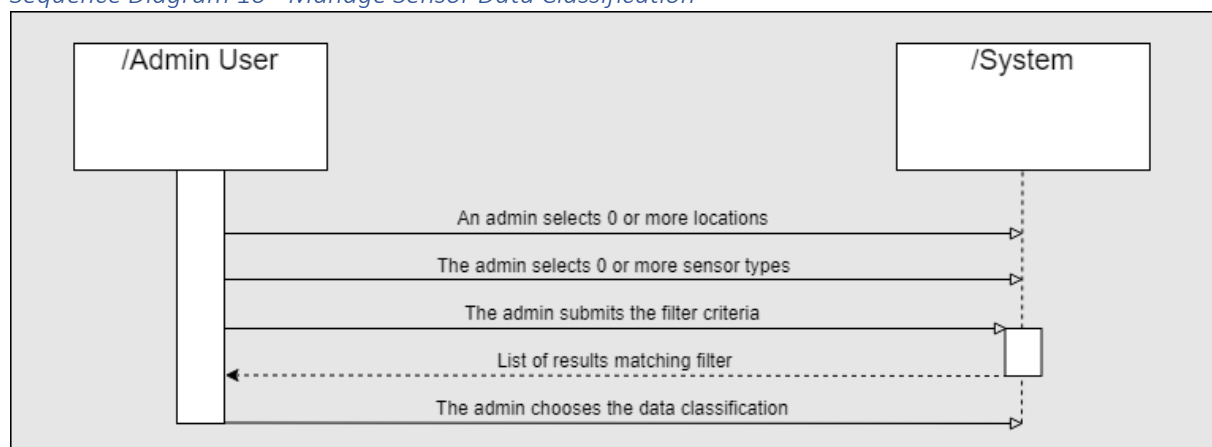
Use Case 10 - Manage Sensor Data Classification

Actors	An Admin User
Preconditions	<ul style="list-style-type: none">• The Admin User has a valid account• The Admin User is logged in• The Admin User has navigated to the Admin page
Steps	<ul style="list-style-type: none">• The Admin User selects 0 or more locations• The Admin User selects 0 or more sensor types• The Admin User submits the filter criteria• The Admin User toggles the data classification for a sensor: All Users, or Paid/Admin Users Only.
Success Conditions	<ul style="list-style-type: none">• The sensor's data classification is updated• The Admin User is notified that the change was successful
Alternate Paths	N/A

Use Case 10 corresponds to the following requirement:

- REQ-AD-3: An Admin User must be able to modify the subset of data available to a Free User.

Sequence Diagram 10 - Manage Sensor Data Classification



3.3 Visualization

3.3.1 Description and Priority

The visualization of data sets is how a User can view and comprehend Daintree's collection of data. Without an effective way to visualize the data sets, a User will be easily confused. A User must be able to visually compare different data sets. Viewing multiple data sets overlaid on the same visualization can help a User recognize relationships between data sets. Seeing the relationships between multiple data sets promote education and awareness. Searching for sensors based on a certain sensor type, location or time is essential for a User who needs to find a specific data set from Daintree's collection of data.

Given a list of sensors, a User should be able to filter by location, time and sensor type. A User must be able to save visualizations. This is important because if a User finds data set(s) and a visualization of interest, that User desires the ability to easily view the same visualization again at a later time.

Priority: High

3.3.2 Functional Requirements

- REQ-VI-1: A User must be able to choose a data set(s) and have the DOD produce and display a visualization of the chosen data set(s).
- REQ-VI-2: A User must be able to play the videos collected by Daintree.
- REQ-VI-3: A User must be able to display the images collected by Daintree.
- REQ-VI-4: A Paid User must have the option to display annotations on videos, images and data when available.
- REQ-VI-5: A User must have the option to overlay fifty data sets on the same visualization.
- REQ-VI-6: A User must have the option to view multiple visualizations together.
- REQ-VI-7: A User must be able to search for sensors collected from specified location(s).
- REQ-VI-8: A User must be able to search for sensors collected from specified sensor type(s).
- REQ-VI-9: A User must be able to search for sensors collected from a specified timeframe.
- REQ-VI-10: A User must be able to filter sensors by time.
- REQ-VI-11: A User must be able to filter sensors by sensor type(s).
- REQ-VI-12: A User must be able to filter sensors by location(s).
- REQ-VI-13: A User must be able to filter sensors by any combination of time, location, or sensor type simultaneously.
- REQ-VI-14: A User must be able to save a visualization that they create.
- REQ-VI-15: A User must be able to display their saved visualizations.
- REQ-VI-16: A User must be able to delete their saved visualizations.

3.3.3 Models

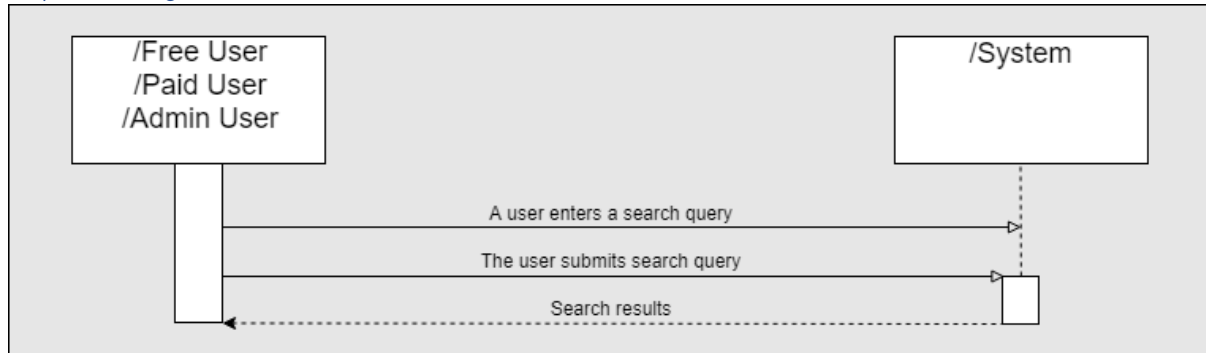
Use Case 11 - Search Data Sets

Actors	A User (Free User, Paid User, Admin User)
Preconditions	<ul style="list-style-type: none">• The User has a valid account• The User is logged in• The User has navigated to the dashboard page
Steps	<ol style="list-style-type: none">1. The User enters a search query of keyword(s)2. The User submits the search query
Success Conditions	<ul style="list-style-type: none">• Filter criteria is updated to match the keyword(s) in the User's search query• The User is presented with a list of sensors with location(s), sensor type(s), and time range that match the filter criteria
Alternate Paths	2a. If no available sensors have data sets that match the search query, then the User is notified

Use Case 11 corresponds to the following requirements:

- REQ-VI-7: A User must be able to search for sensors collected from specified location(s).
- REQ-VI-8: A User must be able to search for sensors collected from specified sensor type(s).
- REQ-VI-9: A User must be able to search for sensors collected from a specified timeframe.

Sequence Diagram 11 - Search Data Sets



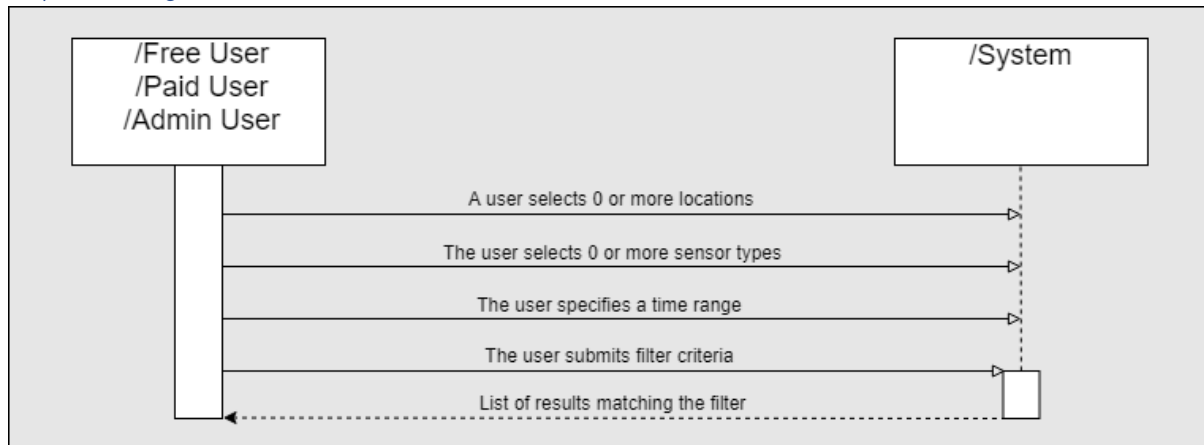
Use Case 12 - Filter Data Sets

Actors	A User (Free User, Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> The User has a valid account The User is logged in The User has navigated to the dashboard page
Steps	<ol style="list-style-type: none"> The User selects 0 or more locations The User selects 0 or more sensor types The User specifies a time range by selecting a start date and end date The User submits the filter criteria
Success Conditions	<ul style="list-style-type: none"> The User is presented with a list of sensors with location(s), sensor type(s), and time range that match the filter criteria
Alternate Paths	4a. If no available sensors have data sets that match the filter criteria, then the User is notified

Use Case 12 corresponds to the following requirements:

- REQ-VI-10: A User must be able to filter sensors by time.
- REQ-VI-11: A User must be able to filter sensors by sensor type(s).
- REQ-VI-12: A User must be able to filter sensors by location(s).
- REQ-VI-: A User must be able to filter sensors by any combination of time, location, or sensor type simultaneously.

Sequence Diagram 12 - Filter Data Sets



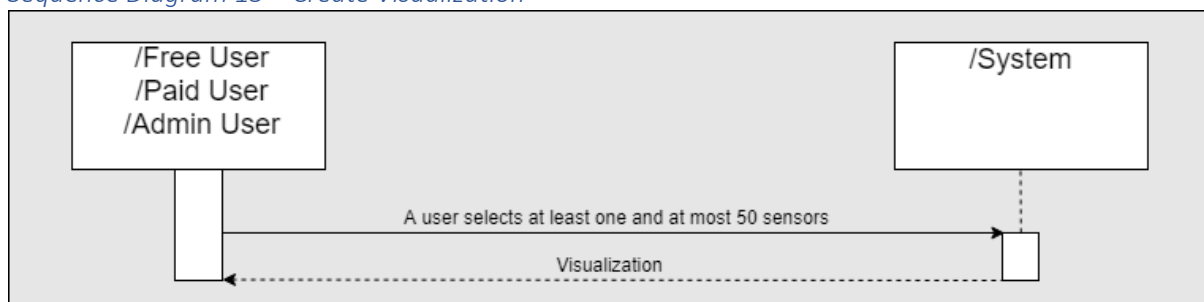
Use Case 13 – Create Visualization

Actors	A User (Free User, Paid User, Admin User)
Preconditions	N/A
Steps	<ol style="list-style-type: none"> 1. Extends Use Case 11 and/or Use Case 12 2. The User selects at least one and at most fifty sensors from the presented list of sensors.
Success Conditions	<ul style="list-style-type: none"> The User is presented with a visualization
Alternate Paths	<ol style="list-style-type: none"> 2a. If the sensor type is photo or video, only one sensor can be selected per visualization 2b. The User removes sensors from the visualization

Use Case 13 corresponds to the following requirements:

- REQ-VI-1: A User must be able to choose a data set and have the DOD produce and display a visualization of that data set.
- REQ-VI-2: A User must be able to play the videos collected by Daintree.
- REQ-VI-3: A User must be able to display the images collected by Daintree.

Sequence Diagram 13 – Create Visualization



Use Case 14 – Save Visualization

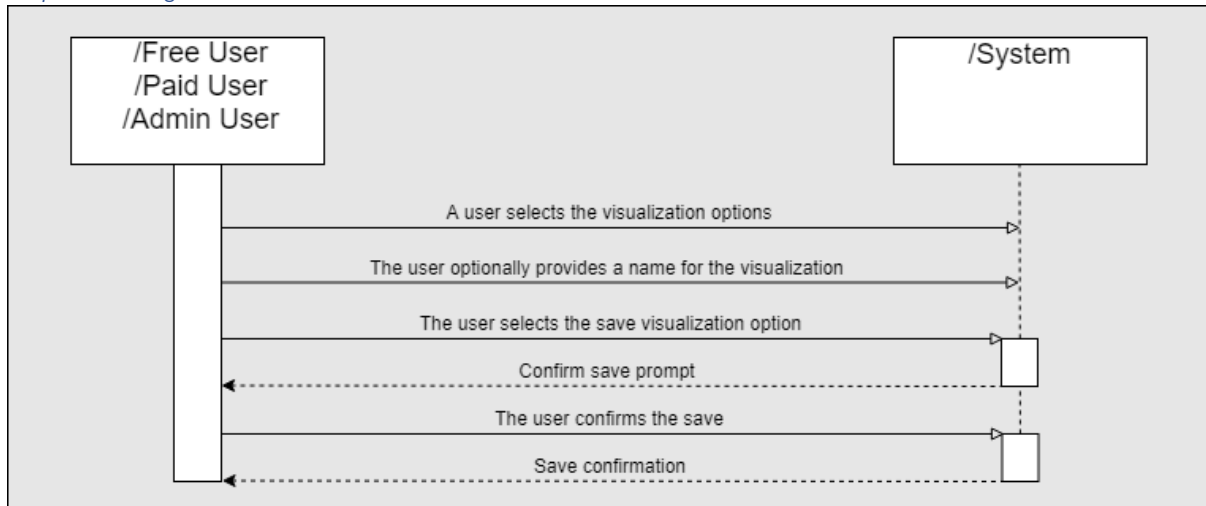
Actors	A User (Free User, Paid User, Admin User)
Preconditions	N/A
Steps	<ol style="list-style-type: none"> 1. Extends Use Case 13 2. The User selects the visualization options 3. The User enters an optional name for the visualization

	4. The User selects the save visualization option 5. The User confirms the save
Success Conditions	<ul style="list-style-type: none"> A visualization is saved and named The User is notified that the save was successful
Alternate Paths	5a. The User cancels the save visualization process

Use Case 14 corresponds to the following requirement(s):

- REQ-VI-14: A User must be able to save a visualization that they create.

Sequence Diagram 14 – Save Visualization



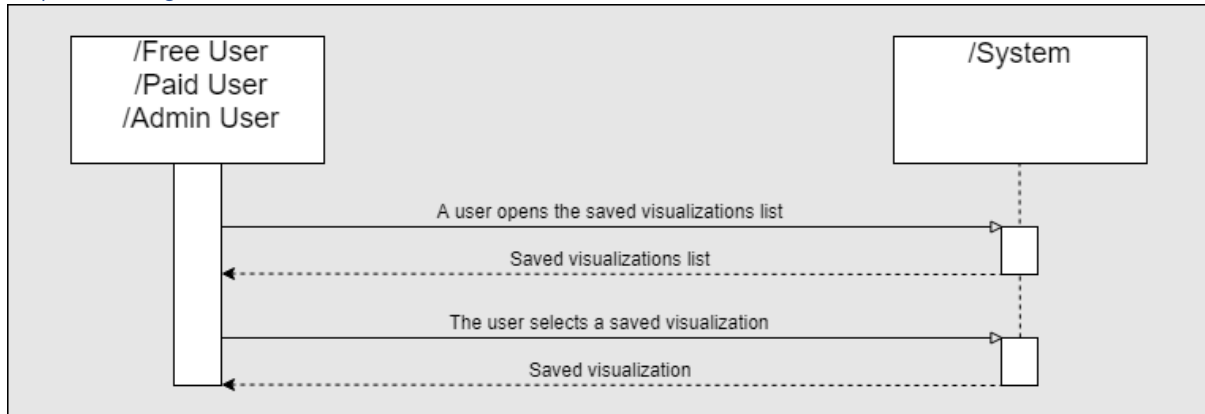
Use Case 15 – Load Visualization

Actors	A User (Free User, Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> The User has a valid account The User is logged in The User has navigated to the saved visualizations page The User has at least one saved visualization
Steps	1. The User opens the saved visualizations list 2. The User selects a saved visualization
Success Conditions	<ul style="list-style-type: none"> The User is presented with the saved visualization
Alternate Paths	2a. The visualization cannot be generated as the User's account type does not match the data classification for one or more sensors. The User is notified that they do not have permission to view the data set(s) anymore.

Use Case 15 corresponds to the following requirement(s):

- REQ-VI-15: A User must be able to display their saved visualizations.

Sequence Diagram 15 – Load Visualization



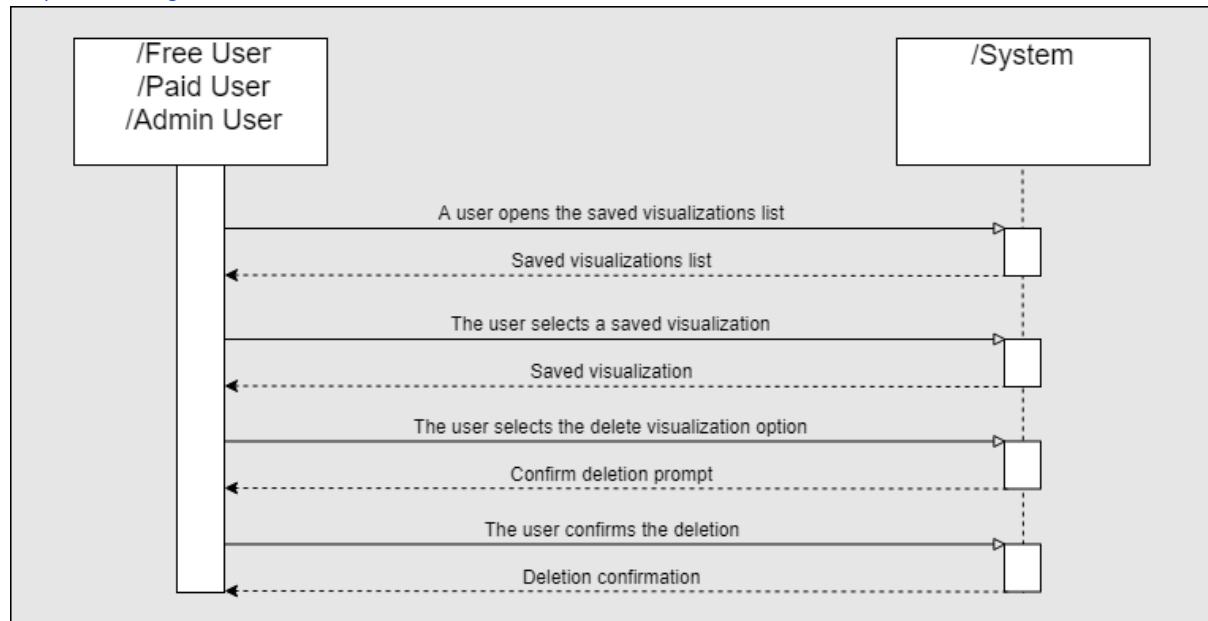
Use Case 16 – Delete Saved Visualization

Actors	A User (Free User, Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> The User has a valid account The User is logged in The User has navigated to the saved visualizations page The User has at least one saved visualization
Steps	<ol style="list-style-type: none"> The User opens the saved visualizations list The User selects a saved visualization The User selects delete visualization The User confirms the deletion
Success Conditions	<ul style="list-style-type: none"> The selected visualization is removed from the User's saved visualizations The User is notified that the deletion was successful
Alternate Paths	4a. The User cancels the deletion process

Use Case 16 corresponds to the following requirement(s):

- REQ-VI-16: A User must be able to delete their saved visualizations.

Sequence Diagram 16 – Delete Saved Visualization



3.4 Annotation

3.4.1 Description and Priority

Paid and Admin Users must be able to annotate data points, images and videos. Annotating is important as it allows Paid and Admin Users to indicate anomalies or points of interest.

Priority: High

3.4.2 Functional Requirements

- REQ-AN-1: Paid and Admin Users must be able to create their own annotations on videos, images and data points from a data set.
- REQ-AN-2: Paid and Admin Users must be able to toggle annotations on and off.
- REQ-AN-3: A Paid User must be able to delete their own annotations.
- REQ-AN-4: An Admin User must be able to delete any annotation.
- REQ-AN-5: Paid and Admin Users must be able to modify their own annotations.
- REQ-AN-6: An Admin User must be able to modify any annotations.
- REQ-AN-7: Paid and Admin Users must be able to view any annotations.
- REQ-SA-1: A User must be able to save a visualization that they create.
- REQ-SA-2: A User must be able to display their saved visualizations.
- REQ-SA-3: A User must be able to delete their saved visualizations.

