

Requirement Specification Document 3.0

Disaster Continuity Planning System

Angle Engineering

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Revision History

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1 Introduction

1.1 Purpose

This document was last updated to version 2.0, and lays out the requirements for a disaster continuity planning system. The system is hereby referred to as DARA (“Disaster Aid Response Application”) and is being designed by Angle Engineering. This document also introduces the problem that Angle Engineering seeks to solve with DARA, and each user class that will interact with DARA. Additionally, this document defines each use case for each user class that will interact with DARA.

The purpose of DARA is to provide each disaster victim with the ability to identify and locate aid centers in the event of a disaster. For this to be possible, DARA will allow each regional administrative user to create a region in DARA, which will allow each disaster victim to access status information for each aid center in that disaster victim’s disaster region. Additionally, DARA will allow each local administrative user to communicate information about their assigned aid center to each disaster victim before, during, and after a disaster.

1.2 Project Scope

DARA is targeted at each disaster victim. DARA must provide status information to each disaster victim in a clear and concise fashion. DARA must allow each administrative user to update information about each aid center that administrative user has local privileges for. DARA must also allow each regional administrative user to create a region in DARA, add aid centers, and authorize local administrative users. The client company for DARA is AidConnect, a non-profit organization whose mission is to quickly and efficiently direct each disaster victim to the aid center that best meets that respective disaster victim’s needs [1].

1.3 Glossary of Terms

Administrative User	An individual who oversees the operation of one or more aid centers, and has local or regional privileges.
Aid Center	A building or room containing supplies for disaster victims that is managed by an aid organization.
Aid Organization	A business or non-profit group that provides food, shelter, water, and medical aid to disaster victims during a disaster.
Authenticate	The process by which an administrative user provides a username and password combination that allows that administrative user to access their local privileges or regional privileges.

Authorize	The process by which a regional administrative user grants local privileges to an individual.
Basic Directions	A dotted line representing a path from a disaster victim to an aid center.
Cache	To store and preserve status information on the device of a disaster victim to allow use of DARA while connection to primary networks is unavailable.
Computational Device	A piece of hardware with a central processing unit and at least one gigabyte of random access memory.
Contact Information	A string of uniquely identifiable alphanumeric characters that can be used to establish communication with an individual.
Criteria	Status information provided by a disaster victim used to show each aid center that meets the disaster victim's needs.
DARA	Acronym for Disaster Aid Response Application.
Default Credentials	A username and password combination set by AidConnect that allows the first regional administrator to access DARA [2].
Detailed Directions	Step by step instructions on how a disaster victim would navigate to an aid center.
Device	A smartphone, tablet, or personal computer. 
Digital Privacy Laws	Articles of legislation that regulate the storage and use of personally identifiable information of individuals.
Disaster	An event that causes great damage to the environment.
Disaster Region	A collection of aid centers overseen by one or more regional administrative users.
Disaster Victim	An individual looking for status information during, before, or after a disaster.
Display Radius	The maximum distance from a disaster victim that an aid center will be displayed. By default, each

	aid center.that has a distance of 100km or less from a disaster victim will be displayed.
Entry	A record in the listing of aid centers representing a single aid center. Each aid center requires an entry in order for disaster victims to receive status information from the respective aid center.
Filter	The ability for each disaster victim to limit the shown aid centers to only those aid centers which match the status information criteria specified by the disaster victim.
Geographical Data	Maps and coordinate data for maps.
GPS	Acronym for Global Positioning System.
Instance of DARA	A process running on a server operated by a regional administrative user that stores disaster regions and the status information for each aid center within each disaster region.
Internationalization	Support for multiple languages.
Last Updated Time	The time at which the status information for each aid center was entered into DARA.
Levels	A descriptive label indicating the amount of a specific type of supply available at an aid center. Will be one of low, medium, high, or none.
Listing of Aid Centers	A collection of aid centers that a disaster victim can view the status information for.
Local Administrative User	An administrative user with local privileges.
Local Privileges	Permission to update status information.
NGO	Non-Governmental Organization.
Personal Computer	A computational device with a microprocessor, designed for use by an individual.
Primary Network	Infrastructure that facilitates access to the internet, including cellular, ethernet, and wi-fi.
Regional Administrative User	An administrative user with regional privileges.

Regional Privileges	Permissions in addition to local privileges that allow adding aid center entries, removing aid center entries, adding disaster regions, removing disaster regions, adding new administrative users, resetting administrative user passwords, and assigning administrative users to aid centers, within the respective regional administrator's assigned disaster region.
Release of Liability	A waiver that a disaster victim agrees to by using DARA, declaring that AidConnect cannot be held legally accountable for any damage caused to the disaster victim through use of DARA.
Smartphone	A computational device with a display smaller than or equal to 7 inches diagonally that runs a supported operating system.
Status Information	Data consisting of levels of supplies, location, last updated time, operating status (open or closed) for an aid center.
Supplies	Food, potable water, medical equipment, first aid equipment, and medical staff.
Supported Operating System	One of Android 7.0+, iOS 11+, Windows 8.1+, MacOS 10.12+, or GNU Linux 5.0+.
Tablet	A computational device that has a diagonal display size of greater than 7.0 inches and is running a supported operating system.
Unassigned	The state of a local administrative user who is not currently overseeing the operation of an aid center.
User	An umbrella term to refer to any individuals that access DARA. This includes and is limited to disaster victims and administrative users.
Web Content Accessibility Guidelines	Recommendations for making web content more accessible for people with disabilities. These disabilities can include blindness, low vision, deafness, hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities and photosensitivity [3].

1.4 References



[1] AidConnect, “Request for Proposal”, 2019. [Online] Available: <https://trusting-montalcini-84102f.netlify.com/Mission-Vision>. [Accessed Sept. 23, 2019].

[2] A. Shenwai, E. Johnson, J. Jalila, R. Raso, S. Andreen, T. Giles and X. Chen, SENG 321, Elicitation Notes, Topic: “Elicitation Notes.” University of Victoria, Victoria, BC, Nov. 5, 2019.

[3] Wikipedia, “Web Application Security Guidance” . [Online] Available: https://www.owasp.org/index.php/Web_Application_Security_Guidance [Accessed Oct. 12, 2019].

[4] W3, “Web Content Accessibility Guidelines”, 2019. [Online] Available: <https://www.w3.org/TR/WCAG20/>. [Accessed Sept. 30, 2019].

1.5 Overview

This document contains eight sections and an appendix. First, section 1 is composed of the glossary, references, and overview. Then, section 2 contains an overview of the current system, the main features of the proposed system, constraints to development, and each assumption made. Next, section 3 explains each functional requirement of DARA. Section 4 details each external interface requirement of DARA, while section 5 lists other non-functional requirements, such as performance requirements, safety requirements, security requirements, and software quality requirements. Section 6 summarizes all other requirements for DARA, and section 7 describes typical use cases of the system. Finally, section 8 contains data models for DARA.

2 Overall Description



2.1 Product Perspective

AidConnect’s present system (named the “Disaster Continuity Platform” and hereby referred to as the “existing system”) “connects disaster victims with aid organizations’ information [1].” However, the existing system has been “unreliable in post-disaster situations [2]” for reasons such as damage to primary networking infrastructure from a disaster.

Angle Engineering will develop DARA to replace the existing system at AidConnect. DARA will focus on reliability, information accessibility, and information accuracy.

2.2 Product Features

The primary feature of DARA will be an interface that allows each disaster victim to view each aid center within that disaster victim’s display radius. Each disaster victim will be able to select an aid center to view status information for the selected aid center.

The other feature of DARA will be an interface that will allow each administrative user to update status information for each aid center that administrative user has local privileges for. Each regional administrative user will be able to create a region in DARA. Each regional administrative user will be able to add or remove aid center entries. Finally, each regional administrative user will be able to add other administrative users to DARA.

2.3 User Classes and Characteristics



There are three user classes associated with DARA: regional administrative user, local administrative user, and disaster victim.

2.3.1 Local Administrative User

Each local administrative user is an employee or volunteer with local privileges at an aid center who can update status information for their assigned aid center. In order to access DARA's administrative interface, each local administrative user must authenticate to DARA with a username and password. The username and password is provided by a regional administrative user. At each aid center, the local administrative user assigned to that aid center will access DARA multiple times a day to update the status information for their assigned aid center. Technical expertise and education levels will vary greatly, but each local administrative user will have received training to use DARA [2].

2.3.2 Regional Administrative User

Each regional administrative user is an employee of either an NGO or an aid organization that has either created at least one region in DARA, or has been given regional privileges by a different regional administrative user. Each regional administrative user must have access to the complete functionality of DARA for each aid center within every disaster region the regional administrative user has regional privileges for. Each regional administrative user must be able to update status information for each aid center within each disaster region the regional administrative user has regional privileges for. The regional administrative user class is the only user class with the ability to add a new aid center to DARA or remove an existing aid center from DARA. Each regional administrative user will have received training or have prior experience with DARA and can thus be expected to be proficient with DARA [2]. Each regional administrative user must be able to add administrative users to DARA. Each regional administrative user must be able to view each local administrative user assigned to each aid center within each disaster region that regional administrative user has regional privileges for. Each regional administrative user must also be able to assign each unassigned local administrative user to one aid center within one disaster region the regional administrative user has regional privileges for. Finally, each regional administrative user must be able to remove an unassigned local administrative user from DARA.

2.3.3 Disaster Victim

Each disaster victim is a member of the general public who will use DARA to access status information for aid centers during a disaster. Technical expertise and education levels will vary greatly, and each disaster victim is unlikely to have experience with DARA before a disaster occurs [2]. Each disaster victim is expected to access DARA multiple times an hour while on the way to an aid center, and not at all once at an aid center [2].

2.4 Operating Environment

Each disaster victim must be able to access DARA from each supported mobile operating system. The supported mobile operating system versions are Android 7.0 and above, and iOS 11 and above.

Each administrative user must be able to access DARA from each supported desktop operating system. The supported desktop operating system versions are Windows 8.1 and above, MacOS 10.12 and above, and GNU/Linux version 5 and above.

2.5 Design and Implementation Constraints

Access to status information by means of DARA must not rely solely on the presence of any primary network. In the event that each primary network has been damaged or disabled, each disaster victim must still have a means of accessing status information by caching status information on the disaster victim's device.

Additionally, no disaster victim must be required to purchase any computational device in addition to their device in order to access DARA. Therefore, DARA must function on a wide range of smartphones, tablets, and personal computers.

2.6 Assumptions and Dependencies

It is assumed that each disaster victim will only access DARA through one device at a time.