3.4.3 Models

Use Case 17 - Create Annotation

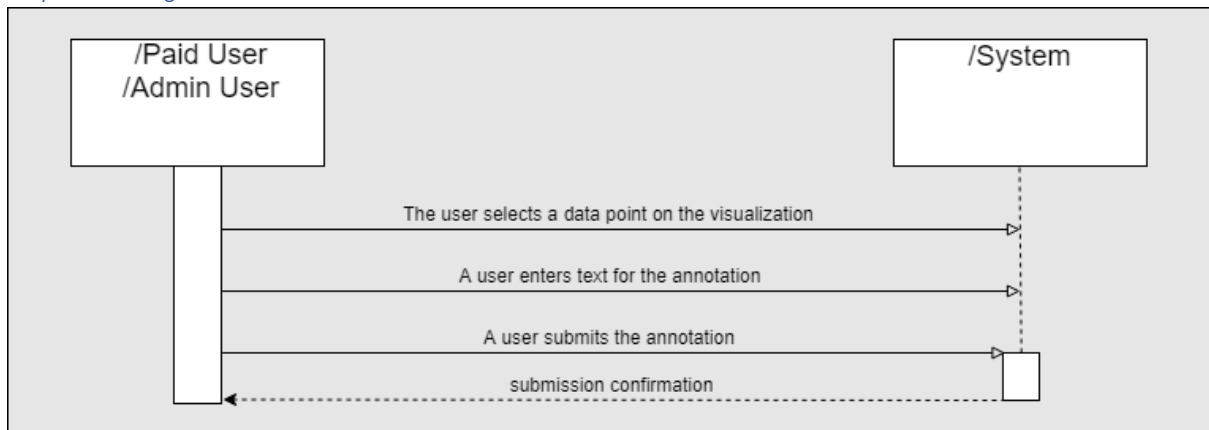
Actors	A User (Paid User, Admin User)
Preconditions	N/A
Steps	<ol style="list-style-type: none"> 1. Extends Use Case 13 or Use Case 15 2. The User selects a data point on the visualization 3. The User enters the text for the annotation 4. The User submits the annotation

Success Conditions	<ul style="list-style-type: none"> The annotation is saved and linked to the selected data point The User is notified that the annotation was created successfully
Alternate Paths	4a. The User cancels the annotation process

Use Case 17 corresponds to the following requirement:

- REQ-AN-1: Paid and Admin Users must be able to create their own annotations on videos, images and data points from a data set.

Sequence Diagram 17 - Create Annotation



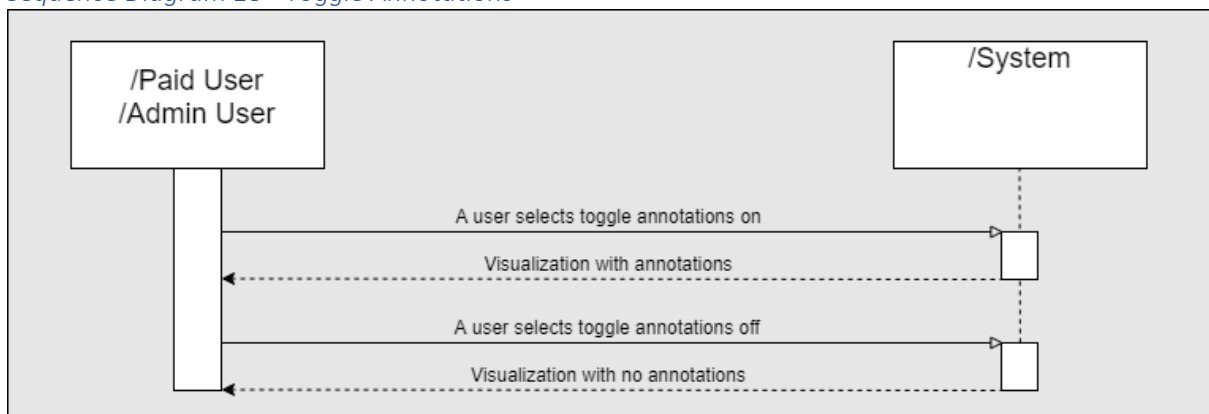
Use Case 18 - Toggle Annotations

Actors	A User (Paid User, Admin User)
Preconditions	N/A
Steps	<ol style="list-style-type: none"> Extends Use Case 13 or Use Case 15 The User selects toggle annotations on
Success Conditions	<ul style="list-style-type: none"> Visualization is updated to display any existing annotations on the data points
Alternate Paths	2a. The User selects toggle annotations off, the visualization is updated to not display annotations

Use Case 18 corresponds to the following requirement:

- REQ-AN-2: Paid and Admin Users must be able to toggle annotations on and off.

Sequence Diagram 18 - Toggle Annotations



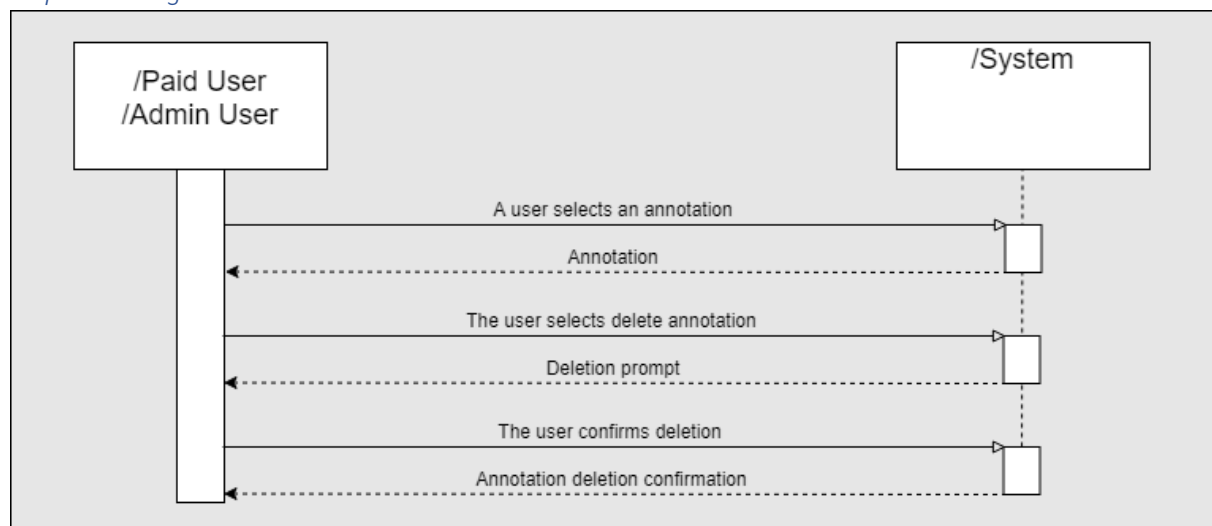
Use Case 19 - Delete Annotation

Actors	A User (Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> If the User is a Paid User, then they must be the author of the selected annotation in order to delete it
Steps	<ol style="list-style-type: none"> 1. <i>Extends Use Case 18</i> 2. The User selects an annotation 3. The User selects delete annotation 4. The User confirms deletion
Success Conditions	<ol style="list-style-type: none"> 1. The selected annotation is deleted 2. The User is notified that the deletion was successful
Alternate Paths	4a. The User cancels the deletion

Use Case 19 corresponds to the following requirements:

- REQ-AN-3: A Paid User must be able to delete their own annotations.
- REQ-AN-4: An Admin User must be able to delete any annotation.

Sequence Diagram 19 - Delete Annotation



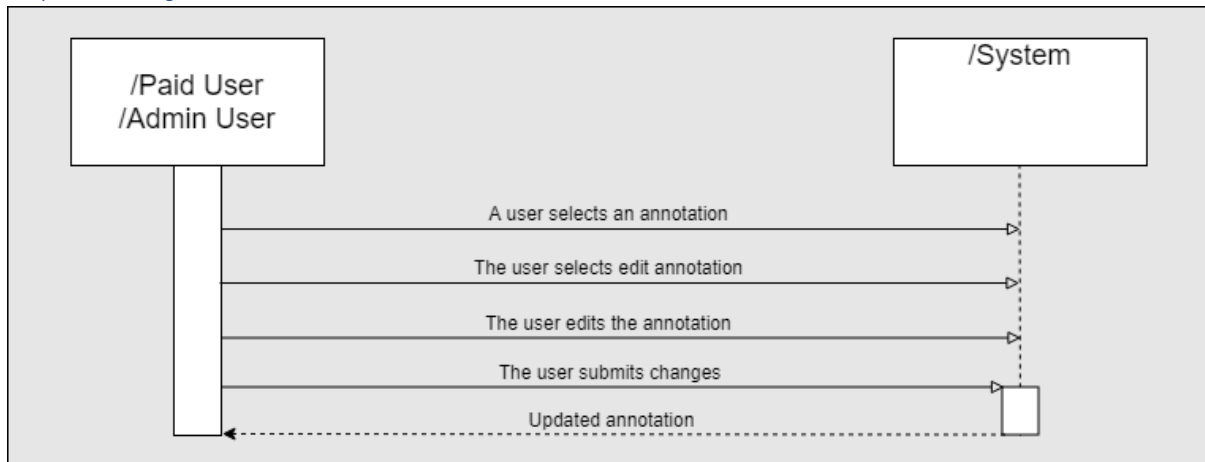
Use Case 20 - Edit Annotation

Actors	A User (Paid User, Admin User)
Preconditions	<ul style="list-style-type: none"> If the User is a Paid User, then they must be the author of the selected annotation in order to edit it
Steps	<ol style="list-style-type: none"> 1. <i>Extends Use Case 18</i> 2. The User selects an annotation 3. The User selects edit annotation 4. The User changes the annotation 5. The User submits their changes
Success Conditions	<ul style="list-style-type: none"> • The selected annotation is updated • The User is notified that the update was successful
Alternate Paths	5a. The User cancels the update process

Use Case 20 corresponds to the following requirements:

- REQ-AN-5: A Paid User must be able to modify their own annotations.
- REQ-AN-6: An Admin User must be able to modify any annotations.

Sequence Diagram 20 - Edit Annotation



4 External Interface Requirements

4.1 Communication Interfaces

Daintree's existing API provides a means of programmatically accessing the data stored by Daintree. The DOD will access the API to find sensor types and locations from which Daintree collects data. The DOD will access the API to access Daintree's collection of data.

Communication with the API occurs over Hypertext Transfer Protocol (HTTP). Because of the large amount of data that can be transferred, data transfer rates are dependent upon the speed of the API.

4.2 Software Interfaces

The DOD must integrate with Stripe, an external payment service provider. Stripe is used to upgrade from a Free User to a Paid User. Stripe stores payment information if the User chooses to do so. When a User pays, they are taken to the Stripe website to input their payment information. The DOD then receives a token from Stripe to associate with the User account for future payment.

5 Non-Functional Requirements

5.1 Performance Requirements

The following section specifies the efficiency requirements that the DOD must meet.

5.1.1 Efficiency

- REQ-EF-1: The DOD must be capable of visualizing data sets within 3 seconds of User input.
- REQ-EF-2: The DOD must be capable of handling up to one GB of data requested from the API.

5.2 Security Requirements

User data security is important for all User classes. A Free User must have access to only a limited subset of data provided by Daintree. A User only ever views a visualization of the data set and not the data set itself. Payment transactions must be secure so that the Paid User is comfortable using the DOD. Storage of a User's account credentials must be secure. A User must enter a correct email address and password to access their account.

- REQ-AS-1: A Free User can only access the data sets from a limited subset of sensors.
- REQ-AS-2: A User must not be able to view data sets, but only visualizations of data sets.
- REQ-AS-3: Payment transactions must be secure between the Paid User and the DOD.
- REQ-AS-4: Storage of a User's account credentials must be secure.
- REQ-AS-5: A User must provide a correct set of account credentials to access an account.

5.3 Software Quality Attributes

The following sections outline the quality attributes the DOD must meet including: adaptability, portability, usability, and reliability.

5.3.1 Adaptability

If new sensors are deployed, the DOD must adapt to accommodate the new data from the sensors. It is essential a User has access to the new data so that it can be used immediately. It is important that new sensors added by Daintree do not disrupt the DOD.

- REQ-AD-1: The DOD must require few to no changes when new sensors are added by Daintree.
- REQ-AD-2: A User must be able to use data collected by new sensors as soon as it available from the API.

5.3.2 Portability

In order to support a wider range of User devices the DOD must run on desktop, tablet, and mobile devices.

- REQ-PO-1: A User must be able to access the DOD on desktop and mobile platforms.

5.3.3 Usability

The DOD needs to provide a level of usability such that a User with limited technical knowledge is able to use the DOD.

- REQ-US-1: A new User to the DOD must be able to find the data sets they are interested in within 3 minutes.

5.3.4 Reliability

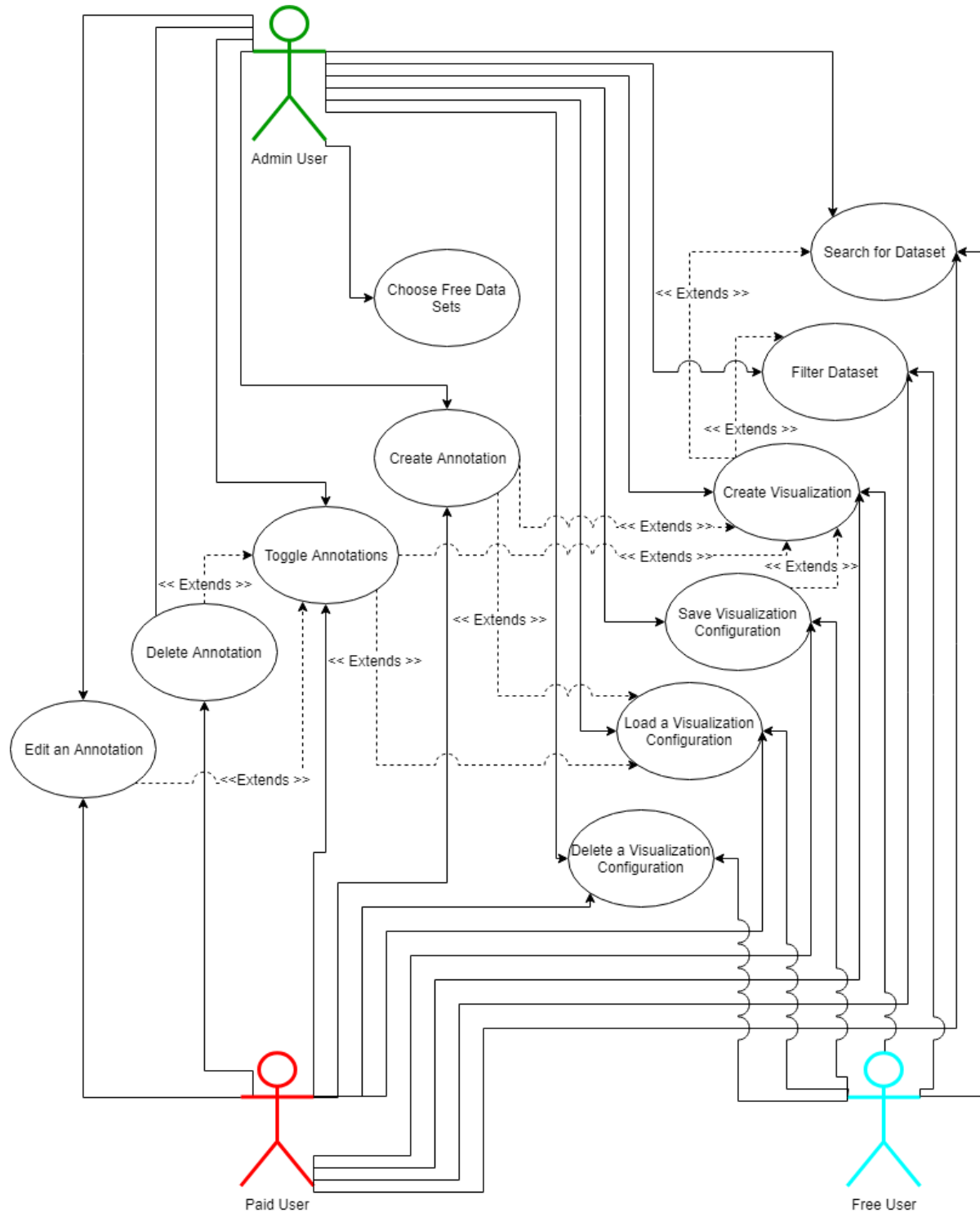
- REQ-RE-1: The DOD must not modify Daintree's collection of data when generating visualizations.
- REQ-RE-2: A User must be presented with data sets accurately such that visualizations are repeatable given the same data set.

6 Analysis Model

6.1 Use Case Model

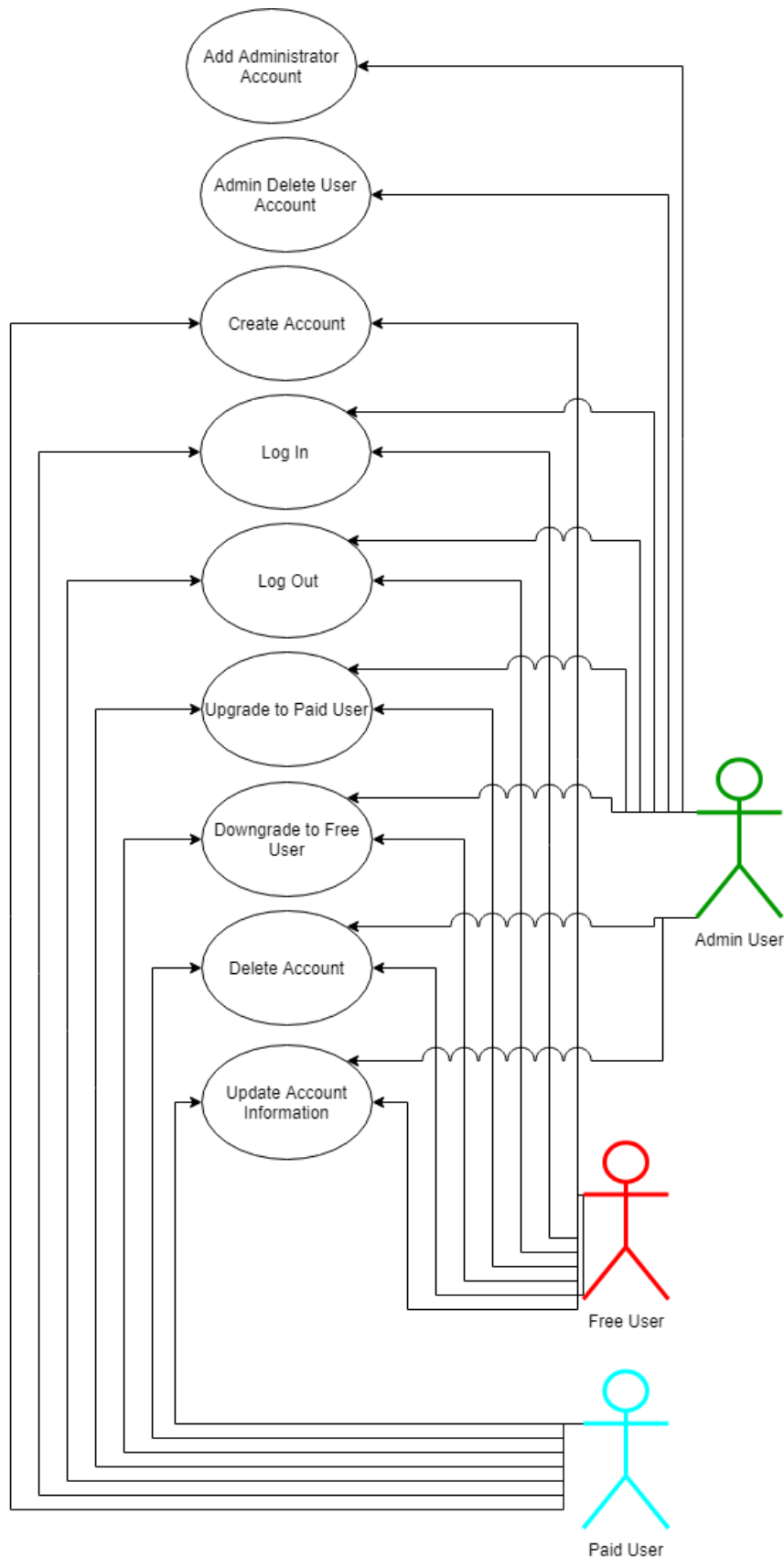
The following diagram, the use case model part 1, shows the relationships between the Users and the use cases regarding visualization and annotations.