It is assumed that each disaster victim will have used their device to access DARA through a primary network at least once prior to a disaster, in order to allow DARA to cache status information for each aid center within the disaster victim's display radius.

Furthermore, it is assumed that there is no need to remove status information that has been sent out, since an administrative user can overwrite an update to status information by once again updating status information in order to achieve the same result.

It has been assumed for the purpose of simplicity that disaster regions will not overlap [2].

Finally, it is also assumed that each disaster victim does not need to be authorized or authenticated prior to accessing DARA, as a disaster victim is never expected to update any information in DARA that is accessible to other disaster victims.

3 System Features

This section describes the features of DARA that are pertinent to DARA's normal operation.

3.1 Status Information Access

3.1.1 Description and Priority

Priority: HIGH

The primary function of DARA is to allow each disaster victim to view the status information of each aid center within that disaster victim's display radius. The ability to filter aid centers by status information is an important function, since each disaster victim may have their own set of needs that an aid center must fulfill.

3.1.2 Functional Requirements

SIA-1: Each disaster victim must be able to visually locate each aid center.

SIA-2: Each disaster victim must be able to view the distance between themselves and each aid center.

SIA-3: Each disaster victim must be able to access the status information for each aid center.

SIA-4: Each disaster victim must be able to filter aid centers by criteria defined by that respective disaster victim.



SIA-5: Each disaster victim must be able to access basic directions from that disaster victim to each aid center.

SIA-6: Each disaster victim must be able to access detailed directions from that disaster victim to each aid center. 

3.2 Status Information Entry

3.2.1 Description and Priority

Priority: HIGH

Providing each disaster victim with status information is a primary function of DARA. Each local administrative user is responsible for updating the status information for that local administrative user's assigned aid center, and therefore must have a way of updating the status information of that aid center. Finally, each regional administrative user must have a way of updating status information for each aid center within each disaster region the regional administrative user has regional privileges for.

3.2.2 Functional Requirements

SIE-1: Each local administrative user must be able to update the status information of that local administrative user's aid center.

SIE-2: Each regional administrative user must be able to update the status information of each aid center within each disaster region that regional administrative user has regional privileges for.

SIE-3: Each regional administrative user must be able to add new aid center entries.

SIE-4: Each regional administrative user must be able to remove existing aid center entries.

3.3 User Management

3.3.1 Description and Priority

Priority: HIGH

To ensure only each authorized individual can update status information, each regional administrative user will have the ability to add a new local administrative user, and will also have the ability to remove an unassigned local administrative user from DARA. Each aid center must have one and only one assigned local administrative user at all times. Additionally, each local administrative user can be assigned to up to one aid center.

3.3.2 Functional Requirements

UM-1: Each regional administrative user must be able to add a new local administrative user to DARA.

UM-2: Each aid center must have only one local administrative user at a time.

UM-3: Each local administrative user must only be assigned to up to one aid center at a time.

UM-4: Each regional administrative user must be able to assign a local administrative user to any aid center in any disaster region that regional administrative user has regional privileges for.

UM-5: Each regional administrative user must be able to remove each unassigned local administrative user from DARA.

UM-6: Each regional administrative user must be able to view each local administrative user assigned to each aid center within each disaster region that regional administrative user has regional privileges for.

3.4 Disaster Region Management

3.4.1 Description and Priority



Priority: MEDIUM

In order for DARA to function in each disaster region, an individual must create a region in DARA for that disaster region and will become the first regional administrative user for that disaster region. Then, in order for each disaster victim to view each aid center, the respective disaster victim must be able to select a disaster region containing that respective aid center.

3.4.2 Functional Requirements

DRM-1: Each regional administrative user must be able to add a disaster region to DARA.

DRM-2: Each disaster victim must be able to select each disaster region in DARA.

DRM-3: Each regional administrative user must be able to view each disaster region that they have regional privileges for.

DRM-4: Each regional administrative user must be able to remove each disaster region that they have regional privileges for.

3.5 Networks

3.5.1 Description and Priority

Priority: MEDIUM

DARA must allow each disaster victim to receive up-to-date status information from each aid center within that disaster victim's display radius while that disaster victim's device is connected to a primary network.

3.5.2 Functional Requirements

NET-1: Each disaster victim must be able to access DARA through a primary network.

NET-2: Each disaster victim must be able to access the most recent status information cached by DARA when each primary network is inoperable.

4 External Interface Requirements

4.1 User Interfaces

This section describes the logical characteristics of each interface between DARA and each user.

4.1.1 Description and Priority

Priority: MEDIUM

Each disaster victim must be able to quickly locate the aid center that best fits their needs, and must have a means of viewing the location of each aid center within their display radius. For this to be possible, each disaster victim must be able to select each aid center from the listing of aid centers. Selecting an aid center from the listing of aid centers will display the status information for the chosen aid center. The listing of aid centers will also prioritize displaying the aid center that best meets the needs for each disaster victim.

4.1.2 Requirements

UI-1: The location of each disaster victim must be visualized as a color-coded icon on a geographical representation of the disaster victim's chosen disaster region.

UI-2: The location of each aid center must be visualized as a color-coded icon on a geographical representation of the disaster region that the aid center is located in.

UI-3: Each disaster victim must be able to select each aid center to view all status information for that aid center.

UI-5: Each disaster victim must be able to view each aid center within the disaster victim's display radius, in a list format.

UI-6: Each administrative user must be able to view each aid center that administrative user has local privileges for.

UI-7: Each disaster victim must be able to manually provide their location to DARA.

4.2 Software Interfaces

4.2.1 Description and Priority

Priority: HIGH

In order to maximize compatibility and accessibility, DARA must function with a variety of operating systems. Each disaster victim will be expected to access DARA through their mobile device, while each administrative user will access DARA through their personal computer [2].

4.2.2 Requirements

SI-1: Each disaster victim must be able to access DARA from any version of Android version 7.0 or newer. 

SI-2: Each disaster victim must be able to access DARA from any version of iOS version 11 and newer.

SI-3: Each administrative user must be able to access DARA from any version of Windows version 8.1 and newer.

SI-4: Each administrative user must be able to access DARA from any version of macOS version 12.13 and newer.

SI-5: Each administrative user must be able to access DARA from any version of GNU/Linux version 5 and newer.

5 Other Non-Functional Requirements

5.1 Performance Requirements

This section describes the non-functional requirements of DARA, and outlines the criteria that will be used to judge DARA's operation.

5.1.1 Speed

PR-S-1: Each disaster victim must be able to receive status information from each aid center within 20 seconds while their device is connected to a primary network [2].

5.1.2 Caching

PR-C-1: Each disaster victim must be able to access at least 30 megabytes of cached data including geographical data and status information on their respective device [2].

5.2 Safety Requirements

Through the release of liability, AidConnect cannot be held responsible for any damages incurred by each disaster victim that uses DARA. Each disaster victim agrees to the release of liability by using the application, which outlines the risks of travelling to an aid center, and that the status information of each aid center may not be recently updated. The release of liability will also include a warning that the status information of each aid center might not be accurate and DARA cannot guarantee the level of supplies or access to any supplies at any aid center.

SAR-1: Each disaster victim must be shown a release of liability before the first use of DARA.

SAR-2: Each disaster victim must be shown a release of liability after each update of DARA.

5.3 Security Requirements

In order to mitigate the risk of monetary loss being incurred by AidConnect due to insufficient protection from malicious use of DARA, DARA must implement several security measures as detailed below.

SER-1: DARA must implement each remediation laid out by OWASP in the OWASP Web Application Security Guidance Page [3].

SER-2: The first regional administrative user to access each instance of DARA must be able to access DARA using default credentials [2].

5.4 Software Quality Requirements

In addition to the above requirements, DARA must also meet the software quality requirements outlined here.

SQ-1: DARA must meet the *Web Content Accessibility Guidelines* [4].

SQ-2: DARA must support internationalization.

SQ-3: DARA must allow each local administrative user to update the status information of that local administrative user's assigned aid center within one minute.

SQ-4: DARA must be available 99.999% of the time per year.

6 Other Requirements

In order to avoid fines from digital privacy law violations, such as fines issued under the General Data Protection Regulation by the European Union, DARA must ensure that each disaster victim is made aware of any data that DARA stores about that disaster victim, and must make each disaster victim aware that they have the ability to request that all traces of their personal data be removed from DARA.

OR-1: DARA must not violate the digital privacy laws of any country where DARA will be used.

7 Use Cases

The below use cases define the common functions that disaster victims, local administrative users, and regional administrative users can perform. The use case diagram represents each use case with respect to the system, and the relation of each use case to each actor.