Use Case Model Part 1



The following diagram, the use case model part 2, shows the relationships between the Users and the use cases regarding account management.

Use Case Model Part 2



6.2 Data Flow Assumptions

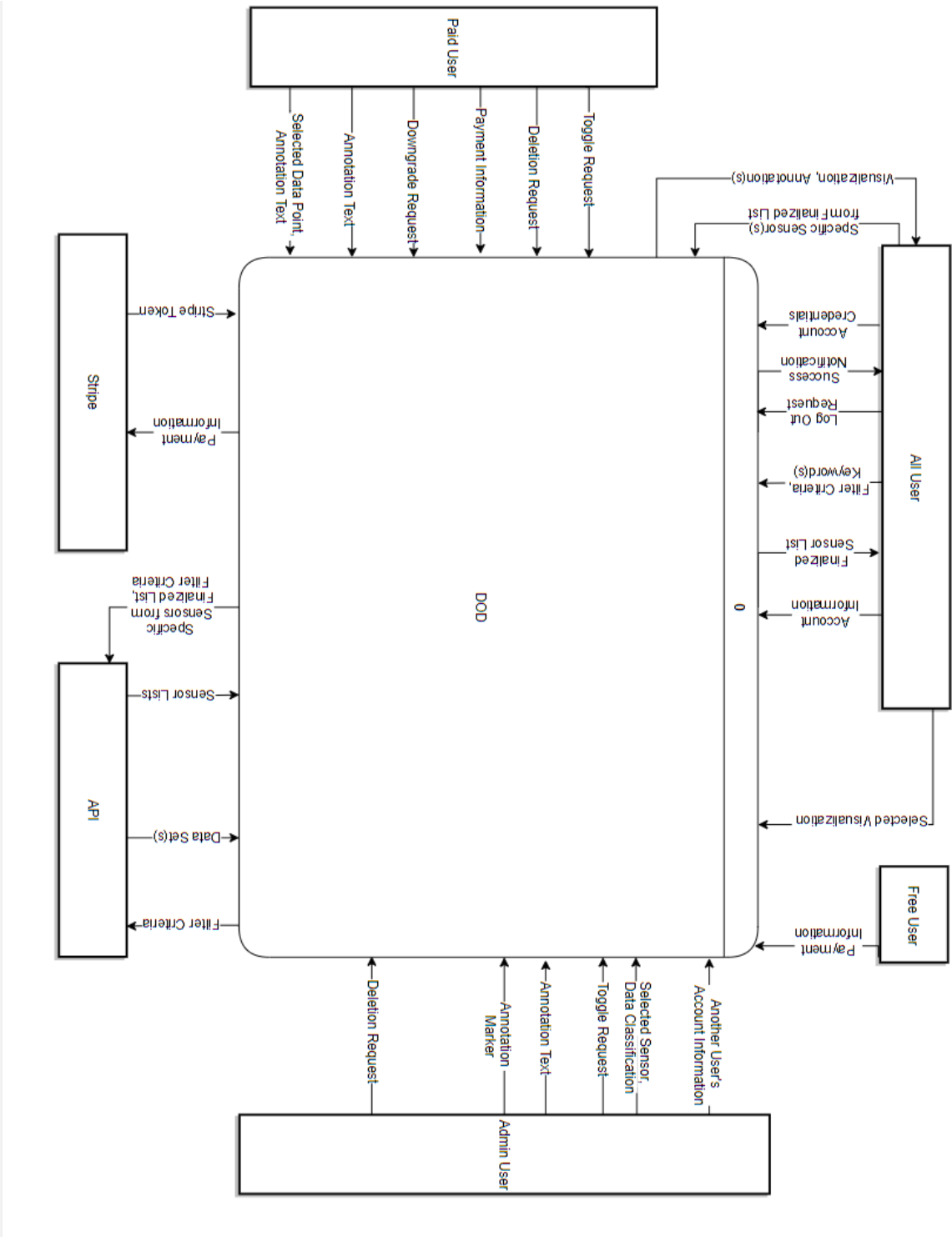
The assumptions below were made with the intention to increase clarity and allow a focus on the fundamental data flows through the DOD. To properly understand the data flow diagram, the following assumptions must be understood:

- The DOD keeps track of User information. In other words, the DOD is aware of which User is logged in and which User is making what request.
- Each data flow starts from the precondition(s) of the corresponding use case.
- When 'Annotation Text' is passed into the DOD, the DOD knows which data points are currently being visualized. This assumption is made because viewing a visualization is a prerequisite for toggling/viewing annotations.
- In relevance to process 2.2 (Delete Account), an Admin User can delete a Free, Paid or Admin User's account.
- 'All Users' consists of Free User, Paid User and Admin User.
- 'API' represents the Daintree API.

6.3 Context Diagram

This diagram is a high-level representation of the DOD. The context diagram for the DOD contains one process, which is representative of the DOD as a whole. The context diagram contains all data flows required for the features outlined in section 2 and 3. The diagram below has the Free User, Paid User and Admin User actors. The DOD interacts with the Daintree API and Stripe external entities.

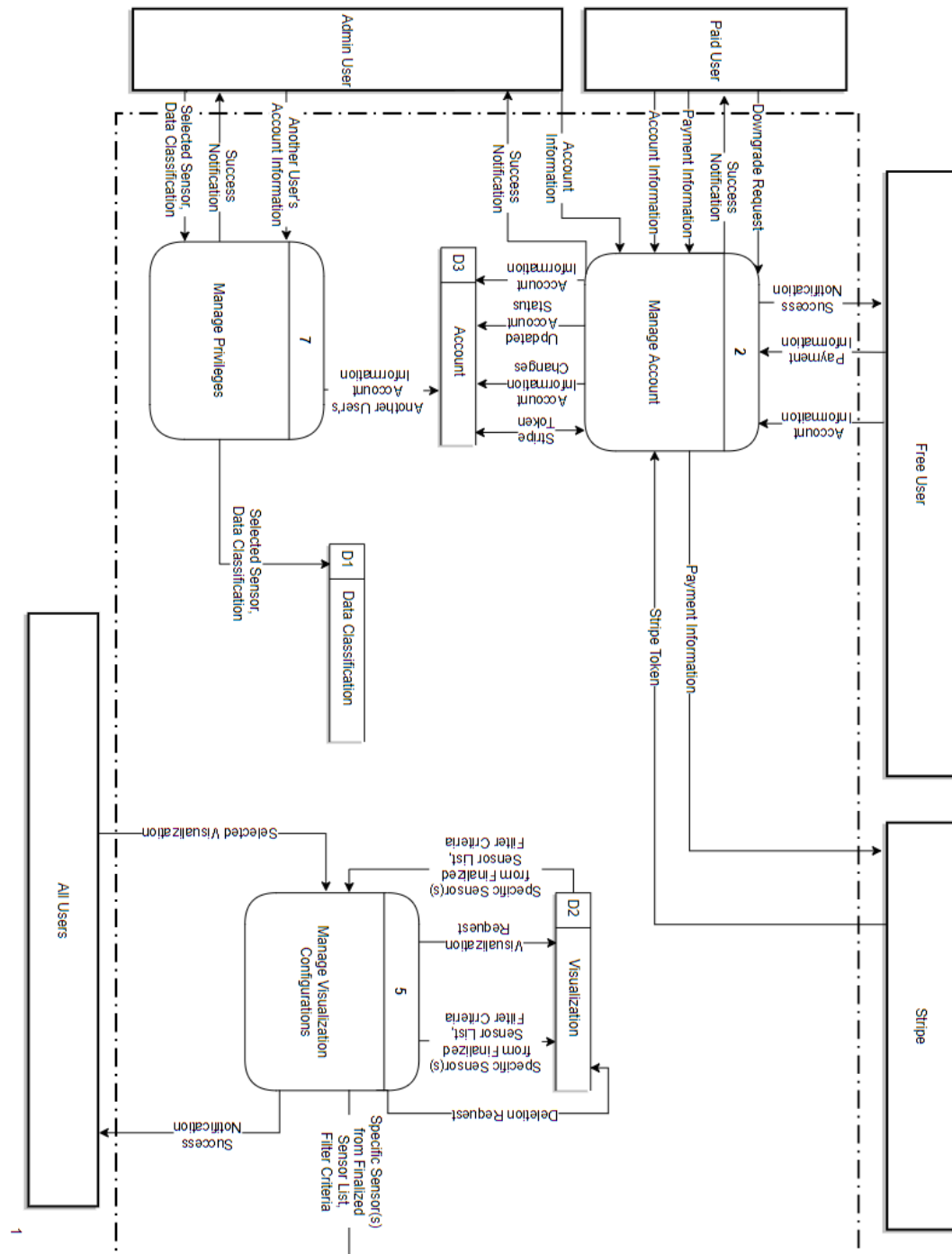
Context Diagram



6.4 Data Flow Diagram Level 1

The diagram below shows the 7 processes that describe the DOD in more detail. The DOD system boundary is represented by the dotted line. External entities and actors are shown outside of the dotted line. Processes and the DOD's database are shown within the dotted line. Each datastore (labelled D#) represent a table in the DOD's database. Please view Appendix C – Data Flow Diagram Assembly for assembly instructions.

Data Flow Diagram Level 1



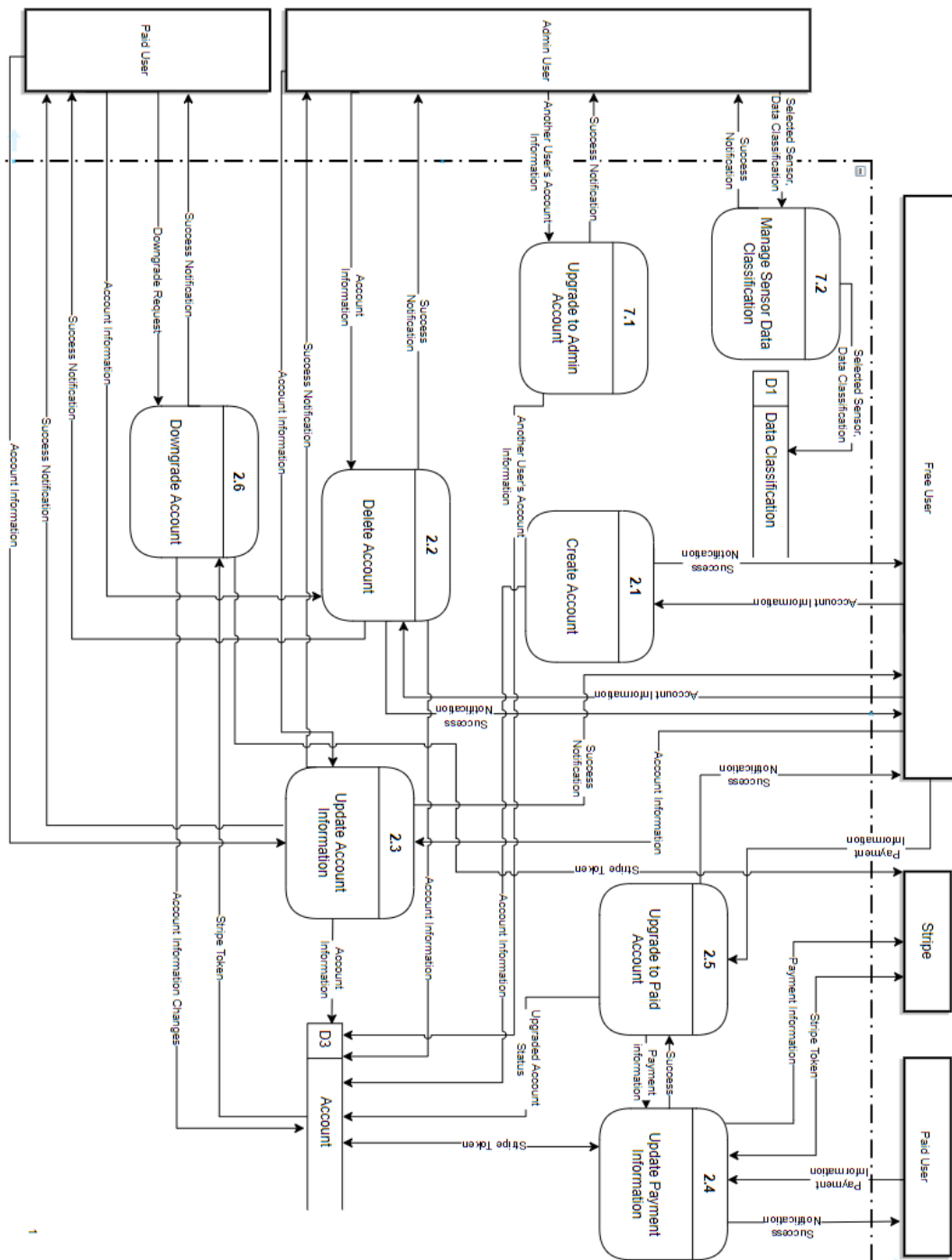


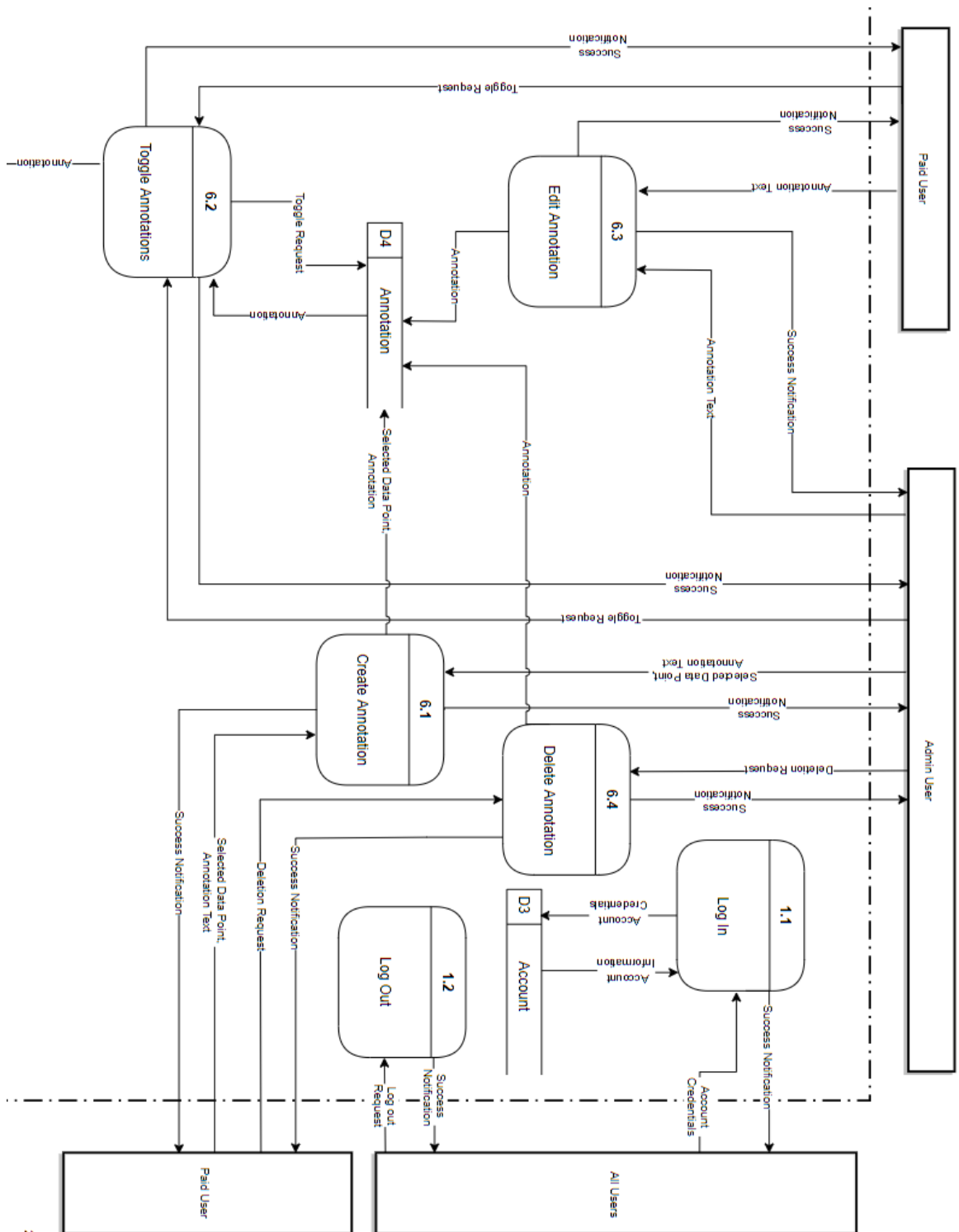
6.5 Data Flow Diagram Level 2

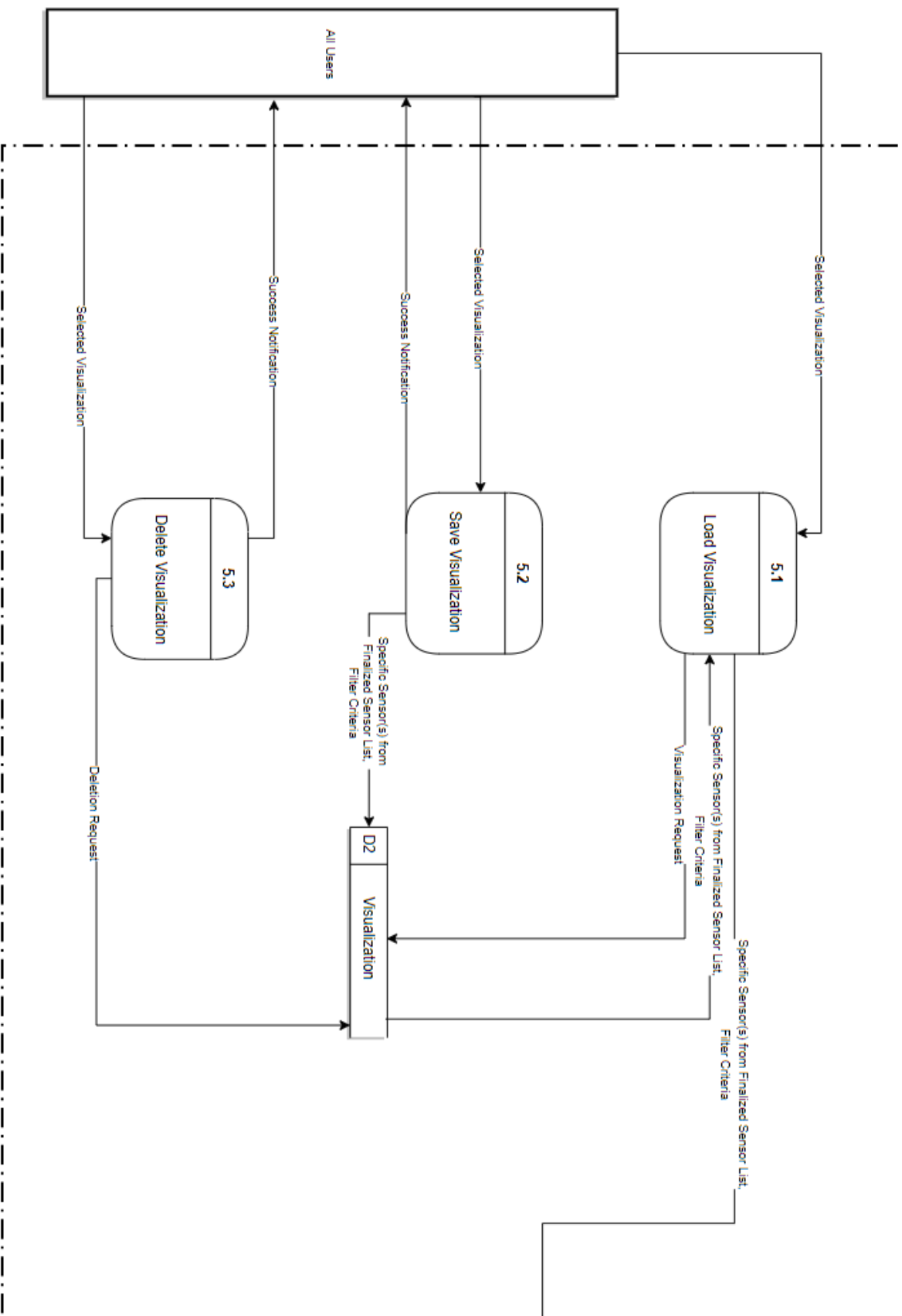
This diagram is a more detailed version of the DFD 1. The DOD system boundary is represented by the dotted line. External entities and actors are shown outside of the dotted line. Processes and the DOD's database are shown within the dotted line. Each datastore (labelled D#) represents a table in the DOD's database. The diagram breaks down the processes from the DFD 1 into specific processes. It shows all the data flow between actors and these specific processes. Please view Appendix C – Data Flow Diagram Assembly for assembly instructions.

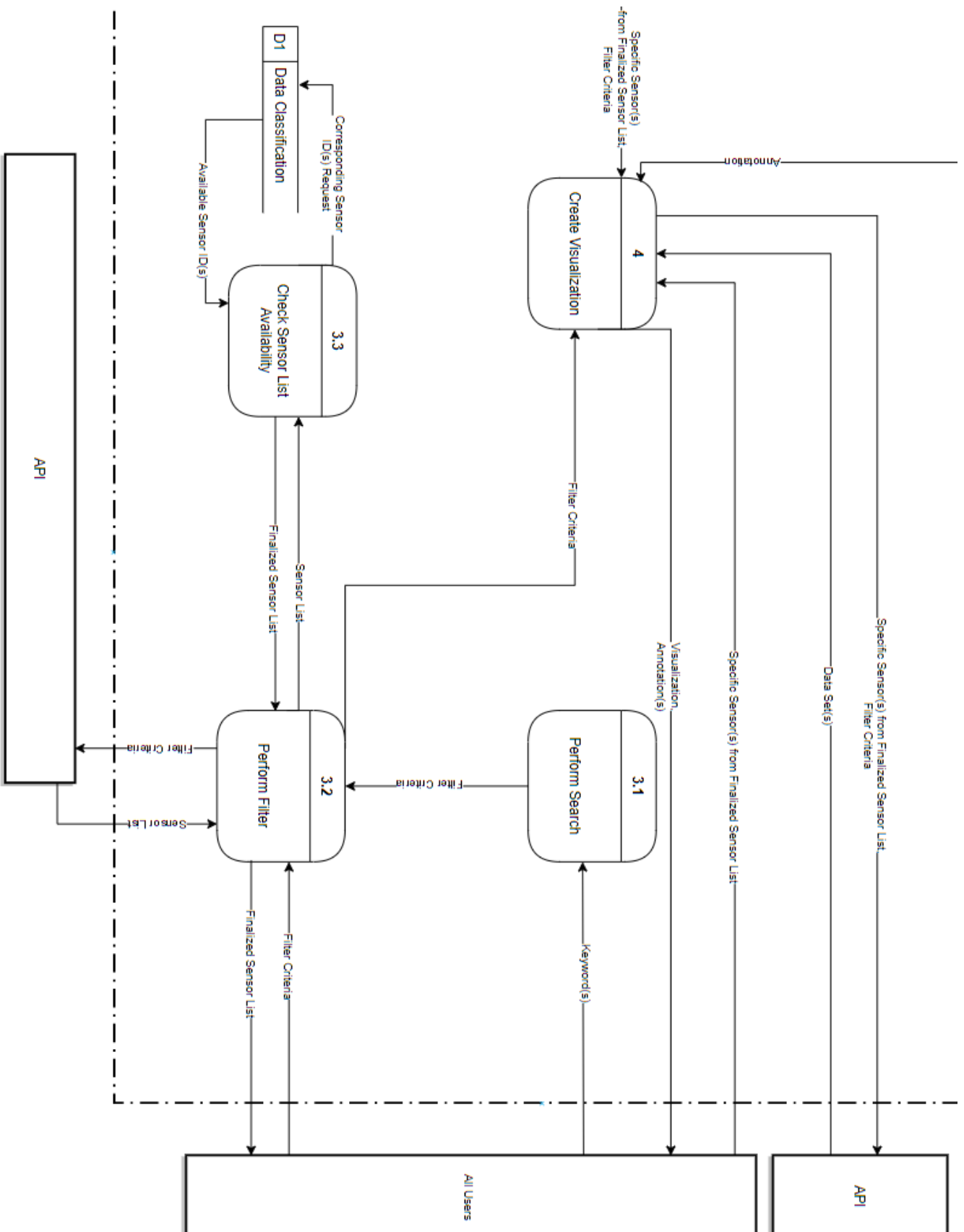
The diagram below shows a detailed outline of the DOD where processes are broken down into further detail from the Data Flow Diagram Level 1.

Data Flow Diagram Level 2





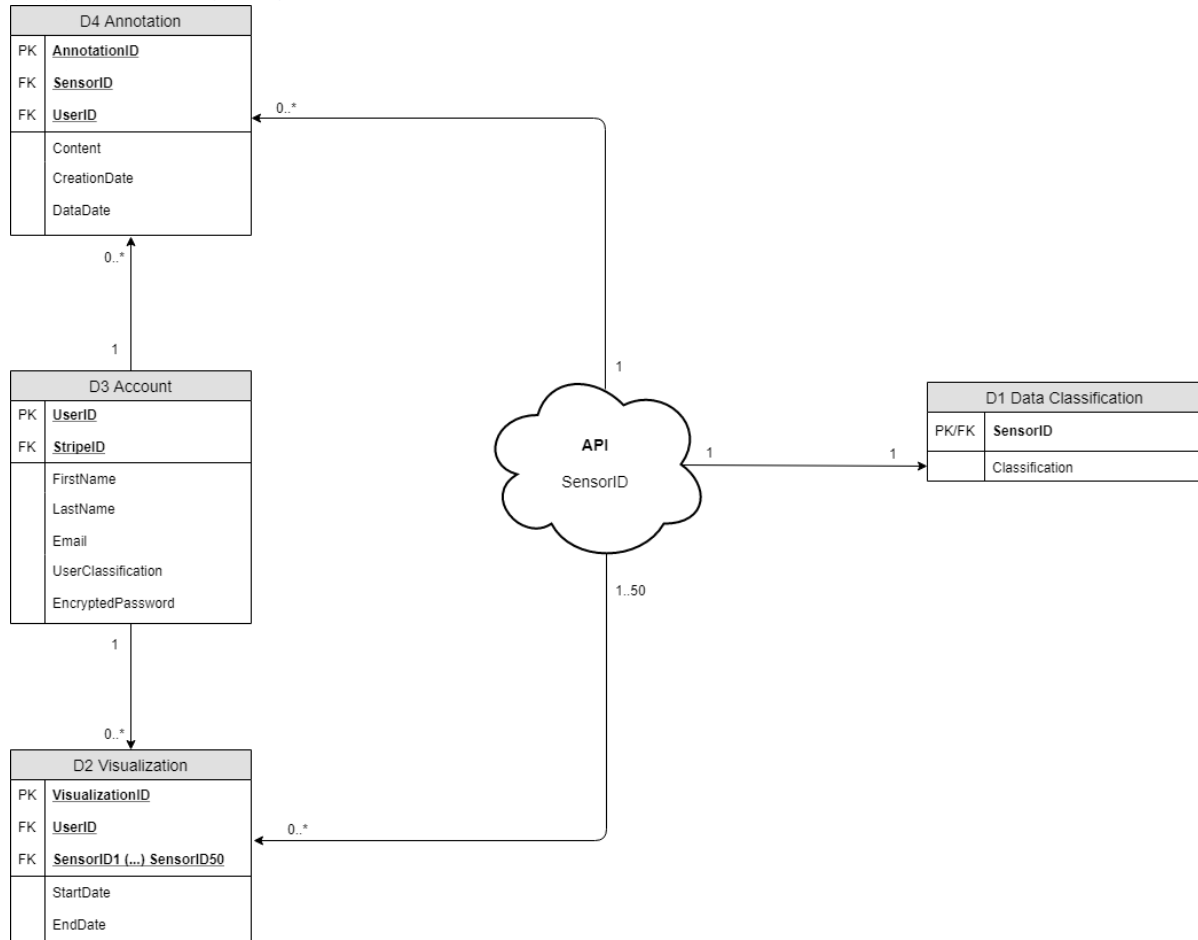




6.6 Entity Relationship Diagram

This entity-relationship diagram shows the four data entities within the DOD and their relationships with each other. The four entities are data classification, visualization, account and annotation. Within each entity are its attributes, such as UserID for the account entity.

Entity Relationship Diagram



The following tables outline the attributes within each entity. For each attribute the table shows its name, data type, data format, size, and a short description.

D1 - Data Classification

Field Name	Data Type	Data Format	Field Size	Description
SensorID	Integer	NNNNNNNN	8	Unique number ID that identifies each sensor in Daintree's database.
Classification	String		5	Identifies which User types are able to include each sensor in a visualization. Must be one of: "All Users" or "Paid/Admin Users Only".

D2 - Visualization

Field Name	Data Type	Data Format	Field Size	Description
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VisualizationID	Integer	NNNNNNNN	8	Unique number ID for each Visualization.
UserID	Integer	NNNNNNNN	8	Unique number ID for each User.
SensorID1 (...) SensorID50	Integer	NNNNNNNN	8	Unique number ID that identifies each sensor in Daintree's database. Each Visualization contains at least one and at most fifty sensor IDs. Unused fields are left blank.
StartDate	DateTime	YYYY/MM/DD HH:MM:SS	20	Timestamp containing the start date & time of sensor data that will be used to generate the visualization.
EndDate	DateTime	YYYY/MM/DD HH:MM:SS	20	Timestamp containing the end date & time of sensor data that will be used to generate the visualization.

D3 - Account

Field Name	Data Type	Data Format	Field Size	Description
UserID	Integer	NNNNNNNN	8	Unique number ID for each User.
StripeID	String		14	Unique text ID that identifies each User's payment information.
FirstName	Varchar		30	The User's first name.
LastName	Varchar		30	The User's last name.
Email	Varchar		30	The User's email address.
UserClassification	String		5	The User's account type. Must be one of: "Free", "Paid", "Admin".
EncryptedPassword	String		30	The User's password for account credentials.

D4 - Annotation

Field Name	Data Type	Data Format	Field Size	Description
AnnotationID	Integer	NNNNNNNN	8	Unique number ID for each annotation.
SensorID	Integer	NNNNNNNN	8	Unique number ID that identifies each sensor in Daintree's database.
UserID	Integer	NNNNNNNN	8	Unique number ID for each User.
Content	Varchar		500	The text content of the annotation.
CreationDate	DateTime	YYYY/MM/DD HH:MM:SS	20	Timestamp containing the annotation's creation date & time.
DataDate	DateTime	YYYY/MM/DD HH:MM:SS	20	Timestamp referencing the specific data point in the sensor's data set to which the annotation is attached.

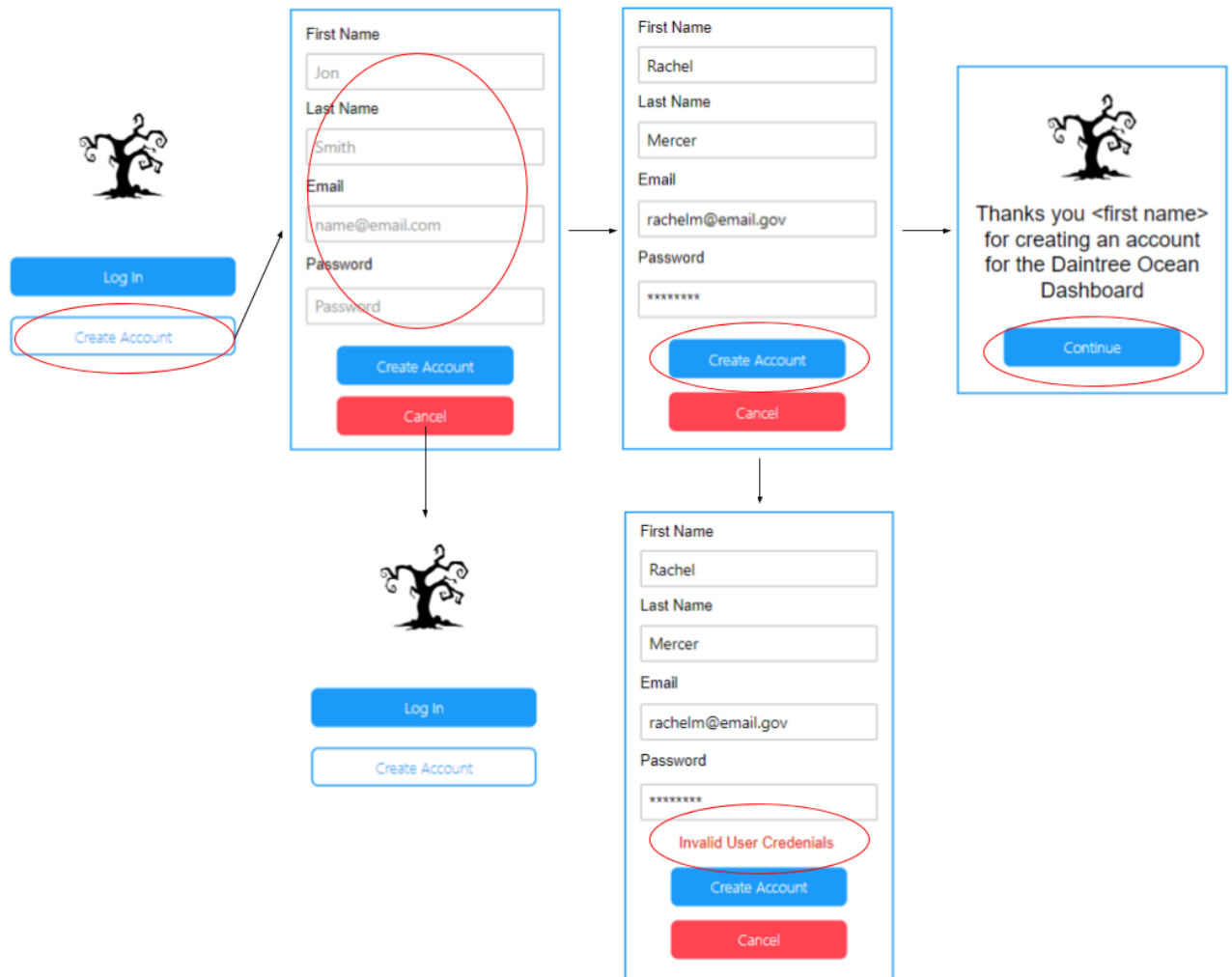
7 Solution

7.1 Account Management

This section provides an example of how the Account Management features described in section 3.1 could be implemented in the DOD.

7.1.1 Create Account

UI Mock-Up – Create Account



Scenario 1 – Create Account

A new User has navigated to the account creation page from the DOD landing page. The User enters their account information. The User submits their account information. The DOD then creates a new account that has Free User status and notifies the User that their account has been created. The DOD then logs the User into the new account.

Scenario 1a – User Cancels Account Creation

A new User has navigated to the account creation page from the DOD landing page. The User enters their account information. The User cancels the account creation process without submitting their account information. The DOD returns the User to the landing page and no new account is created.

Scenario 1b – Invalid Account Information

A new User has navigated to the account creation page from the DOD landing page. The User then enters their account information. The User submits their account information. However, one or

more pieces of account information do not match the required format. The DOD notifies the User that their account information is invalid.

7.1.2 Log In

UI Mock-Up 2 – Log In



Scenario 2 – Log In

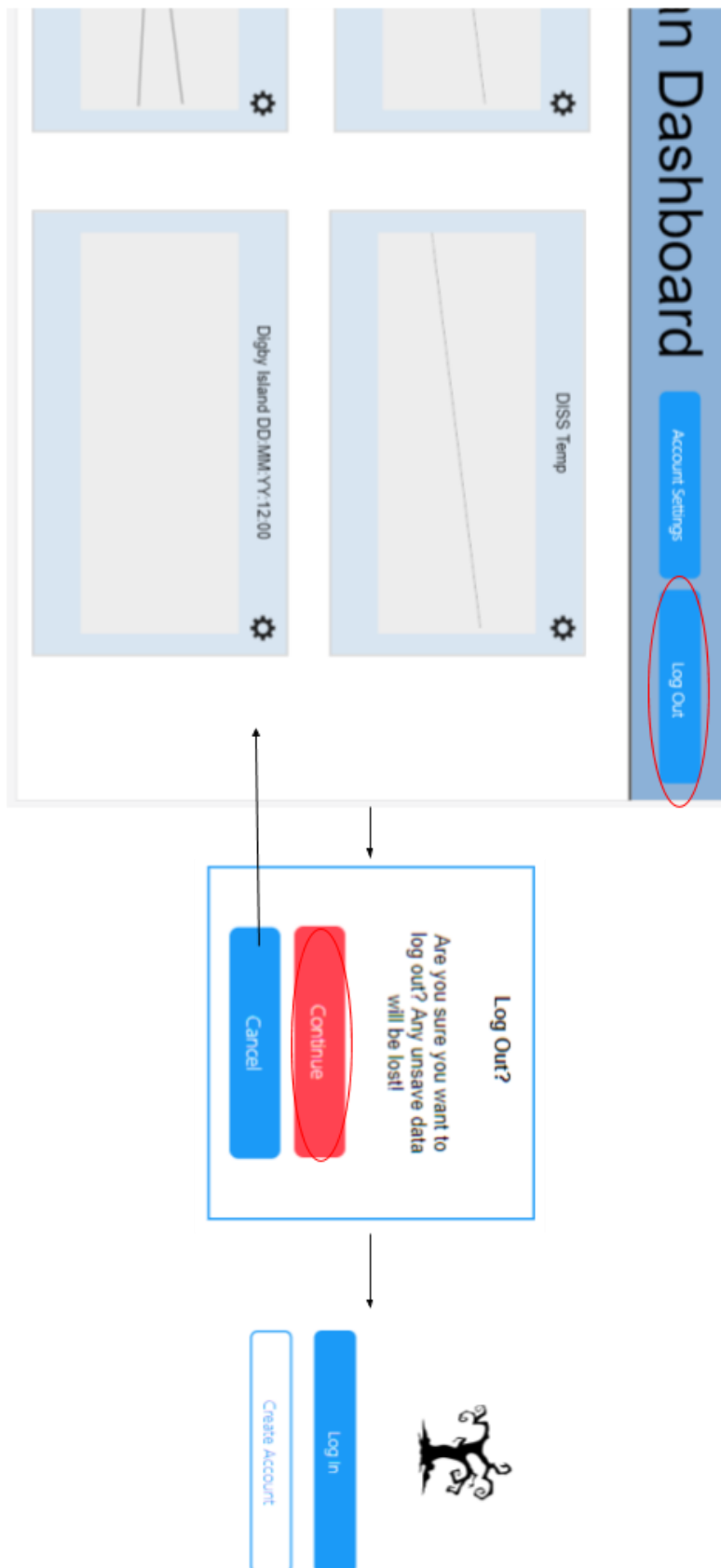
A Free User, Paid User or Admin User has navigated to the login page of the DOD. The User enters their account credentials and submits their account credentials. The DOD logs the User into their account.

Scenario 2a – Invalid Account Credentials

A Free User, Paid User or Admin User has navigated to the login page of the DOD. The User enters their account credentials and submits their account credentials. However, either the email address the User entered is not associated with an account, or the password is incorrect. The DOD notifies the User that their account credentials are invalid.