7.1 Use Case Diagram

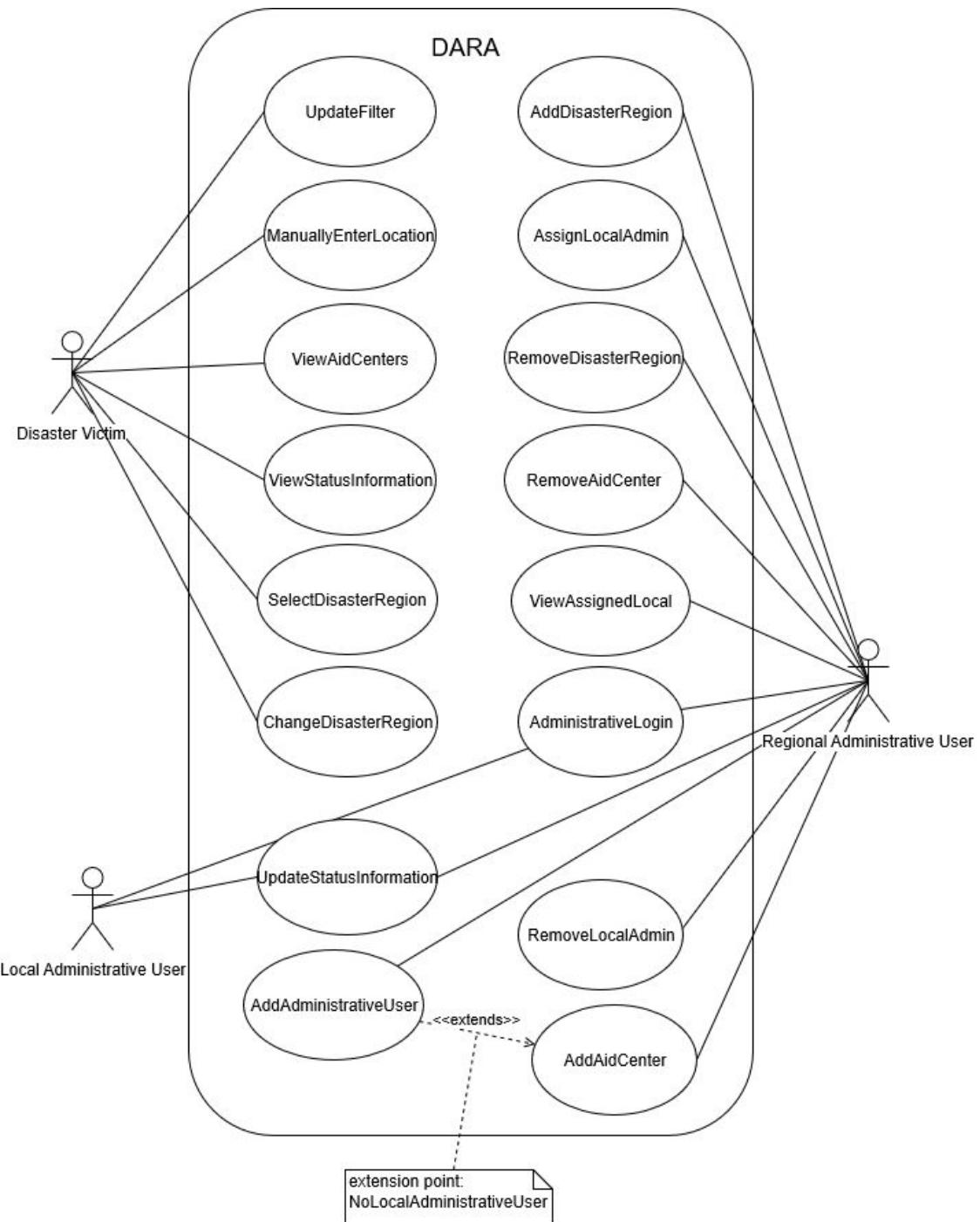


Figure 1: Use Case Diagram

7.2 Disaster Victims

Below are the use cases that pertain to the functions that a disaster victim can perform.

7.2.1 View Aid Centers

Use Case: ViewAidCenters

ID: UC-1
Brief description: The disaster victim views each aid center within the disaster victim's display radius.
Actor(s): Disaster victim
Preconditions: 1. The disaster victim has selected a disaster region.
Main flow: 1. If the disaster victim indicates that they would like to view the geographical representation of their disaster region then <ul style="list-style-type: none"> 1.1. If the disaster victim's device is connected to a primary network then <ul style="list-style-type: none"> 1.1.1. The disaster victim is shown the geographical representation of their disaster region containing the most recent geographical data. 1.1.2. The disaster victim is shown their location, as well as the location of each aid center within the disaster victim's display radius. 1.2. Else if the disaster victim's device is not connected to a primary network then <ul style="list-style-type: none"> 1.2.1. The disaster victim views the geographical representation of their disaster region containing cached geographical data. 1.2.2. The disaster victim views their location, as well as the location of each aid center within the disaster victim's display radius that the disaster victim has cached status information for. 2. If the disaster victim indicates they would like to view the listing of aid centers then <ul style="list-style-type: none"> 2.1. If the disaster victim's device is connected to a primary network then <ul style="list-style-type: none"> 2.1.1. The disaster victim is shown each aid center within the disaster victim's display radius. 2.2. Else if the disaster victim's device is not connected to a primary network then <ul style="list-style-type: none"> 2.2.1. The disaster victim views each cached aid center within the disaster victim's display radius. 3. The disaster victim is shown each aid center within the disaster victim's display radius, and is able to view the status information for each respective aid center.
Postconditions: DARA is showing each aid center within the disaster victim's display radius.
Alternative flow(s): None.

Table 1: Use Case - View Aid Centers



Figure 2: Geographical Representation Storyboard

The storyboard in Figure 2 showcases a low-fidelity prototype of how each disaster victim would view the geographical representation of their chosen disaster region. This interface is first seen by the disaster victim upon opening the application, and would be navigated to by selecting a map interface from the menu at the top of the disaster victim's screen. Each green dot on the screen would represent an aid center with an "open" operating status, and each red dot would represent an aid center with a "closed" operating status. The blue dot would represent the most recently cached location for the disaster victim. Selecting an aid center would reveal a window containing the status information for the selected aid center.



Figure 3: Listing of Aid Centers Storyboard

Figure 3 showcases a low-fidelity prototype of how each disaster victim would view the listing of each aid center that matches the filtering criteria supplied by the disaster victim. To view each aid center as a list, the disaster victim would select the list interface from the menu at the top of the screen. As in Figure 2, each green dot would indicate an aid center with an “open” operating status, while each red dot would indicate an aid center with a “closed” operating status. Selecting each aid center would reveal a window containing the status information of the selected aid center.

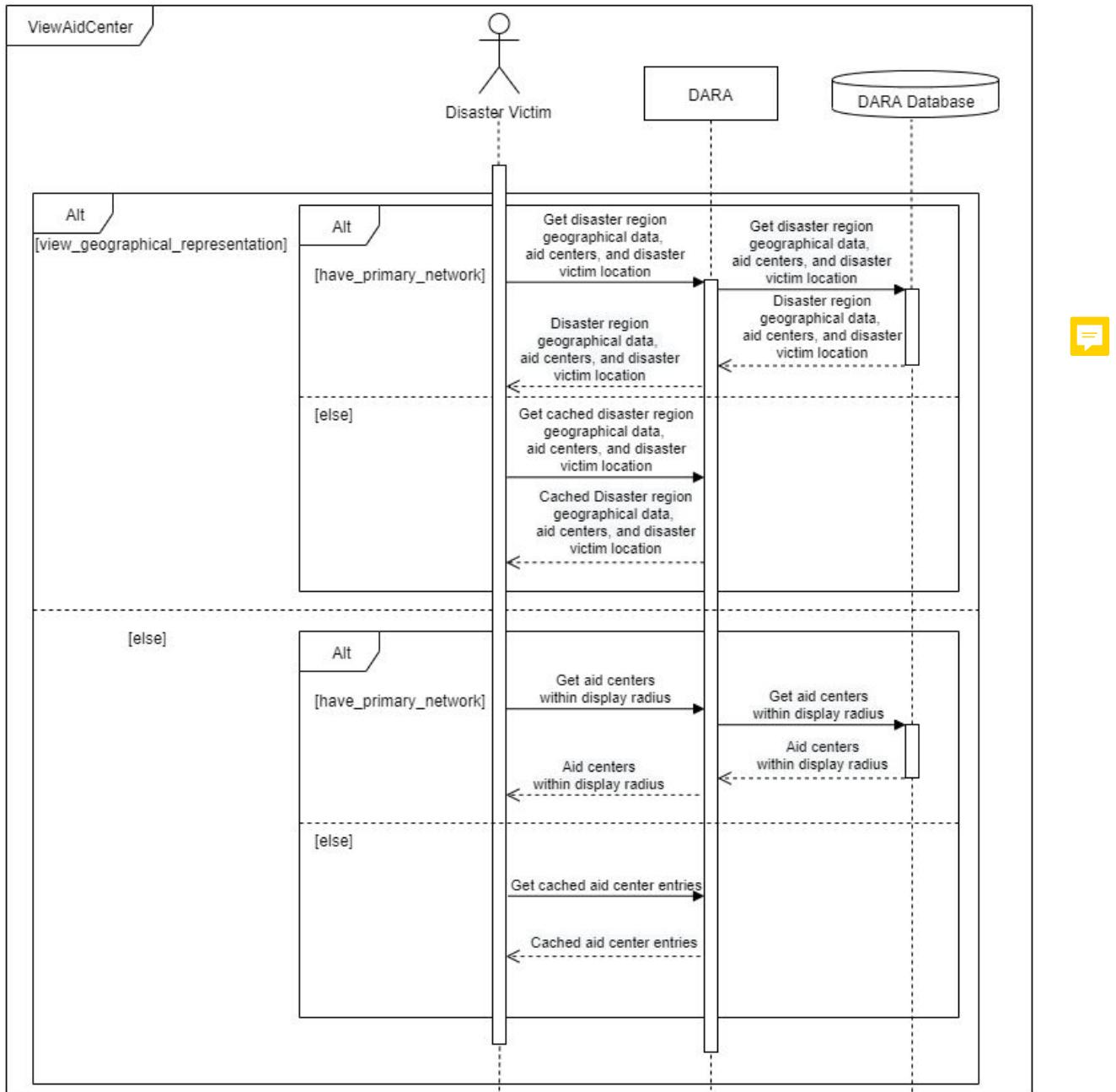


Figure 4: View Aid Centers Sequence Diagram

7.2.2 UpdateFilter

Use Case: UpdateFilter
ID: UC-2
<p>Brief description: The disaster victim filters aid centers so that each aid center the disaster victim is shown meets the disaster victim's needs.</p>
<p>Actor(s): Disaster victim</p>
<p>Preconditions:</p> <ol style="list-style-type: none"> 1. The disaster victim has selected a disaster region.
<p>Main flow:</p> <ol style="list-style-type: none"> 1. The disaster victim indicates that they would like to filter aid centers. 2. The disaster victim is prompted to provide criteria in order to filter aid centers.  3. If the disaster victim wants to filter by the level of supply at each aid center then <ol style="list-style-type: none"> 3.1. The disaster victim selects the level of each supply they want at an aid center. 4. If the disaster victim wants to hide aid centers with a "closed" operating status then <ol style="list-style-type: none"> 4.1. The disaster victim hides aid centers with a "closed" operating status. 5. The disaster victim is prompted to either change or accept the default display radius of 100km. 6. The disaster victim optionally changes the display radius.  7. The disaster victim confirms the selected criteria. 
<p>Postconditions:</p> <ol style="list-style-type: none"> 1. Aid centers not matching the chosen criteria are no longer visible to the disaster victim. 
<p>Alternative flow(s):</p> <p>CancelFilterSelection</p> <p>2 b) ResetFilterSelection </p> <ol style="list-style-type: none"> 2.1 The disaster victim resets the criteria selected for the filter. 2.2 The disaster victim sees that the level of each supply has been set to medium. 2.3 The disaster victim sees that the display radius has been set to the default of 100km.