7.1.3 – Log Out

UI Mock-Up 3 – Log Out



Scenario 3 Log Out

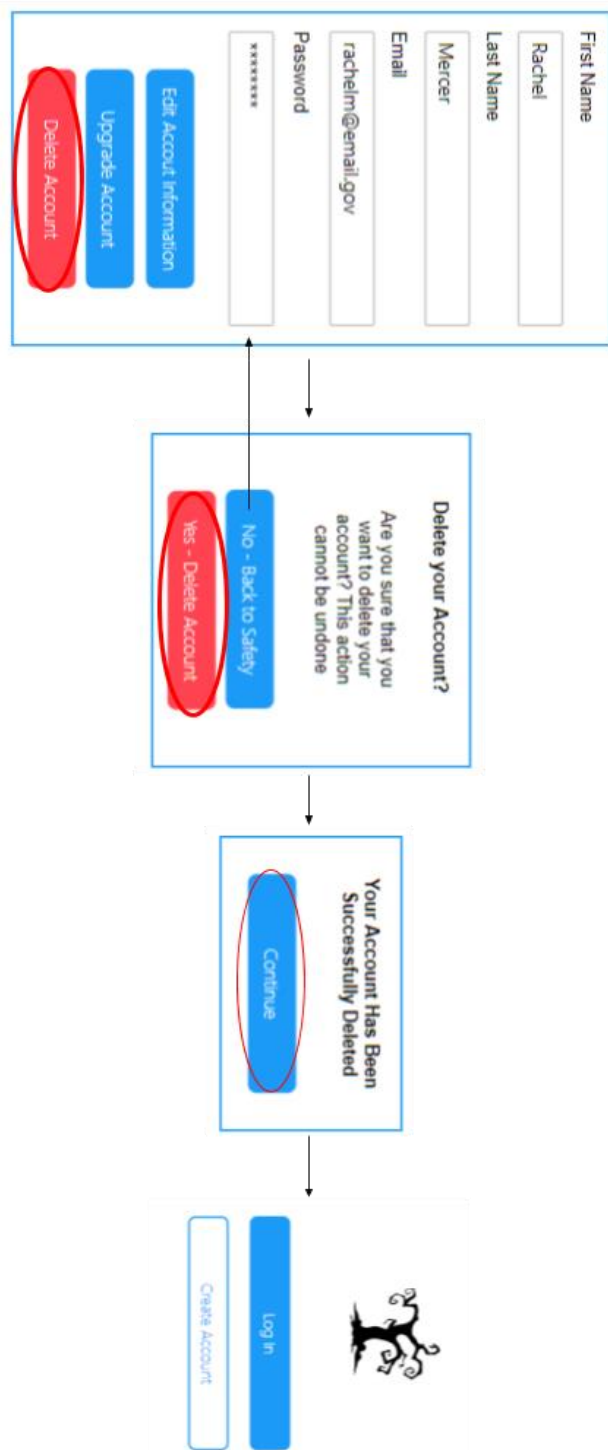
A Free User, Paid User or Admin User is logged into the DOD. The User selects log out. The User is prompted to confirm log out. The User confirms log out. The DOD logs the User out of their account and returns the User to the landing page.

Scenario 3a Cancel Log out

A Free User, Paid User, or Admin User is logged into the DOD. The User selects log out. The User is prompted to confirm log out. The User cancels log out. The DOD does not log the User out of their account and returns the User to the page they were on.

7.1.4 – Delete Account

UI Mock-Up 4 – Delete Account



Scenario 4 – User Deletes Their Account

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the account information page. The User selects delete account and confirms that they wish to delete their account. The DOD deletes the User's account, notifies the User that their account was deleted, and returns the User to the landing page.

Scenario 4a – User Cancels Account Deletion

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the account information page. The User selects delete account but cancels the account deletion. The DOD does not delete the User's account.

7.1.5 – Update Account Information

UI Mock-Up 5 – Update Account Information



Scenario 5 – Update Account Information

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the account information page. The User selects edit account information. The User enters changes to their

account information and saves the changes. The system updates the User's account information and notifies the User that the update was successful.

Scenario 5a – User Cancels Account Information Update

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the account information page. The User selects edit account information. The User cancels the account information update without saving changes. The DOD discards any account information changes that were entered by the User.

7.1.6 – Upgrade Account
UI Mock-Up 6 – Upgrade Account



Scenario 6 – Free User Upgrades Their Account to Paid User Account

A Free User is logged into the DOD and has navigated to the account information page. The User selects upgrade account and enters their payment information. The User submits their payment information. The DOD changes the User's account status to Paid User and notifies the User that the upgrade was successful.

Scenario 6a – User Cancels Account Upgrade

A Free User is logged into the DOD and has navigated to the account information page. The User selects upgrade account but cancels the process before submitting their payment information. The DOD does not upgrade the User's account status to Paid User.

Scenario 6b – Invalid Payment Information

A Free User is logged into the DOD and has navigated to the account information page. The User selects upgrade account and enters their payment information. The User submits their payment information. However, the payment information is invalid. The system notifies the User that the payment information they entered is invalid.

7.1.7 – Downgrade Account

UI Mock-Up 7 – Downgrade Account



Scenario 7 – Paid User Downgrades Their Account to Free User Account

A Paid User is logged into the DOD and has navigated to the account information page. The User selects downgrade account and confirms that they wish to downgrade their account status. The DOD downgrades the User's account status to Free User and notifies the User that the downgrade was successful.

Scenario 7a – User Cancels Account Downgrade

A Paid User is logged into the DOD and has navigated to the account information page. The User selects downgrade account but cancels the downgrade process. The DOD does not downgrade the User's account status to Free User.

7.2 Administration

This section provides an example of how the Administration features described in section 3.2 could be implemented in the DOD.

7.2.1 Admin Deletes a User Account

UI Mock-Up 8 – Admin Deletes a User Account



Scenario 8 – Admin User Deletes another User's Account

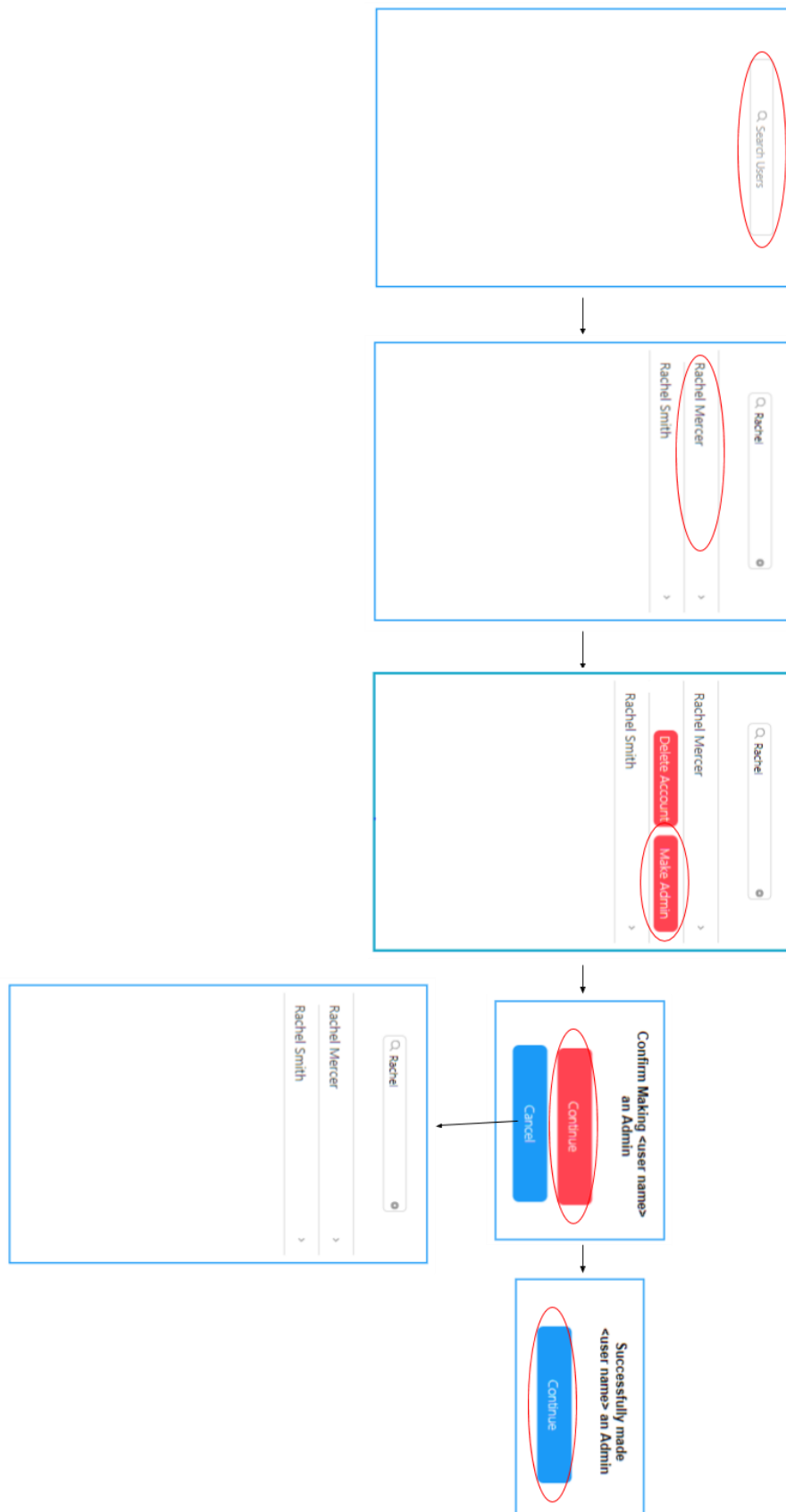
An Admin User is logged into the DOD and has navigated to the admin page. The User enters another User's account information and selects the desired account. The User selects delete account and confirms that they wish to delete the account. The DOD deletes the account and notifies the User that the account deletion was successful.

Scenario 8a – Admin User Cancels Account Deletion

An Admin User is logged into the DOD and has navigated to the admin page. The User enters another User's account information and selects the desired account. The User selects delete account. However, the User cancels the account deletion. The DOD does not delete the account.

7.2.2 Admin Grants Admin to another User

UI Mock-Up 9 – Admin Grants Admin to another User



Scenario 9 – Admin User Upgrades another User Account to Admin User Account

An Admin User is logged into the DOD and has navigated to the admin page. The User enters another User's account information and selects the desired account. The User selects make admin and confirms the account upgrade. The DOD upgrades the selected account to Admin User status and informs the User that the upgrade was successful.

Scenario 9a – Admin User Cancels Account Upgrade

An Admin User is logged into the DOD and has navigated to the admin page. The User enters another User's account information and selects the desired account. The User selects upgrade to admin account. However, the User cancels the account upgrade. The DOD does not upgrade the selected account to Admin User status.

7.2.3 Manage Sensor Data Classification

UI Mock-Up 10 – Manage Sensor Data Classification



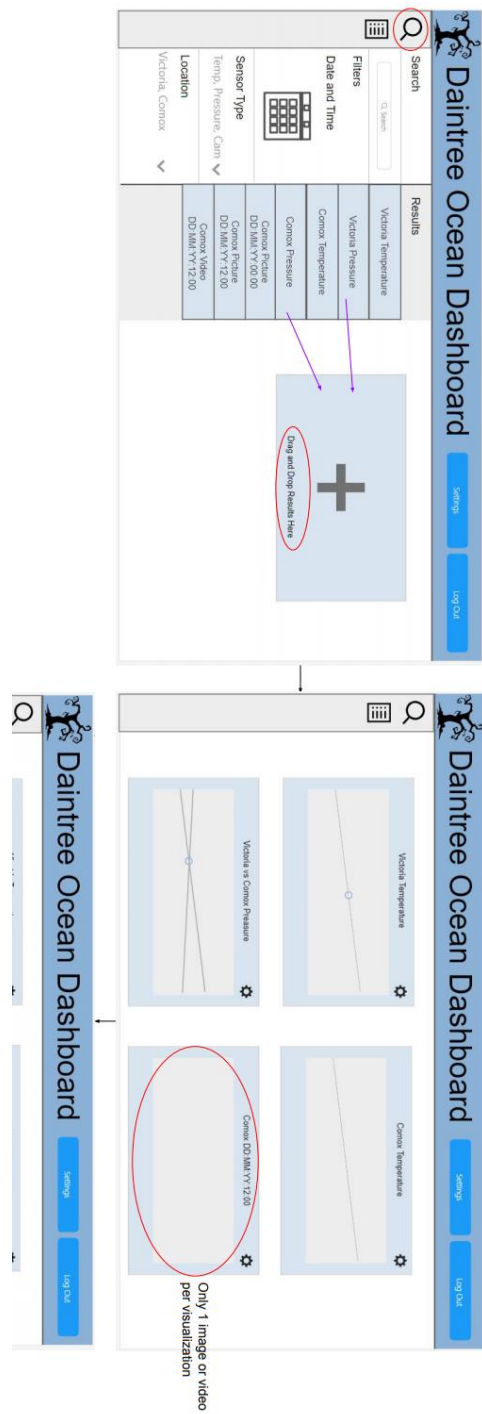
Scenario 10 – Manage Sensor Data Classification

An Admin User is logged into the DOD and has navigated to the admin page. The User selects 0 or more locations and 0 or more sensor types. The User submits their filter criteria. The DOD displays a filtered list of sensors. The User toggles the data classification for a selected sensor between available to all Users and available to only Paid Users and Admin Users.

7.3 Visualization

This section provides an example of how the Visualization features described in section 3.3 could be implemented in the DOD.

UI Mock-Up 11 – Search Data Sets



Daintree Ocean Dashboard

[Settings](#)
[Log Out](#)

Filters

Date and Time

Sensor Type

Location

Results

Victoria Temperature	
Victoria Pressure	
Comox Temperature	
Comox Pressure	
Comox Picture DD MM YY 20:00	
Comox Picture DD MM YY 12:00	
Comox Video DD MM YY 12:00	

Daintree Ocean Dashboard

[Settings](#)
[Log Out](#)

Filters

Date and Time

Sensor Type

Location

Victoria Temperature

Victoria Pressure

Comox Temperature

Comox Pressure

Comox DD MM YY 12:00

Only 1 image or video per visualization

Daintree Ocean Dashboard

[Settings](#)
[Log Out](#)

Filters

Date and Time

Sensor Type

Location

Victoria Temperature

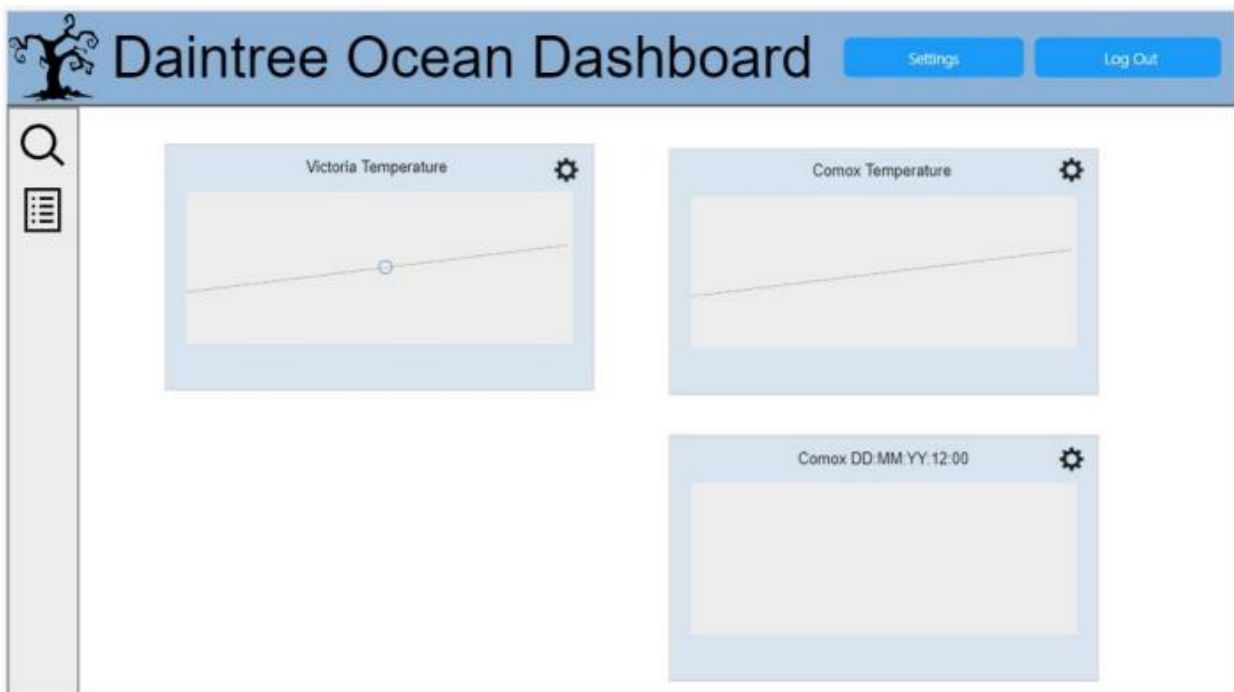
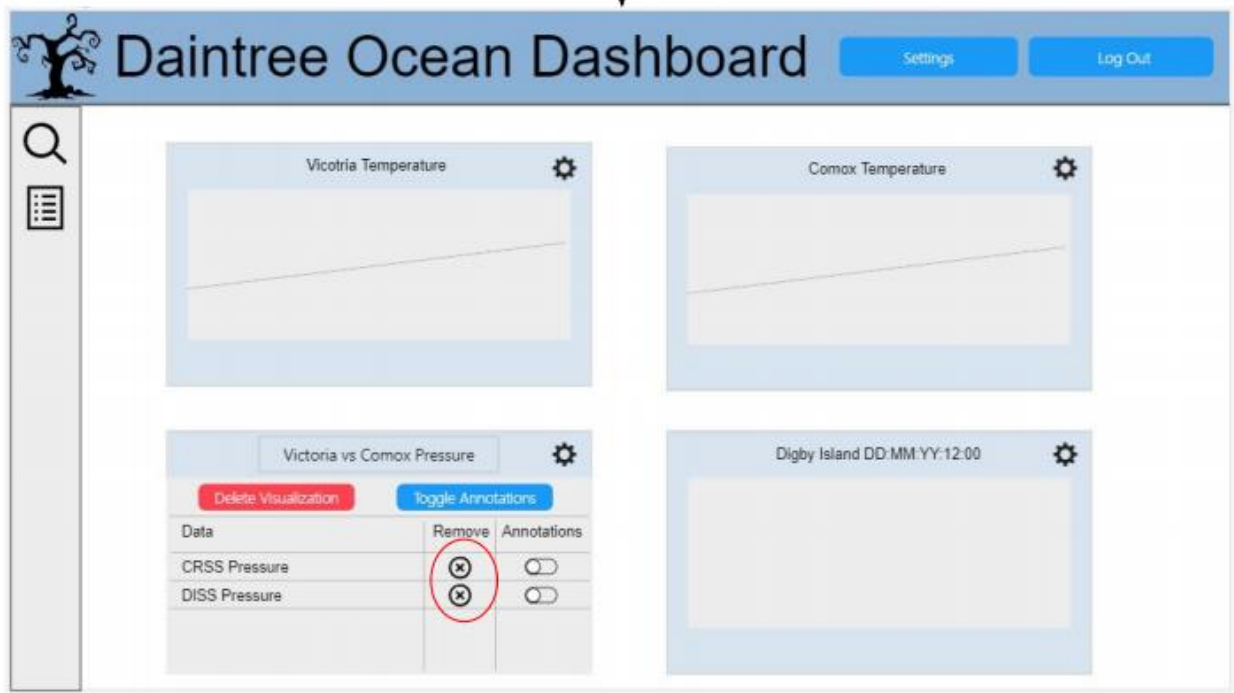
Victoria Pressure