Table 2: Use Case - Update Filter

7.2.2.1 Cancel Filter Selection

Alternative Flow: UpdateFilter:CancelFilterSelection
ID: UC-2.1
Brief description: The disaster victim backs out of the filter selection.
Actor(s): Disaster victim
Preconditions: None.
Alternative flow(s): <ol style="list-style-type: none"> 1. The alternate flow begins at any step after step 1 of UC-2. 2. The disaster victim cancels the update to the filter. 3. The disaster victim returns to the previous representation of their disaster region 4. If the disaster victim has previously confirmed a filtering criteria then <ol style="list-style-type: none"> 4.1. The disaster victim is shown each aid center that matches the filtering criteria that was previously confirmed. 5. Else <ol style="list-style-type: none"> 5.1. The disaster victim is shown each aid center within the disaster victim's display radius.
Postconditions: None.

Table 3: Alternative Flow - Cancel Filter Selection

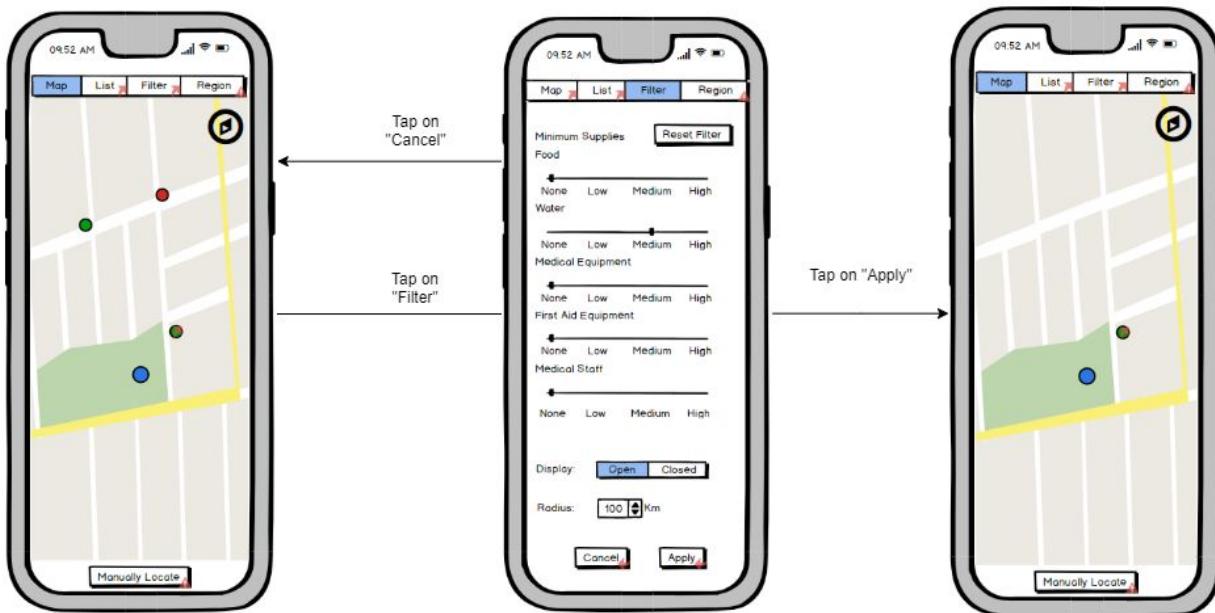


Figure 5: Update Filter Storyboard

Figure 5 showcases a low-fidelity prototype for how each disaster victim would filter by level of each supply at each aid center. The disaster victim navigates to the filter view, modifies filtering criteria, and applies the filter. Upon doing so, the disaster victim will see only the aid centers meeting or exceeding the level of supply defined by the filtering criteria. The disaster victim can cancel the process of editing the filter by selecting the button labeled “Cancel”. Doing so returns the disaster victim to the aid center interface (map view or list view) they last viewed.

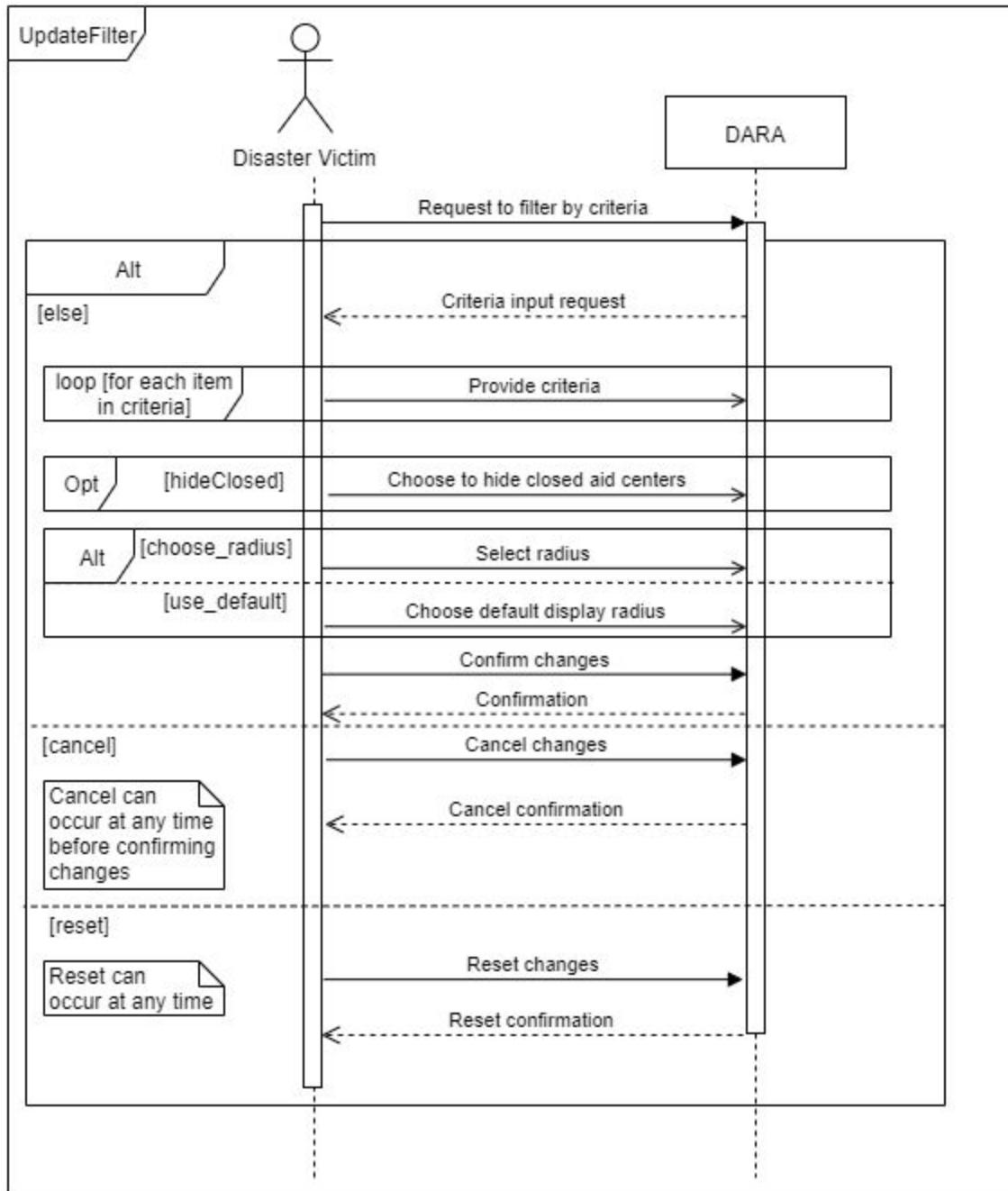


Figure 6: Update Filter Sequence Diagram

7.2.3 Manually Enter Location

Use Case: ManuallyEnterLocation
ID: UC-3
Brief description: The disaster victim manually provides a location to DARA.
Actor(s): Disaster victim
Preconditions: <ol style="list-style-type: none"> 1. The disaster victim has selected a disaster region. 2. The disaster victim is connected over a primary network or has cached geographical data.
Main flow: <ol style="list-style-type: none"> 1. The disaster victim indicates that they would like to view the geographical representation of their disaster region. 2. The disaster victim is shown their most recently cached location. 3. The disaster victim chooses to manually enter their location. 4. While the disaster victim is not satisfied with their location setting: <ol style="list-style-type: none"> 4.1. The disaster victim provides their location. 4.2. The disaster victim confirms the entered information. 4.3. The disaster victim is shown their new location at the entered information. 5. The disaster victim returns to the geographical representation of their disaster region.
Postconditions: <ol style="list-style-type: none"> 1. The geographical representation of the disaster victim's disaster region has been updated with the manual location of the disaster victim. 
Alternate flow(s): CancelManualLocation <ol style="list-style-type: none"> 1. The alternate flow can begin anytime before step 4.2.  2. The disaster victim chooses to cancel entering their location manually. 3. The disaster victim returns to the geographical representation of their disaster region.