Comox Temperature

Comox Pressure

Comox DD MM YY 12:00

Only 1 image or video per visualization



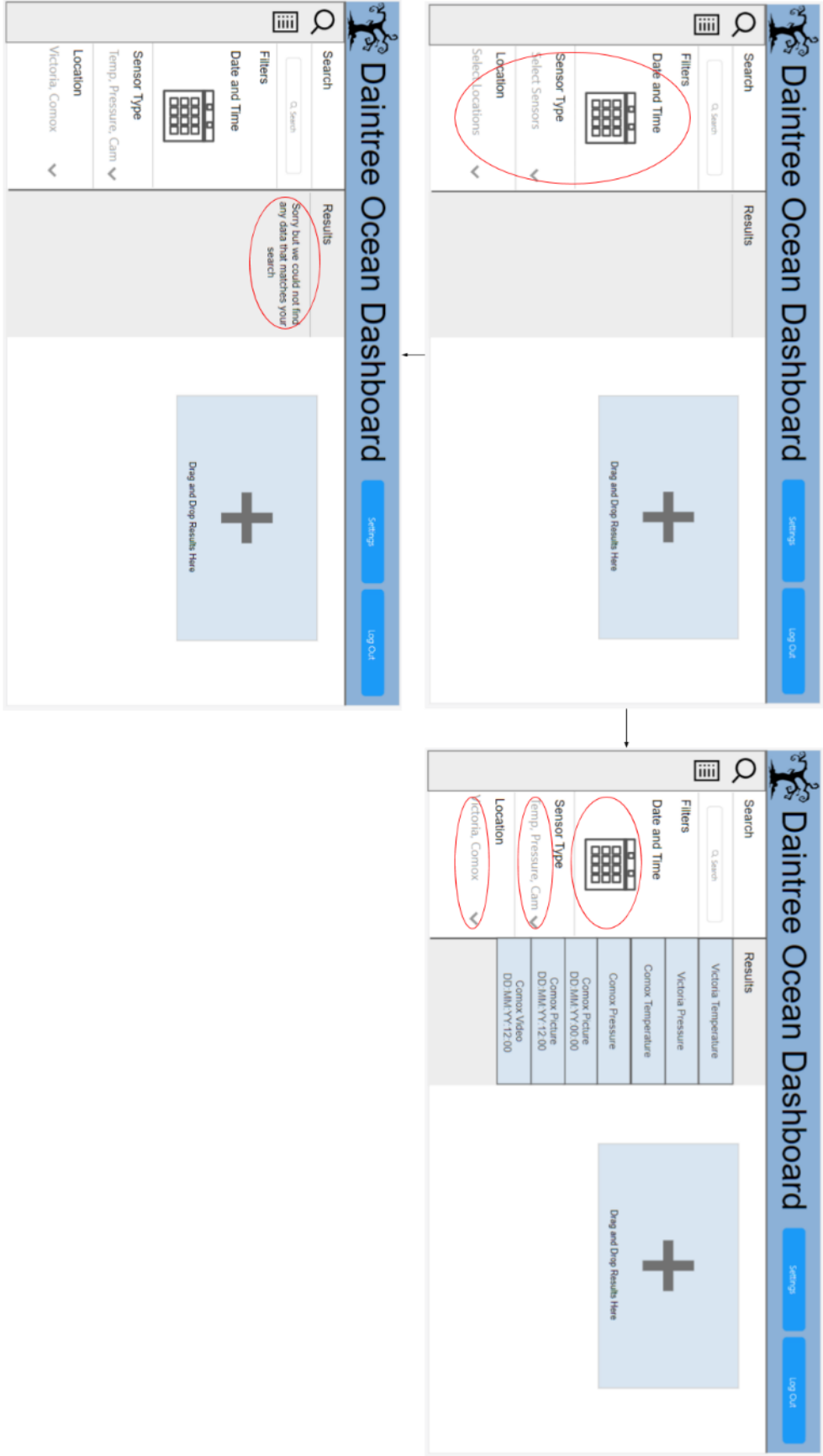
Scenario 11 – Search Data Sets

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the dashboard page. The User enters a search query of one or more keywords and submits the search query. The DOD updates the filter criteria to match the keyword(s) in the User's search query. The DOD displays a list of sensors with location(s), sensor type(s), and time range that match the filter criteria.

Scenario 11a – Search Query Matched No Data Sets

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the dashboard page. The User enters a search query of one or more keywords and submits the search query. The DOD updates the filter criteria to match the keyword(s) in the User's search query. However, none of the sensors available to the User have data sets that match the filter criteria. The DOD notifies the User that no data sets matched their search query.

7.3.2 Filter Data Sets
UI Mock-Up 12 – Filter Data Sets



Scenario 12 – Filter Data Sets

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the dashboard page. The User selects zero or more locations, zero or more sensor types, and enters a start date and end date for which to filter data. The User submits the filter criteria. The DOD displays a list of sensors with location(s), sensor type(s) and time range that match the filter criteria.

Scenario 12a – Filter Criteria Matched No Data Sets

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the dashboard page. The User selects zero or more locations, zero or more sensor types, and enters a start date and end date for which to find data. The User submits the filter criteria. However, none of the sensors available to the User have data sets that match the filter criteria. The DOD notifies the User that no data sets matched their filter criteria.

UI Mock-Up 13 – Create Visualization



A Free User, Paid User or Admin User is logged into the DOD and has successfully searched or filtered the list of sensors. The User selects at least one and at most fifty sensors from the filtered list of sensors. The DOD displays a visualization that includes the sensors that were selected by the User.

Scenario 13a – Photo or Video Sensor Selected

A Free User, Paid User or Admin User is logged into the DOD and has successfully searched or filtered the list of sensors. The User selects exactly one photo or video sensor from the filtered list of sensors. The DOD displays a visualization that includes the sensor that was selected by the User.

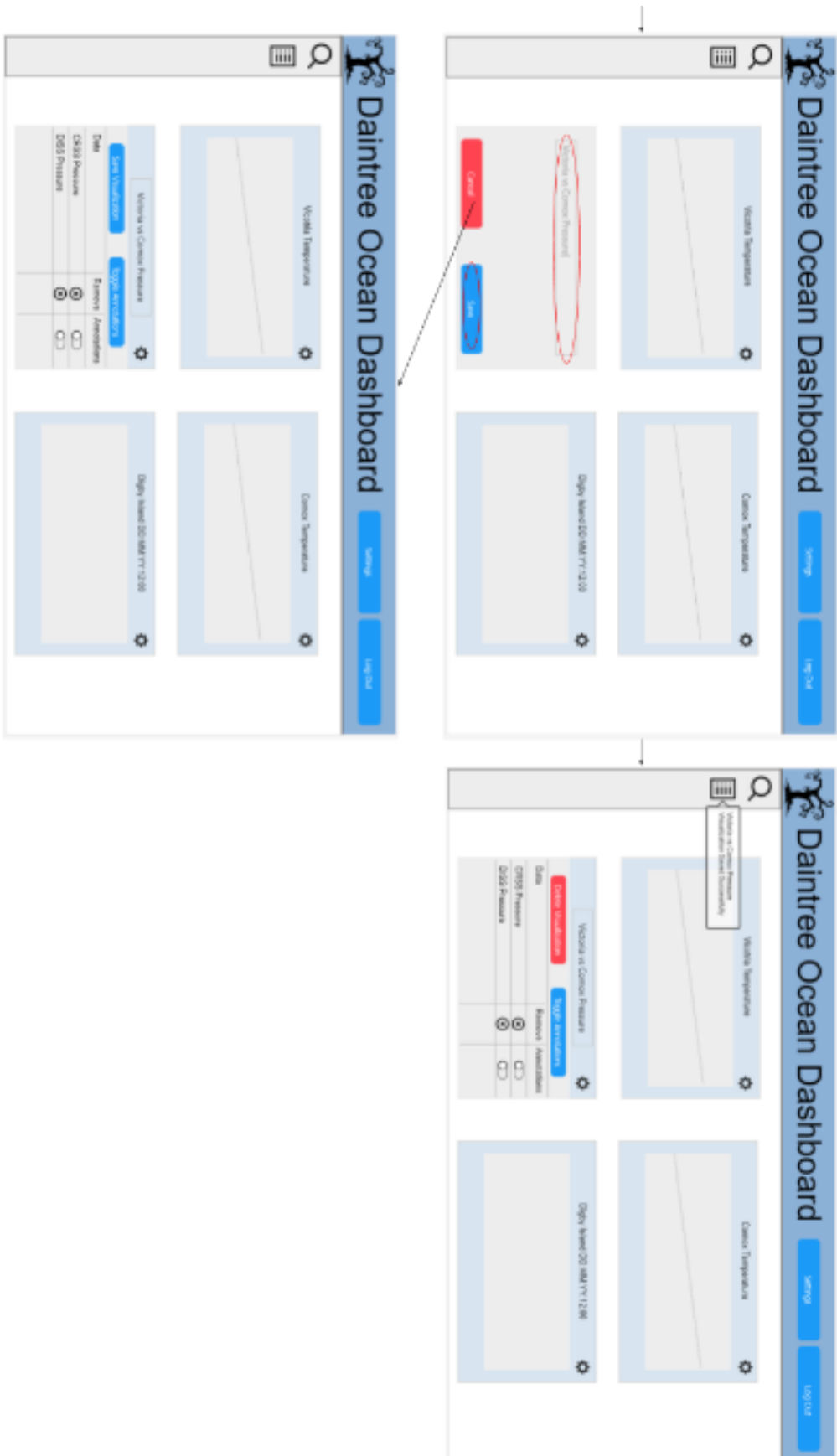
Scenario 13b – Remove Sensor from Visualization

A Free User, Paid User or Admin User is logged into the DOD and has successfully searched or filtered the list of sensors. The User removes a sensor from the visualization. The DOD updates the visualization to reflect the change.

7.3.4 Save Visualization

UI Mock-Up 14 – Save Visualization





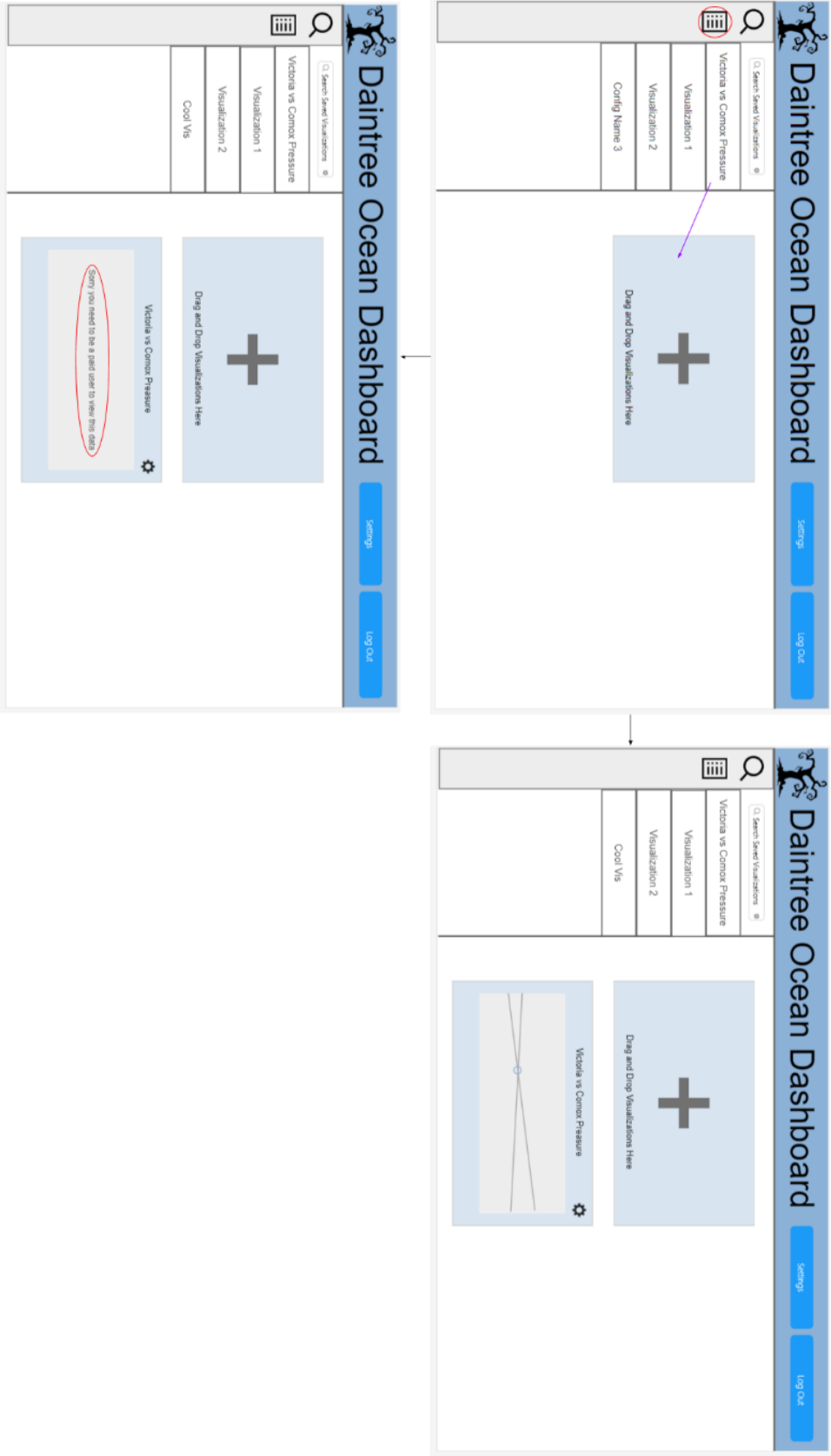
Scenario 14 – Save Visualization

A Free User, Paid User or Admin User is logged into the DOD and has created a visualization. The User expands the visualization options and selects save. The User optionally enters a custom name and confirms the save. The DOD saves the visualization along with the name the User entered or a default name if the User did not enter a custom name. The DOD notifies the User that the save was successful.

Scenario 14a – User Cancels Save

A Free User, Paid User or Admin User is logged into the DOD and has successfully created a visualization. The User expands the visualization options and selects save. However, the User cancels the save process. The DOD does not save the visualization.

7.3.5 Load Visualization
UI Mock-Up 15 – Load Visualization



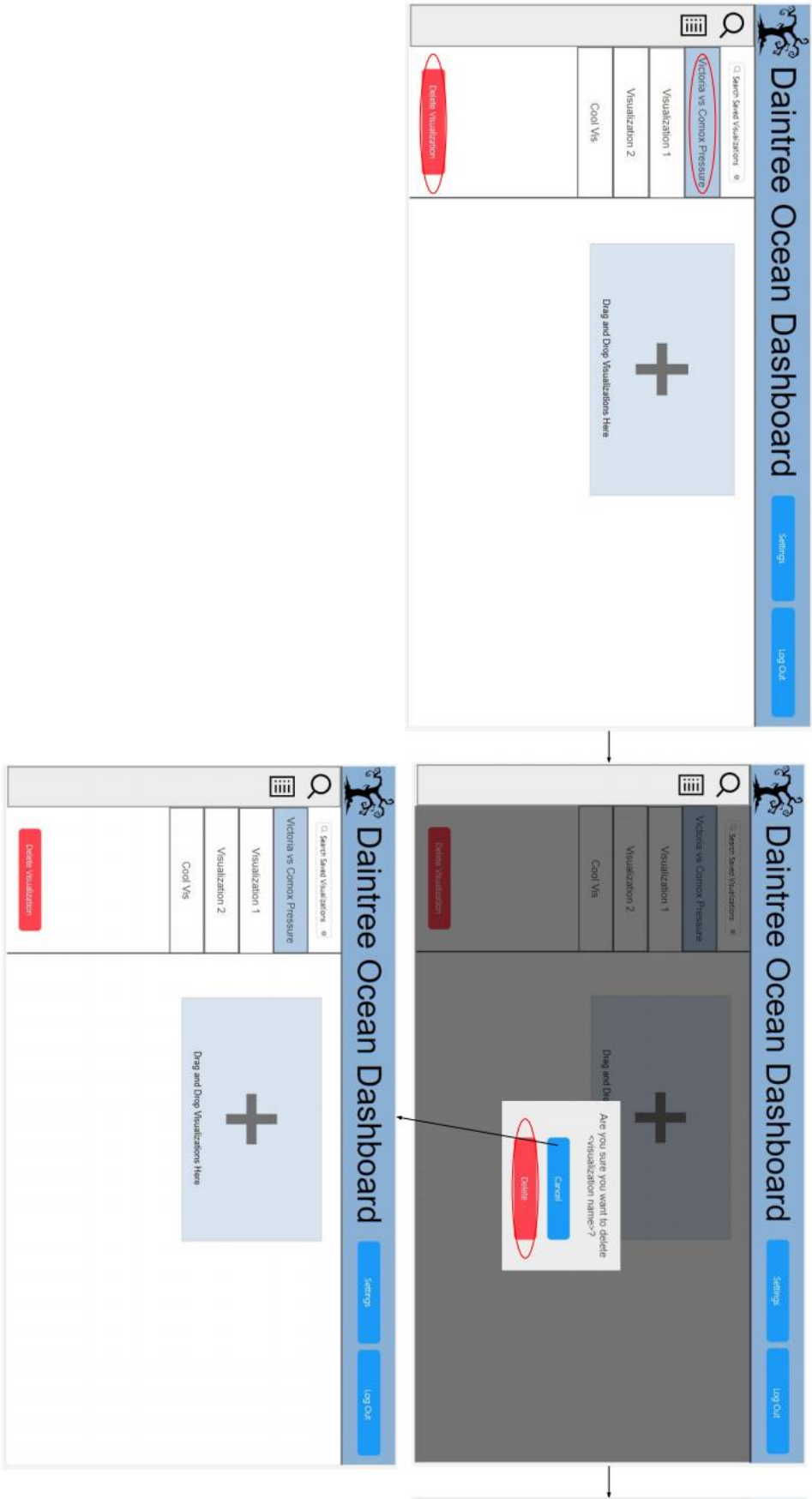
Scenario 15 – Load Visualization

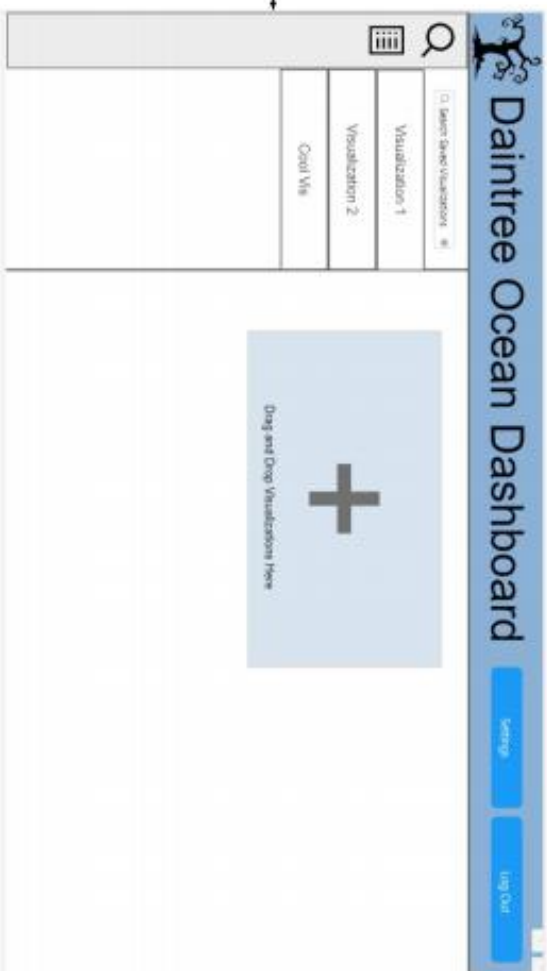
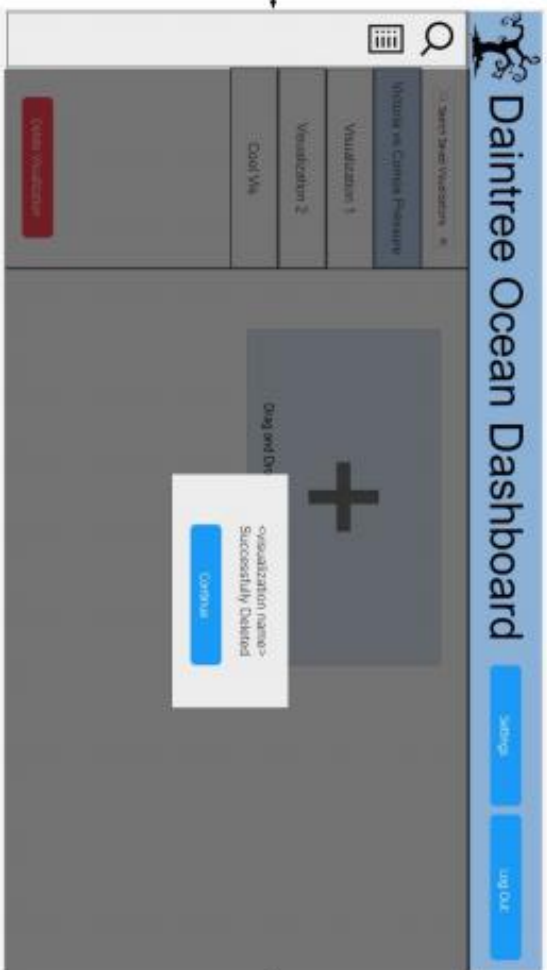
A Free User, Paid User or Admin User is logged into the DOD and has navigated to the dashboard page. The User opens the saved visualizations list. The User selects the visualization they wish to load. The DOD loads the selected visualization and displays it to the User.

Scenario 15a – Incorrect Data Permission

A Free User, Paid User or Admin User is logged into the DOD and has navigated to the dashboard page. The User opens the saved visualizations list. The User selects the visualization they wish to load. However, the visualization cannot be generated because the User's account status does not match the data classification for one or more of the sensors included in the visualization. The DOD notifies the User that they do not have permission to view the visualization.

7.3.6 Delete Saved Visualization
UI Mock-Up 16 – Delete Saved Visualization





Scenario 16 – Delete Saved Visualization

A Free User, Paid User, or Admin User is logged into the DOD and has navigated to the dashboard page. The User opens the saved visualizations list and selects a visualization. The User selects delete visualization and confirms the deletion. The DOD removes the selected visualization from the User's list of saved visualizations and informs the User that the deletion was successful.

Scenario 16a – User Cancels Visualization Deletion

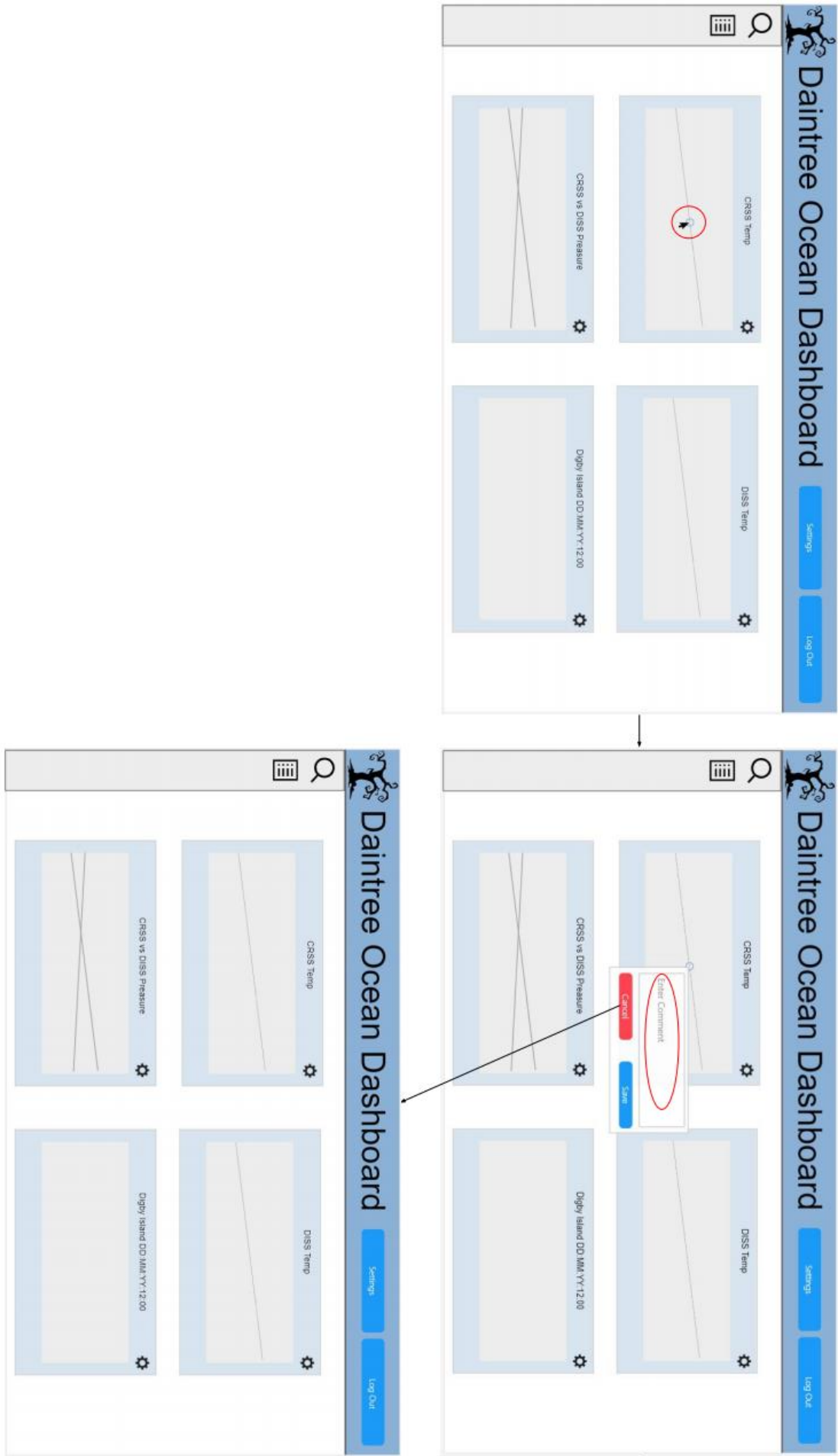
A Free User, Paid User, or Admin User is logged into the DOD and has navigated to the dashboard page. The User opens the saved visualization and selects a visualization. The User selects delete visualization but cancels the deletion. The DOD does not delete the selected visualization.

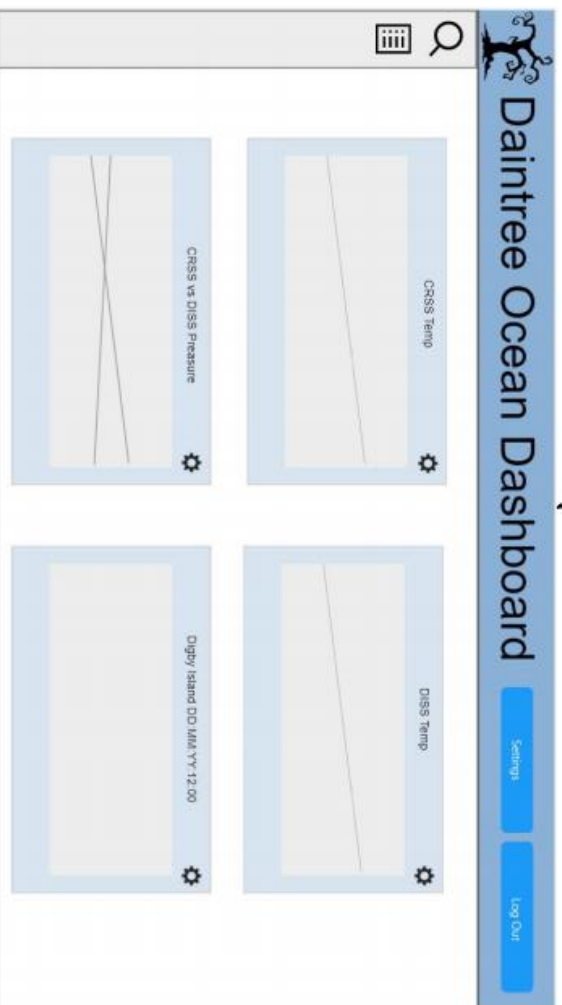
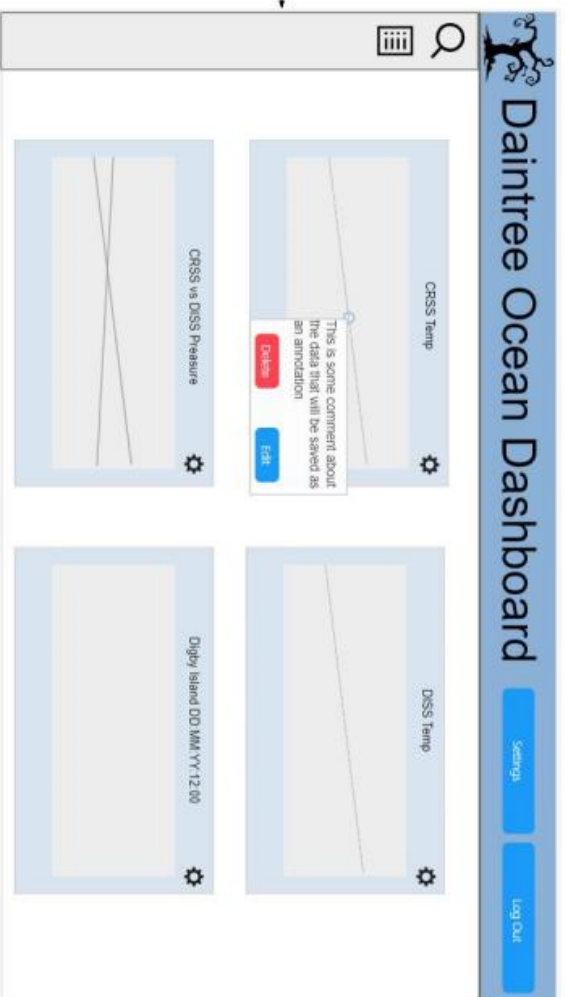
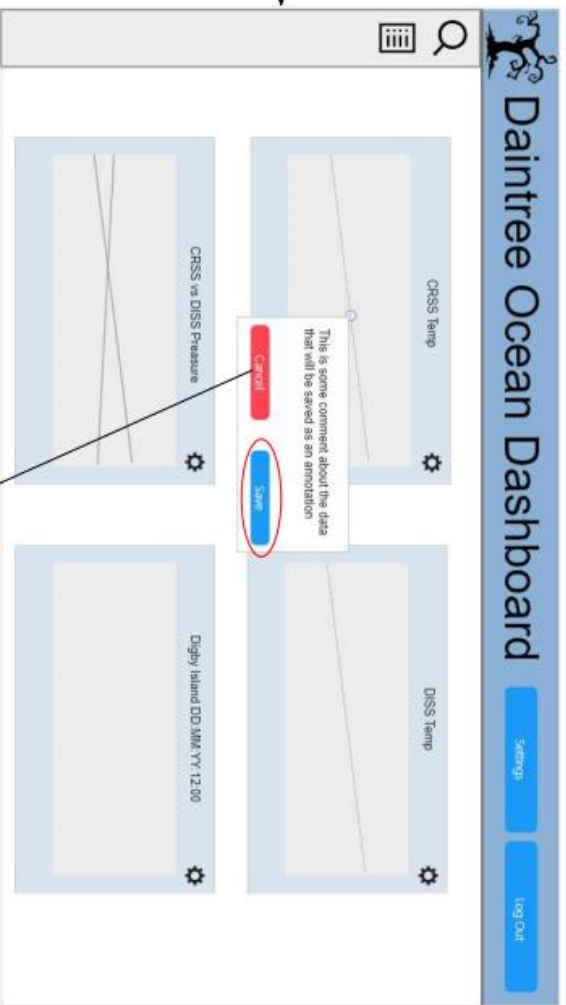
7.4 Annotation

This section provides an example of how the Annotation features described in section 3.4 could be implemented in the DOD.

7.4.1 Create Annotations

UI Mock-Up 17 – Create Annotations





Scenario 17 – Create Annotation

A Paid User or Admin User is logged into the DOD and has created or loaded a visualization. The User selects a data point on the visualization and enters the text content of their annotation. The User submits the annotation. The DOD saves the annotation and links it to the selected data point, and displays the new notification.

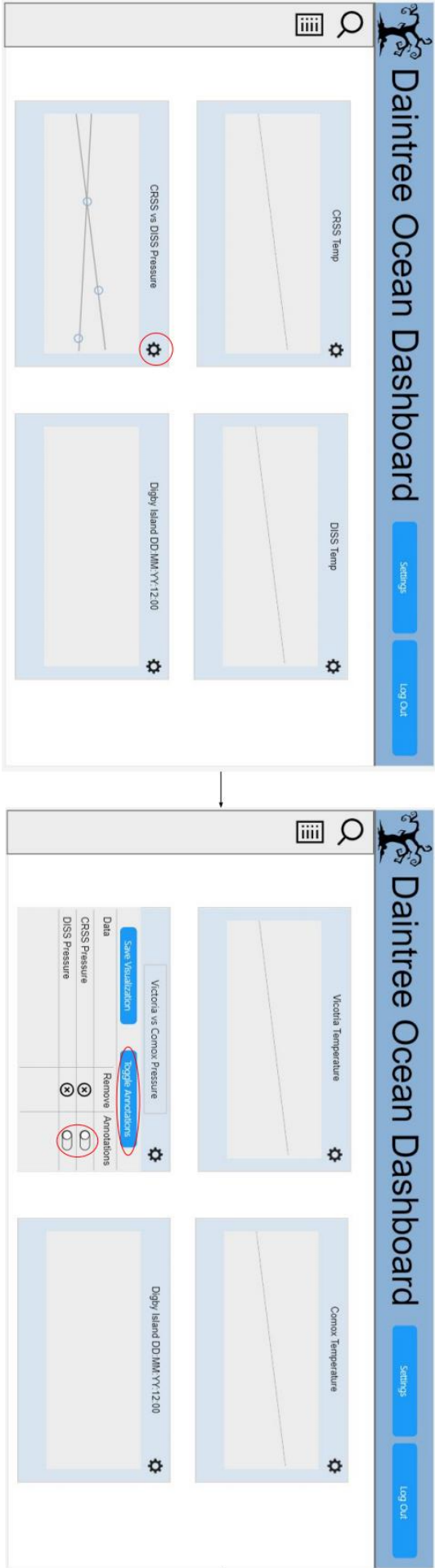
Scenario 17a – User Cancels Annotation Creation

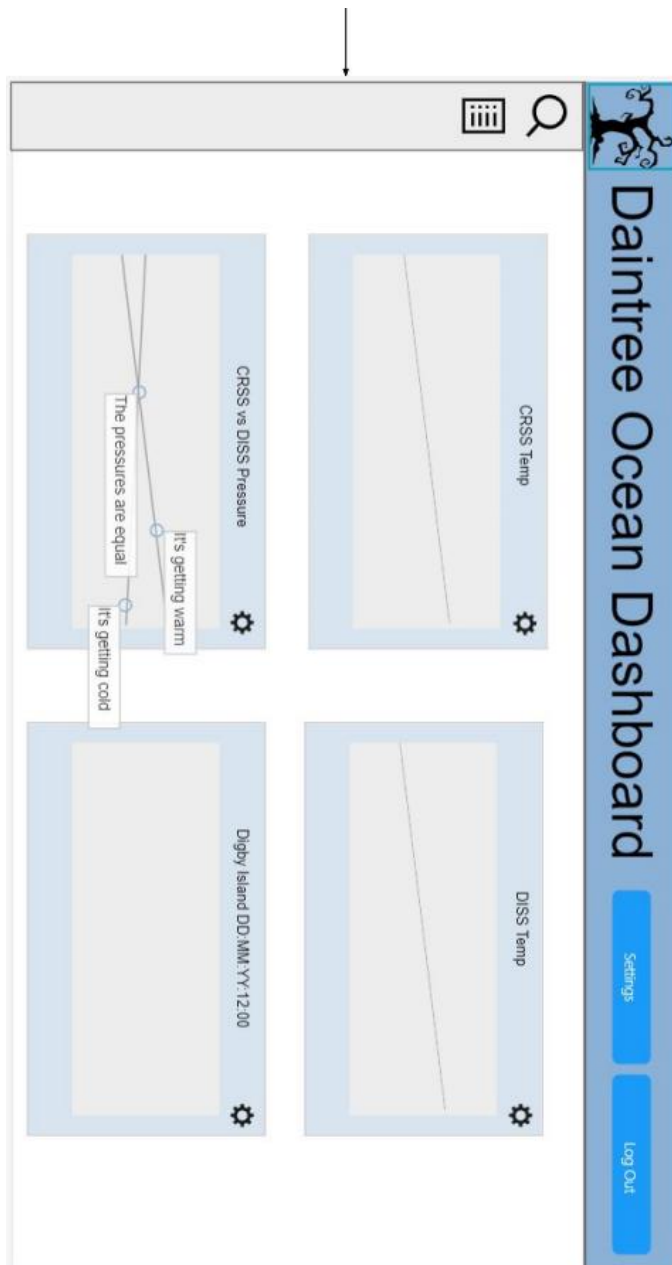
A Paid User or Admin User is logged into the DOD and has created or loaded a visualization. The User selects a data point on the visualization and enters the text content of their annotation. However, the User cancels the annotation process without submitting their annotation. The DOD does not create a new annotation.