Table 4: Use Case - Manually Enter Location

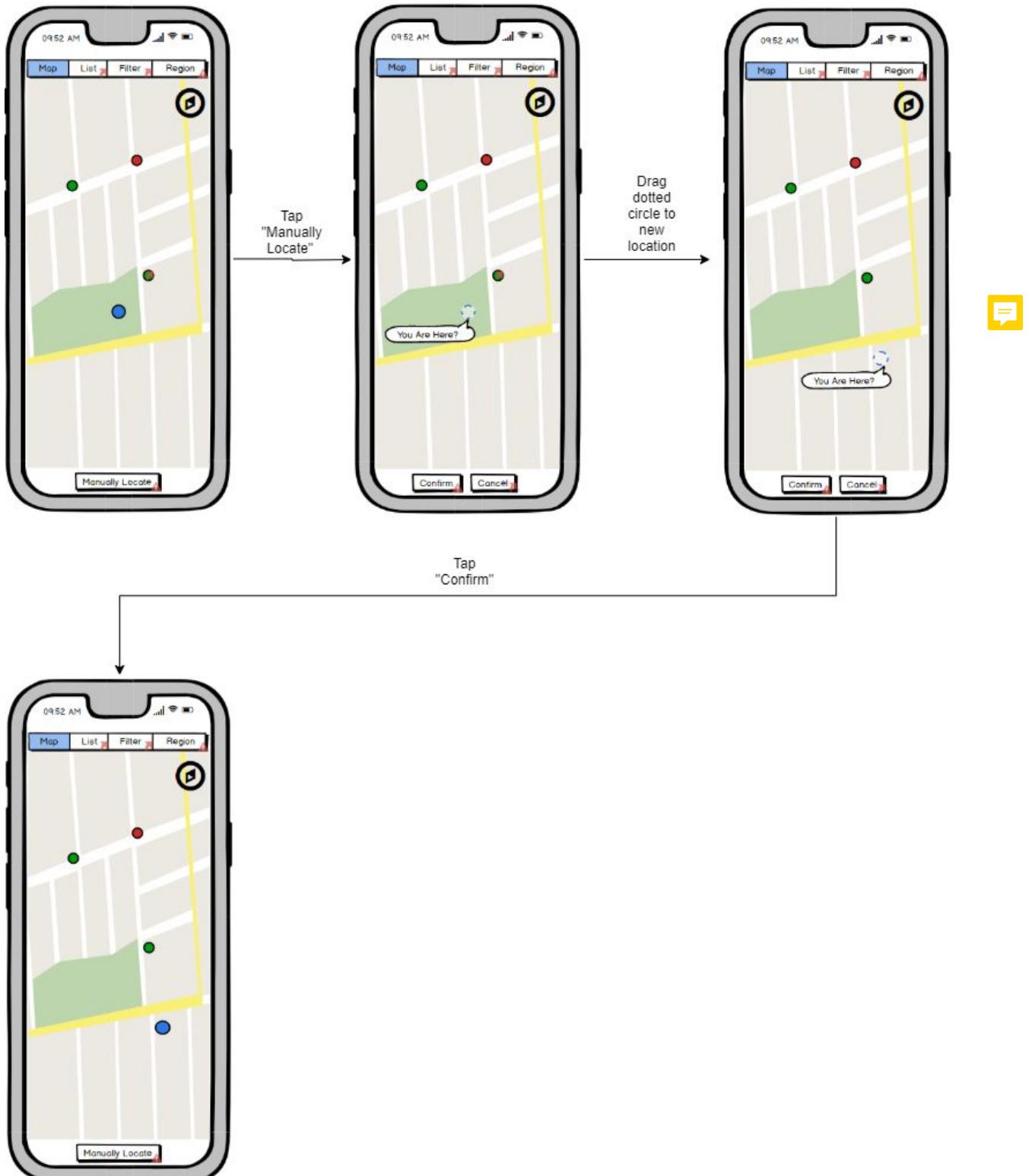


Figure 7: Manually Enter Location Storyboard

Figure 7 showcases a low-fidelity prototype of how each disaster victim would manually provide their location to DARA. Upon selecting “Manually Locate,” the disaster victim would see their location (previously shown as a blue dot) as a dotted circle that could be dragged around the geographical representation of their disaster region. Once the disaster victim has positioned the dotted circle over a location the disaster victim finds satisfactory, the disaster victim would then select “Confirm” to see their newly entered location  as a blue dot on the geographical representation of their disaster region.

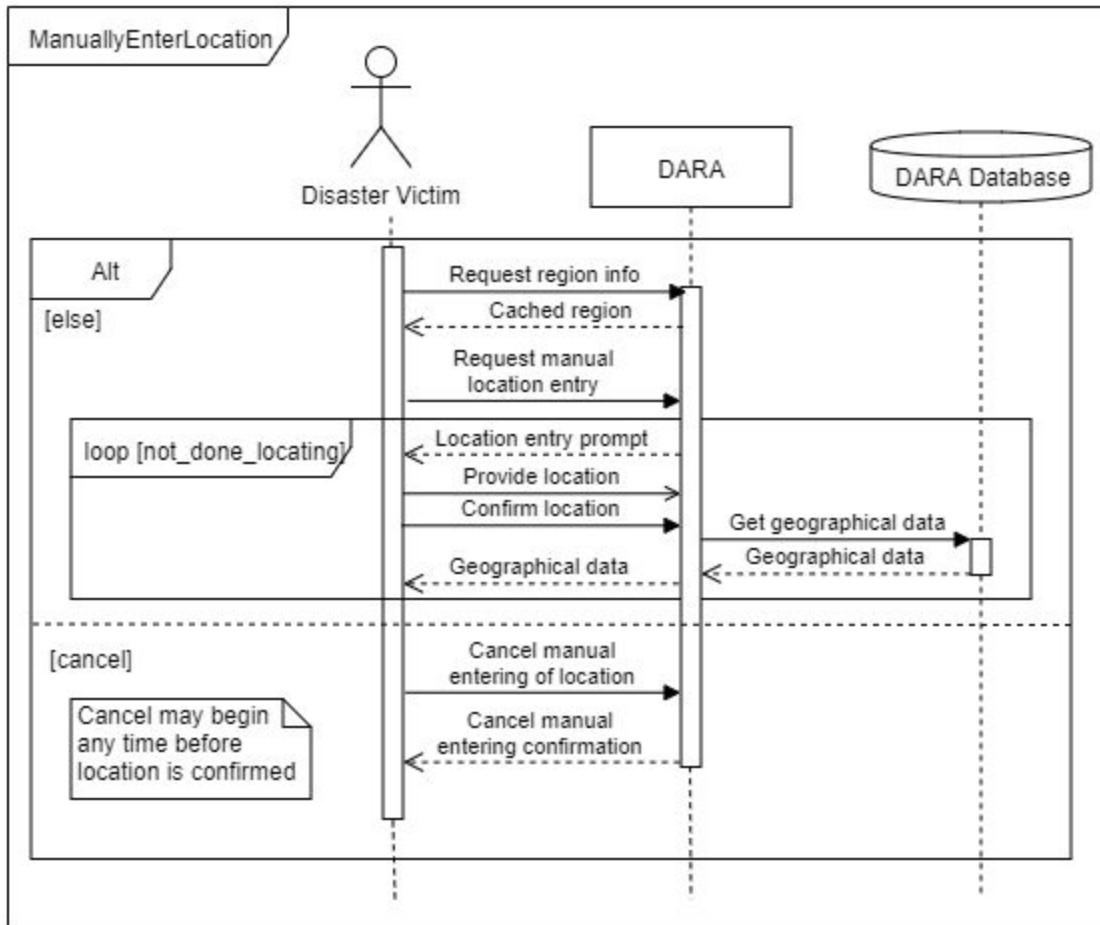


Figure 8: Manually Enter Location Sequence Diagram

7.2.4 View Status Information

Use Case: ViewStatusInformation
ID: UC-4
Brief description: The disaster victim views the status information for an aid center.
Actor(s): Disaster victim
Preconditions: <ol style="list-style-type: none"> 1. The disaster victim has selected a disaster region. 2. There is at least one aid center within the disaster victim's display radius. 3. The disaster victim is viewing the geographical representation of their disaster region, or is viewing the listing of aid centers.
Main flow: <ol style="list-style-type: none"> 1. The disaster victim indicates  they would like to view the status information for an aid center. 2. If the disaster victim is viewing the geographical representation of their disaster region then <ol style="list-style-type: none"> 2.1. The disaster victim selects an aid center from the geographical representation of their disaster region. 3. Else <ol style="list-style-type: none"> 3.1. The disaster victim selects an aid center from the listing of aid centers. 4. The disaster victim is shown the status information for the selected aid center. 5. If the disaster victim wishes to  view detailed direction to the selected aid center then <ol style="list-style-type: none"> 5.1. The disaster victim indicates they wish to view directions. 5.2. The disaster victim receives detailed directions from that disaster victim's location to the selected location.
Postconditions: None.
Alternative flow(s): None.

Table 5: Use Case - View Status Information



Figure 9: Geographical Representation View Status Information Storyboard

The storyboard in Figure 9 showcases a low-fidelity prototype of how each disaster victim would view the status information for each aid center from the geographical representation of their disaster region. The disaster victim would select either a green or a red dot on the geographical representation (corresponding to an open and a closed aid center respectively), and would see the status information for the selected aid center, as well as basic directions to the selected aid center from the disaster victim's location as a dotted line on the geographical representation of their disaster region. The disaster victim would be given the option to be redirected to view detailed directions through an application external to DARA by selecting “Directions.”



Figure 10: Listing of Aid Centers View Status Information Storyboard

Figure 10 showcases a low-fidelity prototype of how each disaster victim would view the status information for each aid center from the listing of aid centers. Upon selecting an aid center from the listing of aid centers, the disaster victim would be shown the status information for the selected aid center. Additionally, the disaster victim could view basic directions to the selected aid center from the respective disaster victim's location as a dotted line on the geographical representation of that disaster victim's disaster region. The disaster victim would be given the option to be redirected to view detailed directions through an application external to DARA by selecting "Directions."

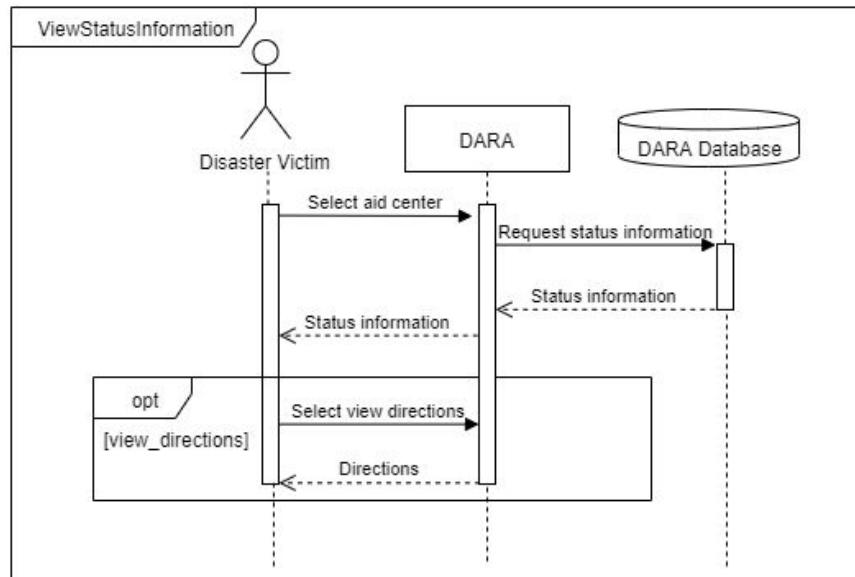


Figure 11: View Status Information Sequence Diagram

7.2.5 Select Disaster Region

Use Case: SelectDisasterRegion
ID: UC-5
Brief description: The disaster victim selects a disaster region to view the aid centers contained within it.
Actor(s): Disaster victim
Preconditions: <ol style="list-style-type: none"> 1. The disaster victim has not previously selected a disaster region.
Main flow: <ol style="list-style-type: none"> 1. If the disaster victim has primary network access then <ol style="list-style-type: none"> 1.1. The disaster victim is shown the geographical representation of the closest disaster region 2. Else the disaster victim is prompted to select a disaster region. <ol style="list-style-type: none"> 2.1. The disaster victim selects a disaster region. 2.2. The disaster victim confirms the selected disaster region. 2.3. The disaster victim is shown the geographical representation of the chosen disaster region.
Postconditions: <ol style="list-style-type: none"> 1. The disaster victim's disaster region is set to the selected disaster region.
Alternative flow(s): None.