7.4.2 Toggle Annotation

7.4.2 Toggle Annotations

UI Mock-Up 18 – Toggle Annotation





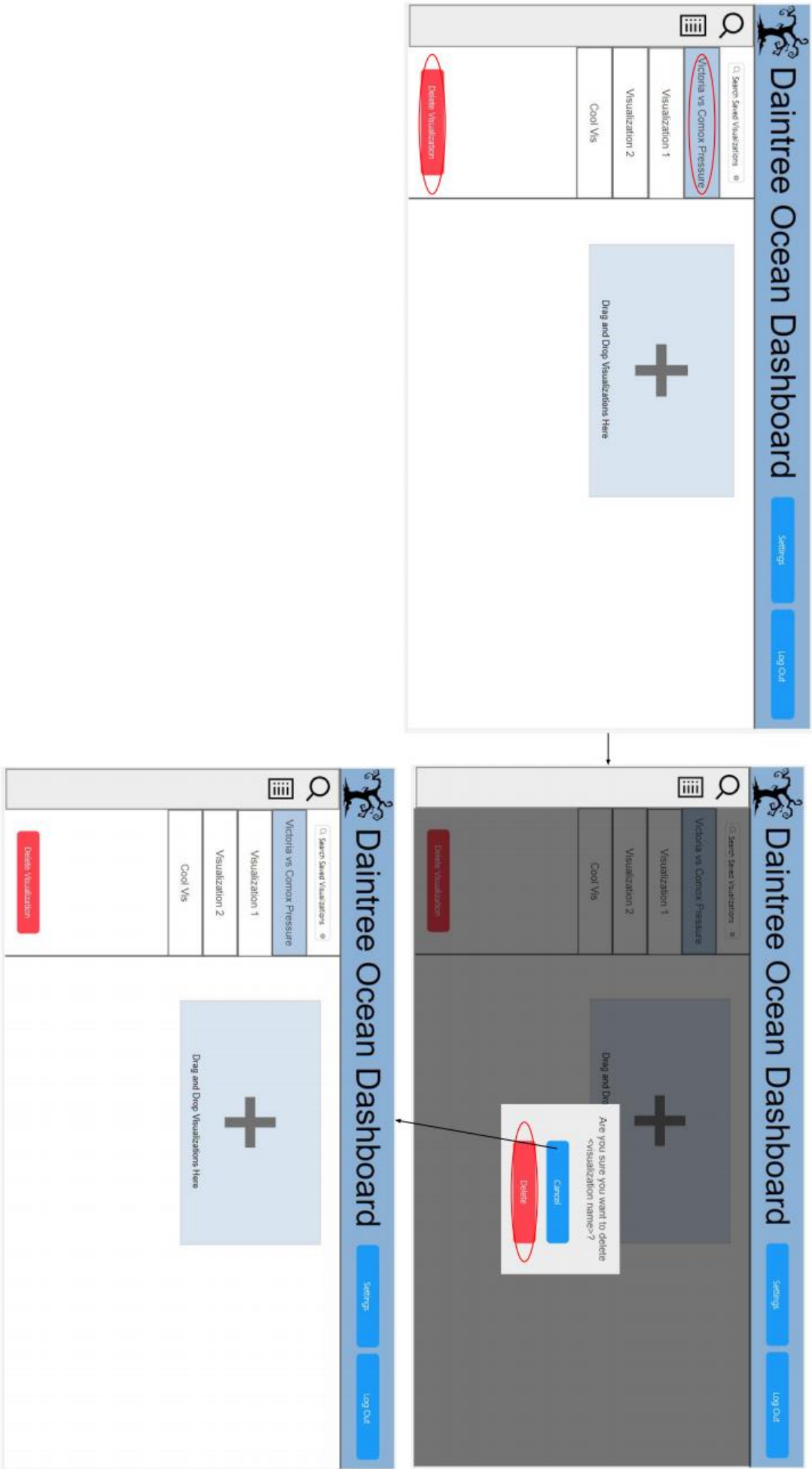
Scenario 18 – Toggle Annotations

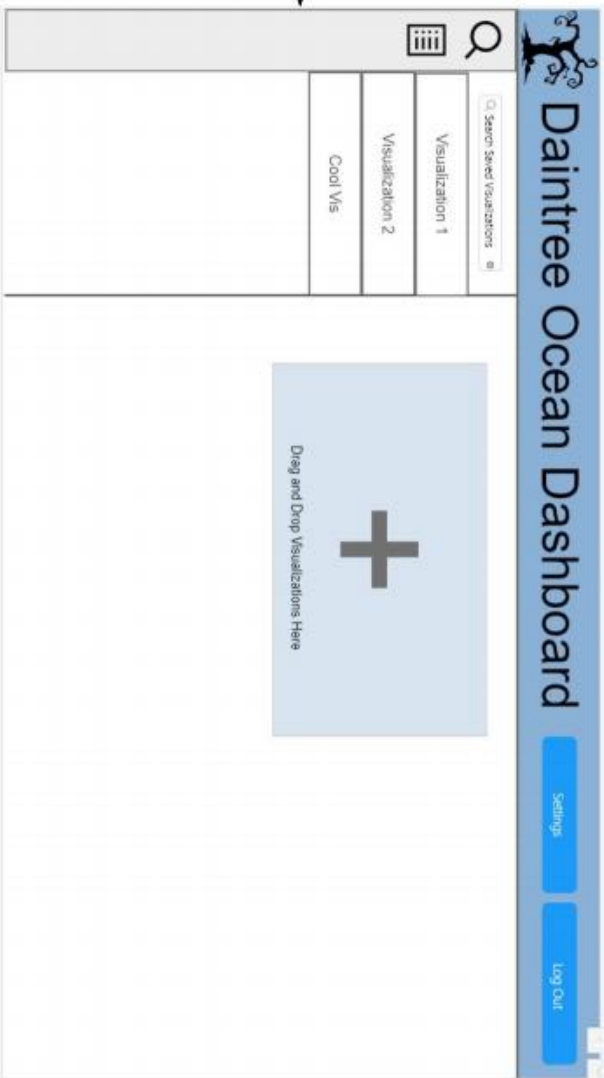
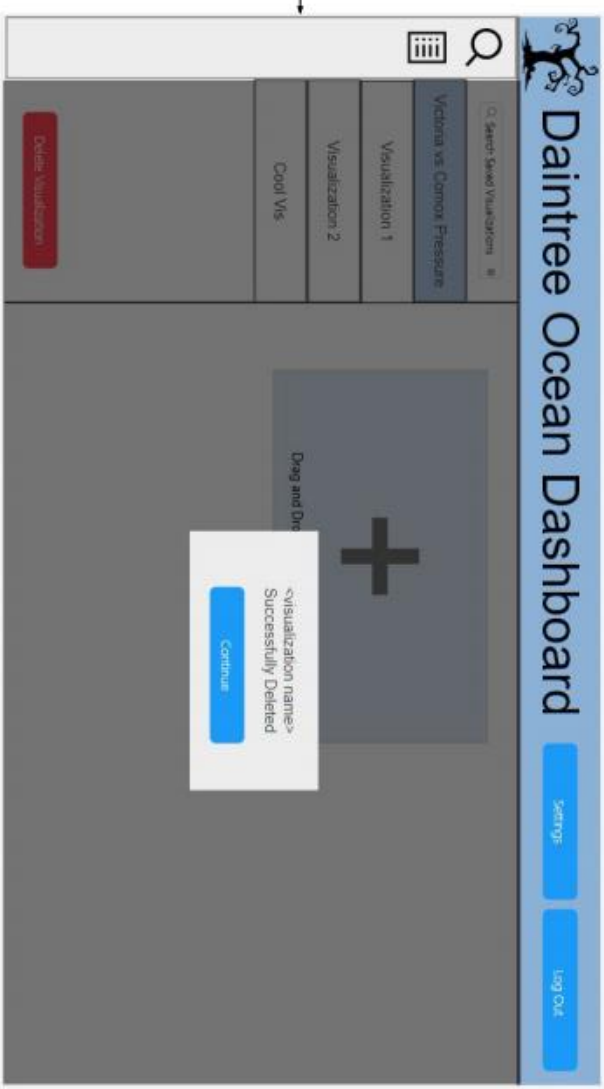
A Paid User or Admin User is logged into the DOD and has created or loaded a visualization. The User selects toggle annotations on. The DOD updates the visualization to display any annotations linked to data points which are included in the visualization.

Scenario 18a – Toggle Annotations Off

A Paid User or Admin User is logged into the DOD and has created or loaded a visualization. The User selects toggle annotations off. The DOD updates the visualization to display any annotations linked to data points which are included in the visualization.

7.4.3 Delete Annotation
UI Mock-Up 19 – Delete Annotation





Scenario 19 – Delete Annotation

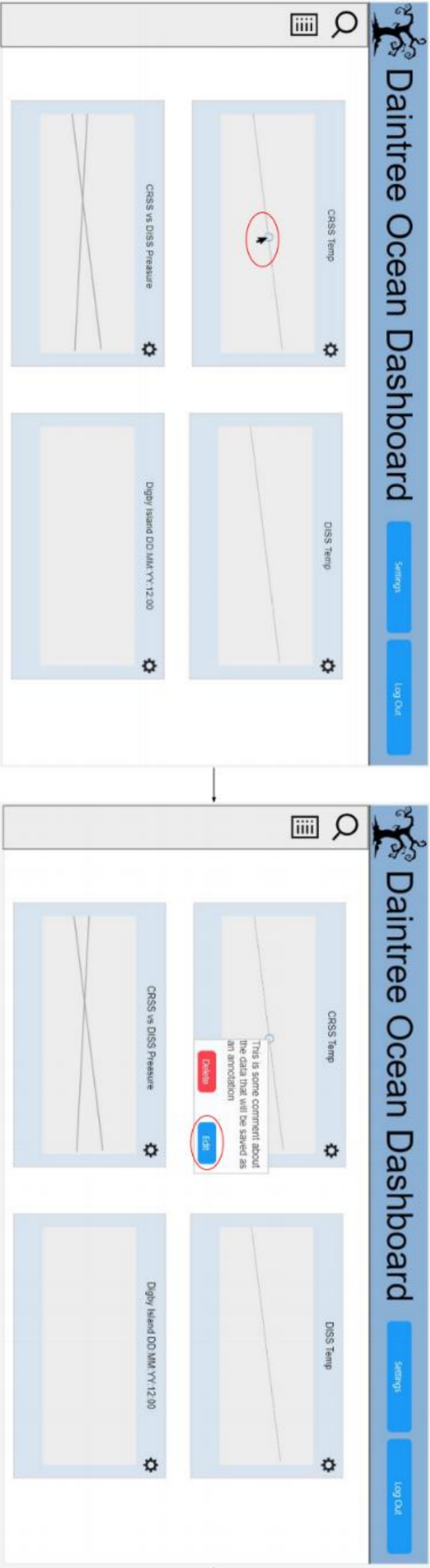
Paid User or Admin User is logged into the DOD and has successfully toggled annotation on. The User selects an annotation. The User selects delete annotation and confirms the deletion. The DOD deletes the selected annotation and notifies the User that the deletion was successful.

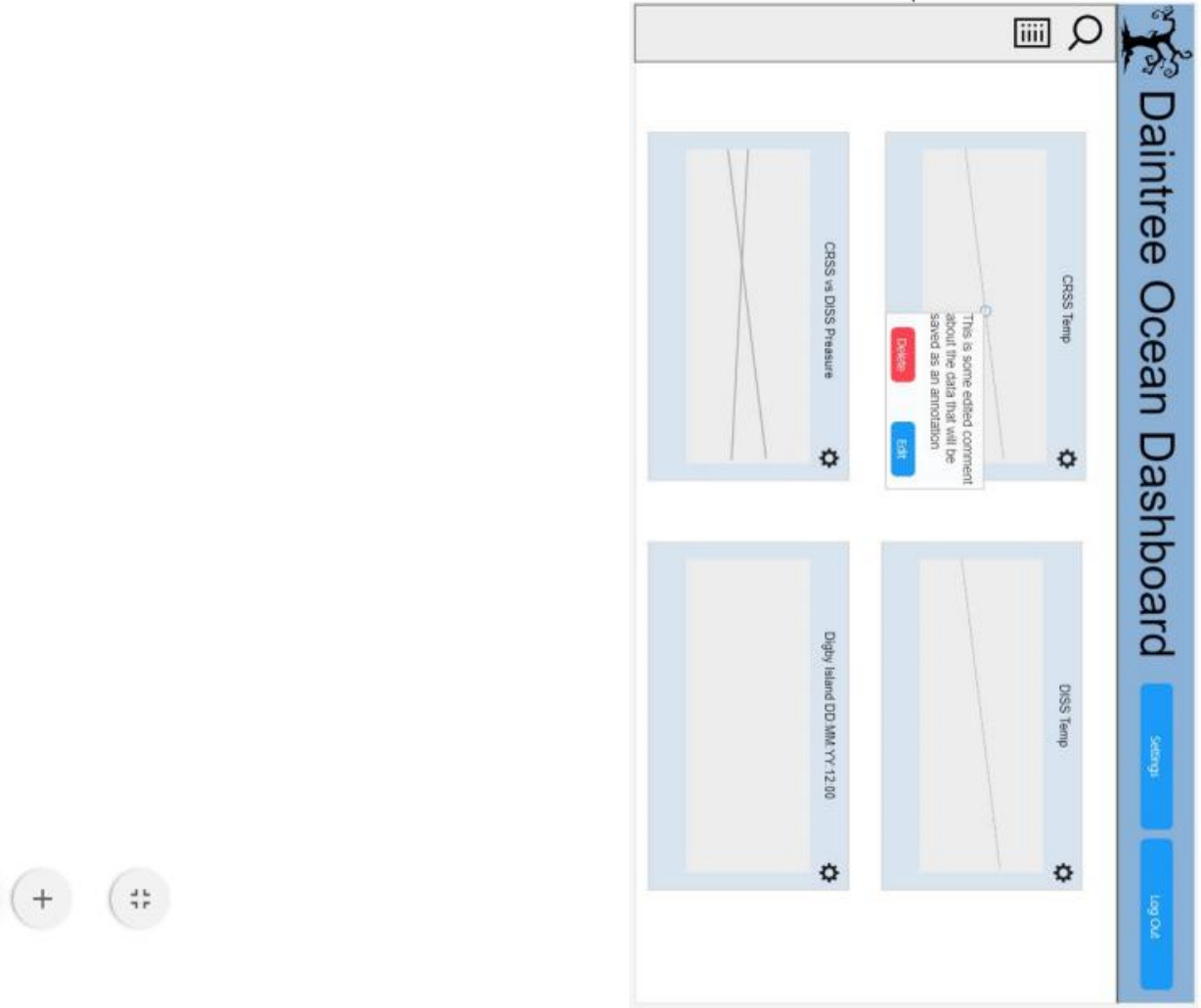
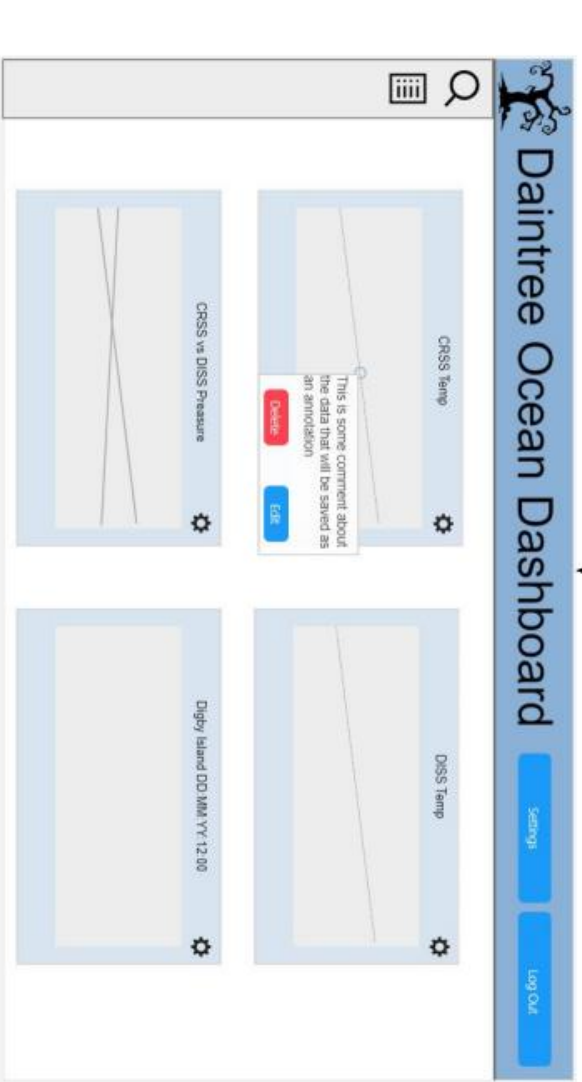
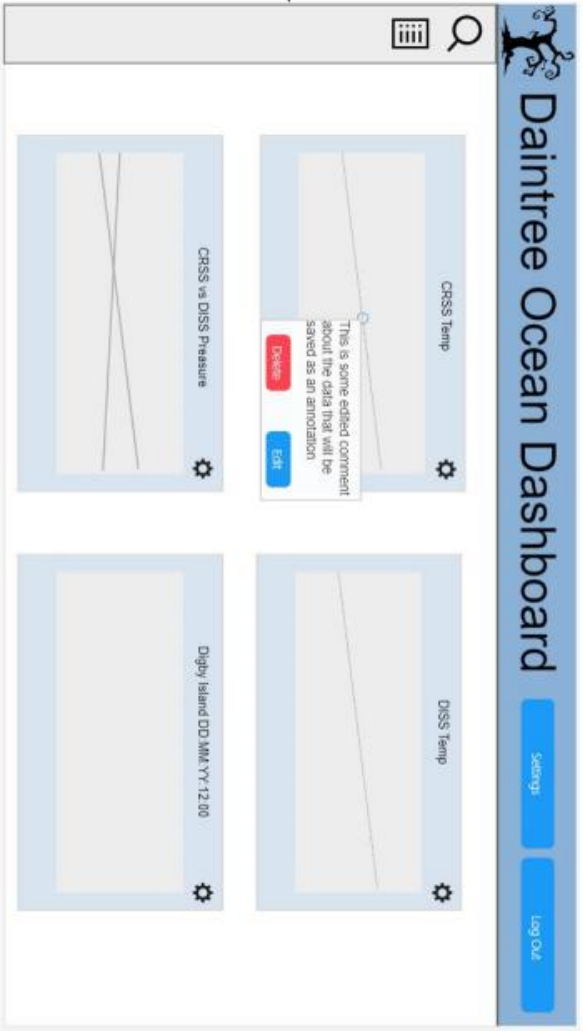
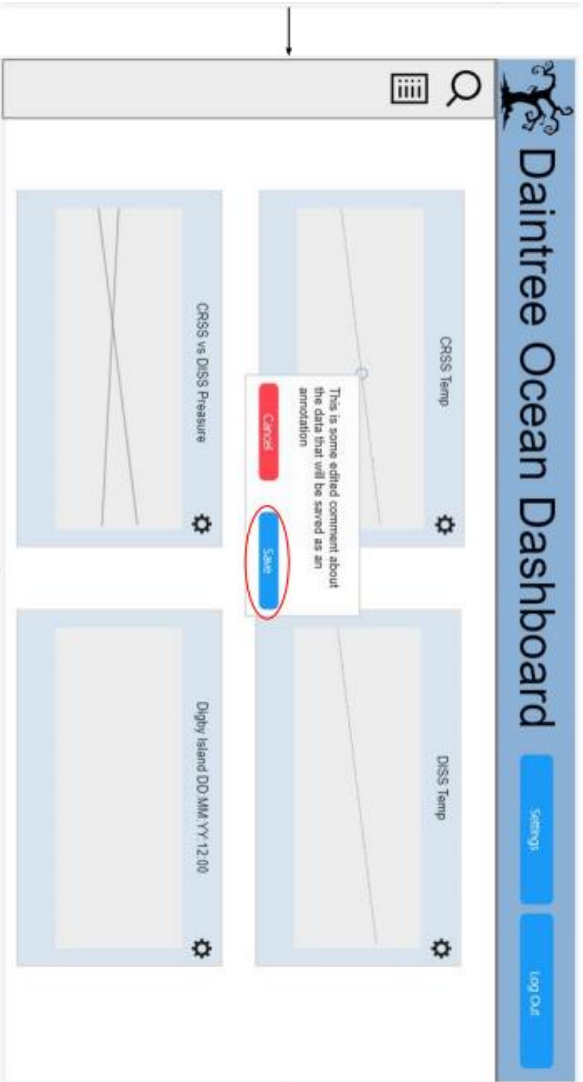
Scenario 19a – User Cancels Annotation Deletion

A Paid User or Admin User is logged into the DOD and has successfully toggled annotations on. The User selects an annotation. The User selects delete annotation but cancels the deletion. The DOD does not delete the selected annotation.

7.4.4 Edit Annotation

UI Mock-Up 20 – Edit Annotation





Scenario 20 – Edit Annotation

A Paid User or Admin User is logged into the DOD and has successfully toggled annotations on. The User selects an annotation. The User selects edit annotation and edits the text content of the selected annotation. The User submits their changes. The DOD updates the selected annotation to reflect the User's changes and notifies the User that the update was successful.

Scenario 20a – User Cancels Editing Annotation

A Paid User or Admin User is logged into the DOD and has successfully selected an annotation. The User selects edit annotation and edits the text content of the selected annotation. However, the User cancels the update without submitting their changes. The DOD does not update the annotation.

Appendix A – Requirement Revisions

Changes from RD 1.0:

- REQ-SE-1 → REQ-VI7
- REQ-SE-2 → REQ-VI8
- REQ-SE-3 → REQ-VI9
- REQ-FI-1 → REQ-VI10
- REQ-FI-2 → REQ-VI11
- REQ-FI-3 → REQ-VI12
- REQ-FI-4 → REQ-VI13
- REQ-SA-1 → REQ-VI14
- REQ-SA-2 → REQ-VI15
- REQ-SA-3 → REQ-VI16
- Combined 'search' and 'filter' feature sections into 'visualization' feature section
- All appropriate instances of 'users' → User
- Added a new feature → Administration
- Remove user interface requirements as they are now addressed in functional requirements section
- Changed 'system' / 'new system' to DOD
- Glossary was heavily updated to clarify problems such as data sets/sensors, name of API, etc.
- Removed diagram from 4.2 'Communication Interfaces'
- Added authentication requirements to section 5.2.1 (Security)
- Got rid of User Interface section
- Added integration with Stripe

Appendix B – Negotiations

- Removed internationalization requirement REQ-IN-1 as scope was too large for minimum viable product.

Appendix C – Data Flow Diagram Assembly

Below is the outline for assembling the Data Flow Diagram Level 1. Each number corresponds to the number labelled on each page (on the bottom right) of the Data Flow Diagram Level 1. Each cell in the table is representative of a page of the Data Flow Diagram Level 1.

Assembly for Data Flow Diagram Level 1

1	2
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Below is the outline for assembling the Data Flow Diagram Level 2. Each number corresponds to the number labelled on each page (on the bottom right) of the Data Flow Diagram Level 2. Each cell in the table is representative of a page of the Data Flow Diagram Level 2.

Orientation for Data Flow Diagram Level 2

1	2
3	4