Table 6: Use Case - Select Disaster Region

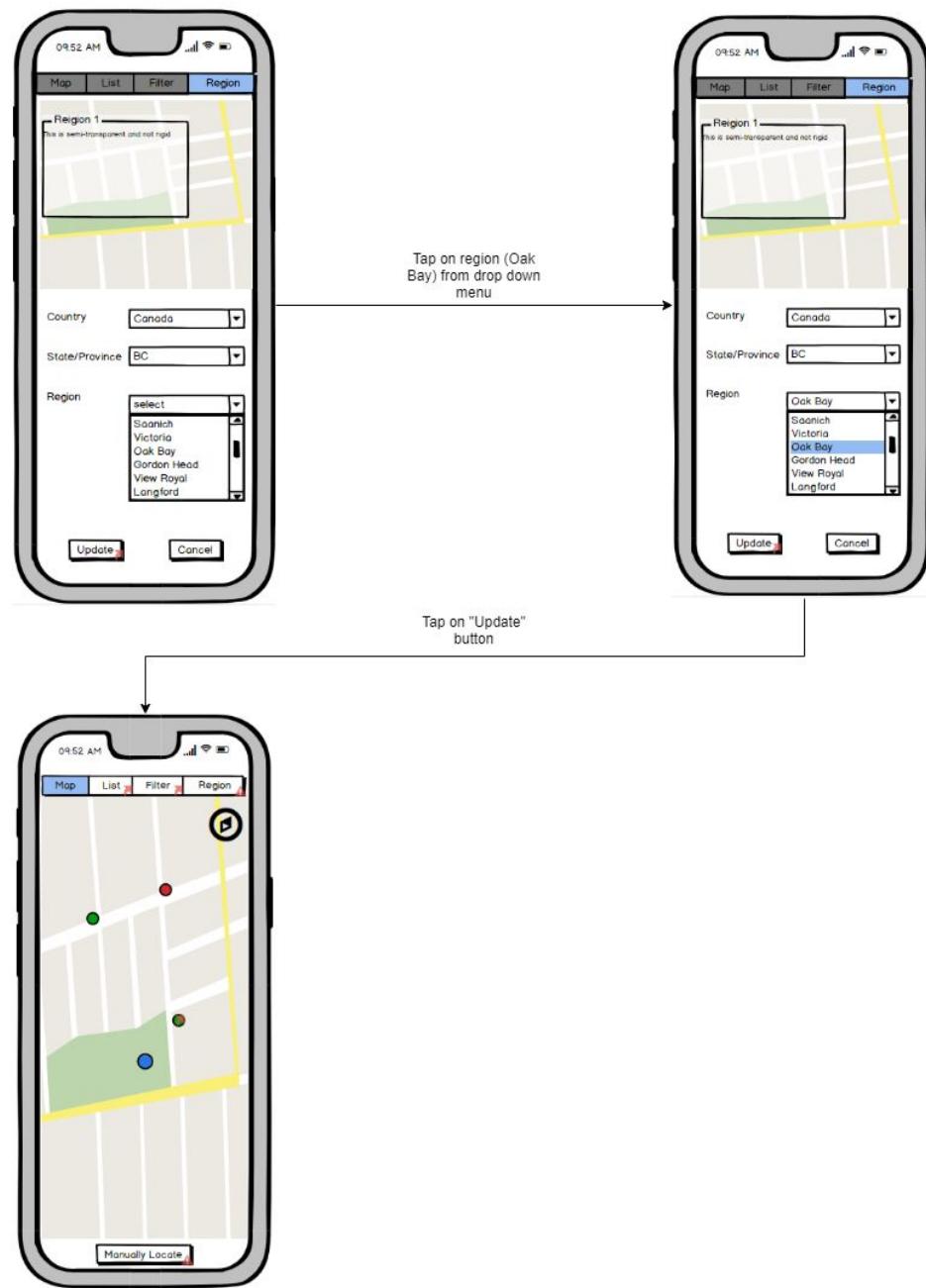


Figure 12: Select Disaster Region Storyboard

Figure 12 showcases a low-fidelity prototype of how each disaster victim would select their disaster region in DARA. The first time the disaster victim accesses DARA, if the disaster victim's location is known, the disaster region closest to the disaster victim would be automatically selected as the disaster victim's disaster region. If the disaster victim's location is unknown, they would be asked to select a disaster region. Each disaster victim would select their country, followed by their state/province, and finally a disaster region. Alternatively, the disaster victim could select a disaster region by selecting a region shown on the geographical representation of the world. Selecting a region on the geographical representation of the world would automatically fill in the country, state/province and disaster region.

fields. If the disaster victim selects “Update” then the disaster victim would be taken to the geographical representation of the selected disaster region.

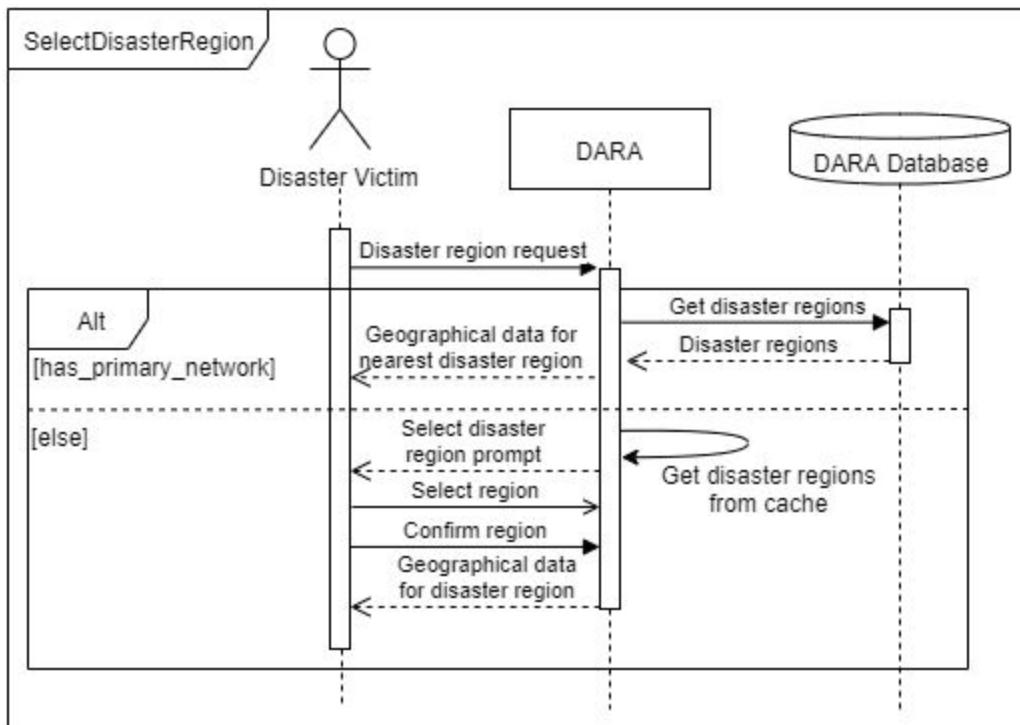


Figure 13: Select Disaster Region Sequence Diagram

7.2.6 Change Disaster Region

Use Case: ChangeDisasterRegion 
ID: UC-5
Brief description: The disaster victim changes to a different disaster region to view the aid centers contained within it.
Actor(s): Disaster victim
Preconditions: <ol style="list-style-type: none">1. The disaster victim is viewing the geographical representation of their disaster region or is viewing the listing of aid centers.2. The disaster victim has previously selected a disaster region.
Main flow: <ol style="list-style-type: none">1. The disaster victim indicates that they would like to change their disaster region.2. The disaster victim is prompted to select a disaster region.3. The disaster victim selects the disaster region they wish to view.4. The disaster victim confirms the selected disaster region.5. The disaster victim is shown the geographical representation of the selected disaster region.
Postconditions: <ol style="list-style-type: none">1. The disaster victim's disaster region has been changed to the selected disaster region.
Alternative flow(s): None.

Table 7: Use Case - Change Disaster Region



Figure 14: Change Disaster Region Storyboard

Figure 14 showcases a low-fidelity prototype of how each disaster victim would update their disaster region in DARA. The disaster victim would select their country, followed by selecting their



state/province, and finally selecting a disaster region. Alternatively, selecting a region on the geographical representation of the world would automatically fill in the country, state/province and disaster region fields. Upon selecting “Update”, the disaster victim would be taken to the geographical representation of the newly selected disaster region.

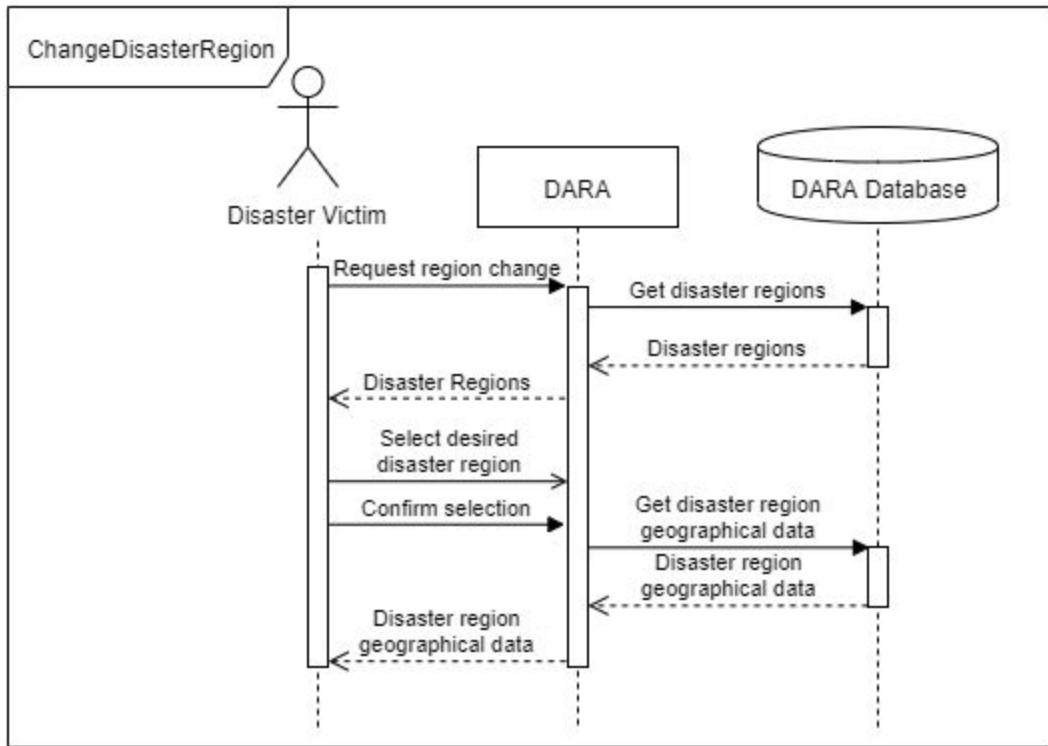


Figure 15: Listing of Aid Centers Sequence Diagram

7.3 Administrative Users (Local or Regional)



The use cases that local administrative users can perform, and the use cases that regional administrative users can perform.



7.3.1 Update Status Information

Use Case: UpdateStatusInformation
ID: UC-6
Brief description: The administrative user updates status information.
Actor(s): Administrative user
Preconditions: <ol style="list-style-type: none"> 1. The administrative user is authorized in DARA. 2. The administrative user is logged in. 3. The administrative user has local privileges for at least one aid center.
Main flow: <ol style="list-style-type: none"> 1. If the administrative user is a regional administrative user then <ol style="list-style-type: none"> 1.1. The administrative user is shown each aid center that they have local privileges for. 1.2. The administrative user is prompted to select an aid center to update the status information for. 1.3. The administrative user selects an aid center which they want to update the status information for. 2. The administrative user indicates they would like to update aid center status information. 3. The administrative user provides the updated status information. 4. The administrative user confirms the entered information. 5. The administrative user is shown the selected aid center with updated status information.
Postconditions: <ol style="list-style-type: none"> 1. The status information for the selected aid center has been updated.
Alternative flow(s): CancelUpdateRequest <ol style="list-style-type: none"> 1. The alternate flow can begin at any step before step 4. 2. The administrative user cancels the update to status information.

Table 8: Use Case - Update Aid Center Status Information

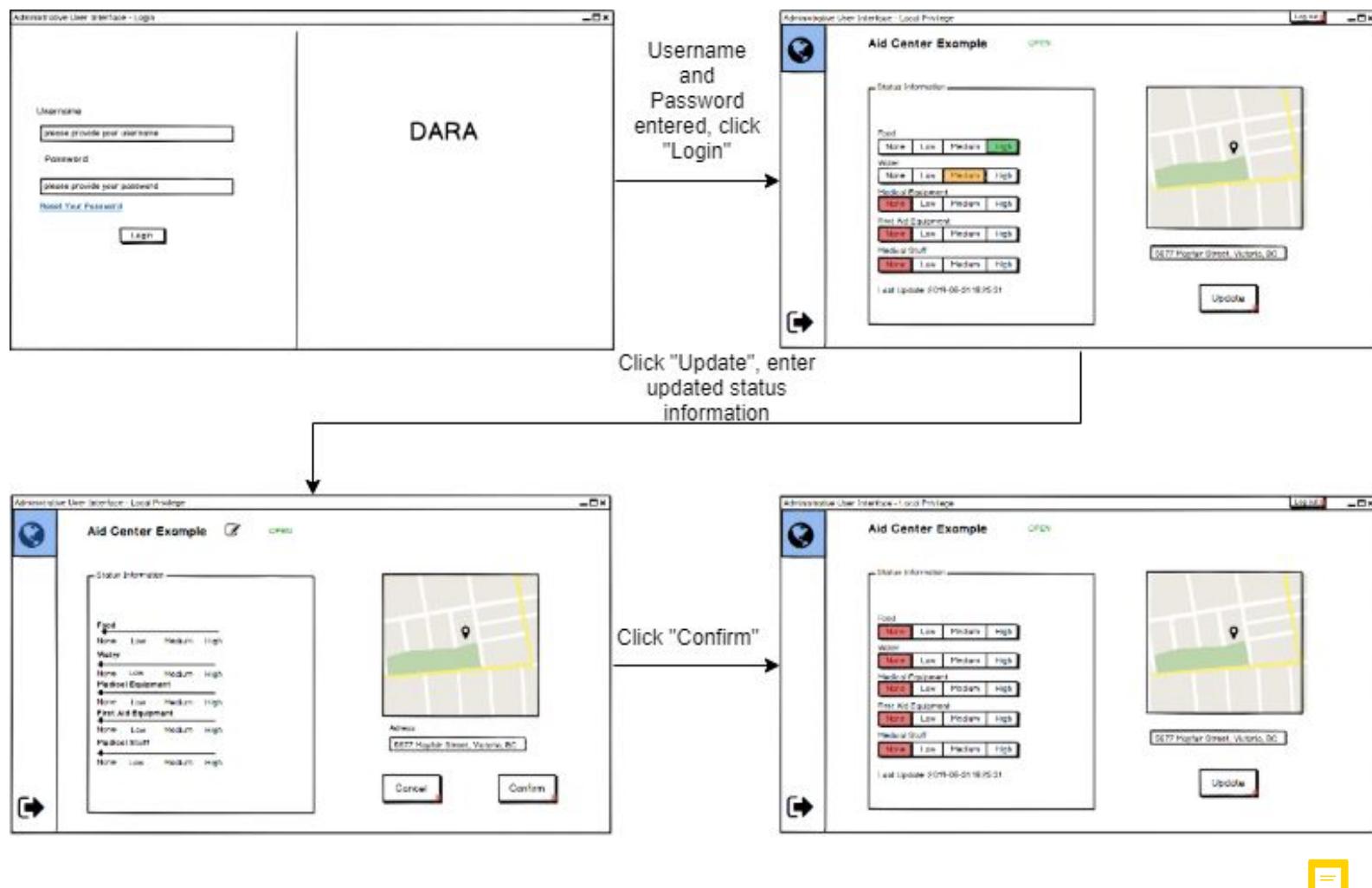


Figure 16: Local Administrative User Update Status Information Storyboard

Figure 16 showcases a low-fidelity prototype of how each local administrative user would be able to update the status information for the aid center that local administrative user is assigned to. The local administrative user would log in, select “Update”, update each field of the status information that they wish to change, and select “Confirm” to confirm the changes.



Figure 17: Regional Administrative User Update Status Information Storyboard

Figure 17 showcases a low-fidelity prototype of how each regional administrative user would update the status information for each aid center. After logging in, the regional administrative user would select a disaster region, followed by an aid center within the selected disaster region. The regional administrative user would then select “View Center” for the chosen aid center, select “Update” to update each field of

the status information of that aid center that they wish to change, and then select “Confirm” to confirm the changes. After confirming the changes, the regional administrative user would be shown the updated status information for the selected aid center.

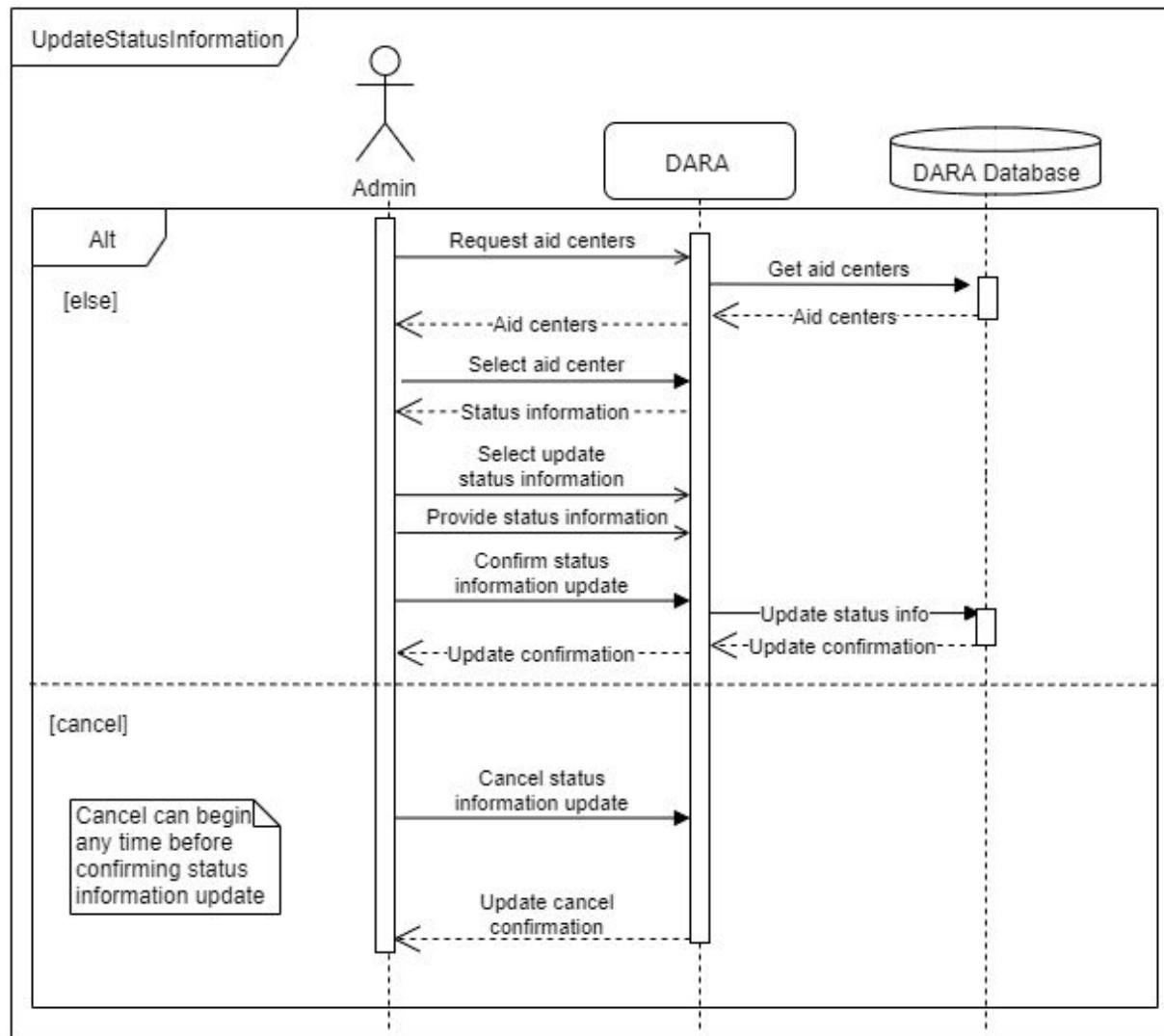


Figure 18: Update Status Information Sequence Diagram Storyboard

7.3.2 Administrative User Log In
Use Case: AdministrativeLogin
ID: UC-7
Brief description: An administrative user logs in to gain access to the administrative interface and administrative functionality of DARA.
Actor(s): Administrative user

Preconditions:
1. The administrative user must be authorized in DARA.
2. The administrative user must not already be logged in.
Main flow:
<ol style="list-style-type: none"> 1. The administrative user indicates they would like to log in. 2. While the administrative user has not provided a username and password combination that is known to DARA: <ol style="list-style-type: none"> 2.1. The administrative user is prompted to provide a username and password. 2.2. The administrative user provides their username and password. 2.3. The administrative user attempts to login. 3. If the administrative user used default credentials to login then <ol style="list-style-type: none"> 3.1. The administrative user is prompted to enter a new password. 3.2. The administrative user provides the new password. 3.3. The administrative user confirms the password change. 4. The administrative user is shown each aid center that they have local privileges for.
Postconditions:
1. The administrative user is logged in to DARA.
Alternative flow(s):
1 b) ResetPassword

Table 9: Use Case - Administrative User Login

7.3.2.1 Administrative User Resets Password	
Alternative Flow: AdministrativeLogin:ResetPassword	
ID: UC-7.1	
Brief description:	
The administrative user resets their password by using a temporary password delivered to the contact information associated with that account.	
Actor(s):	
Administrative user	
Preconditions:	
1. The administrative user's account exists in DARA	
Alternative flow(s):	
<ol style="list-style-type: none"> 1. The administrative user indicates they would like to reset their password. 2. The administrative user is prompted to enter the contact information associated with their account. 3. The administrative user provides the contact information associated with their account. 4. The administrative user receives a temporary password from DARA. 5. The administrative user returns to the interface for logging in. 6. The administrative user is prompted to enter their username and password. 7. The administrative user provides their username. 	

8. The administrative user provides their temporary password.
9. The administrative user is prompted to provide a new password.
10. The administrative user provides their new password.
11. The administrative user confirms the changes.

Postconditions:

1. The password of the administrative user has been changed.
2. The administrative user can log in with the new password.

Table 10: Alternative Flow - Administrative User Resets Password

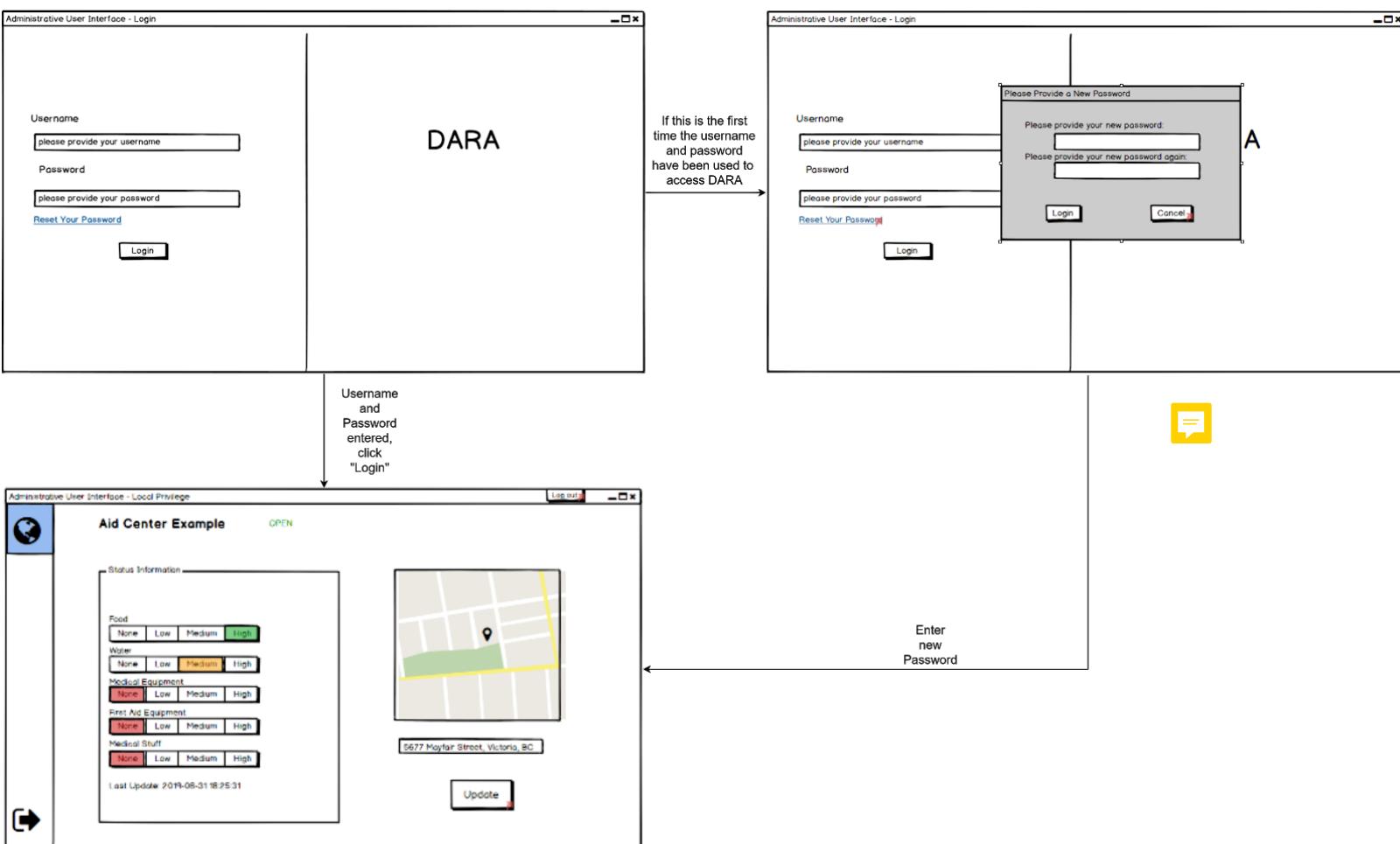


Figure 19: Local Administrative User Log In Storyboard

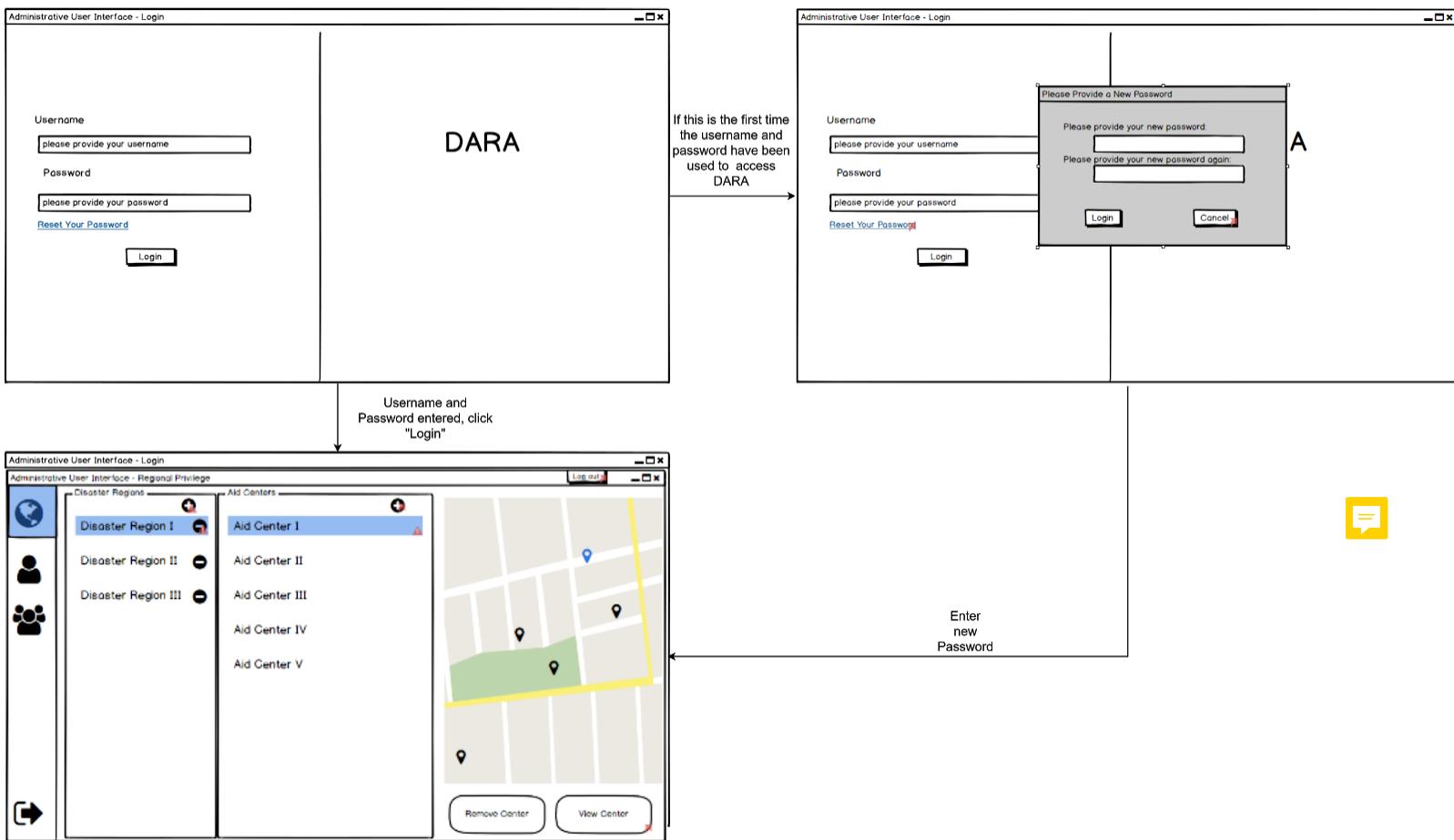


Figure 20: Regional Administrative User Log In Storyboard

Figures 19 and 20 showcase low-fidelity prototypes of how each administrative user would log in to DARA. When DARA is first accessed by an administrative user, the administrative user would be prompted with a screen asking for their username and password. Upon providing a username and password combination that exists in DARA, the administrative user would be prompted to enter a new password to replace their temporary password. After entering a new password, if the administrative user is a local administrative user, that administrative user would be shown their assigned aid center. If the administrative user is a regional administrative user, that administrative user would be shown each aid center that regional administrative user has local privileges for. For every subsequent access to DARA, the administrative user would be prompted with a screen asking for their username and password. After providing a username and password combination that exists in DARA, the administrative user would be shown each aid center that administrative user has local privileges for.

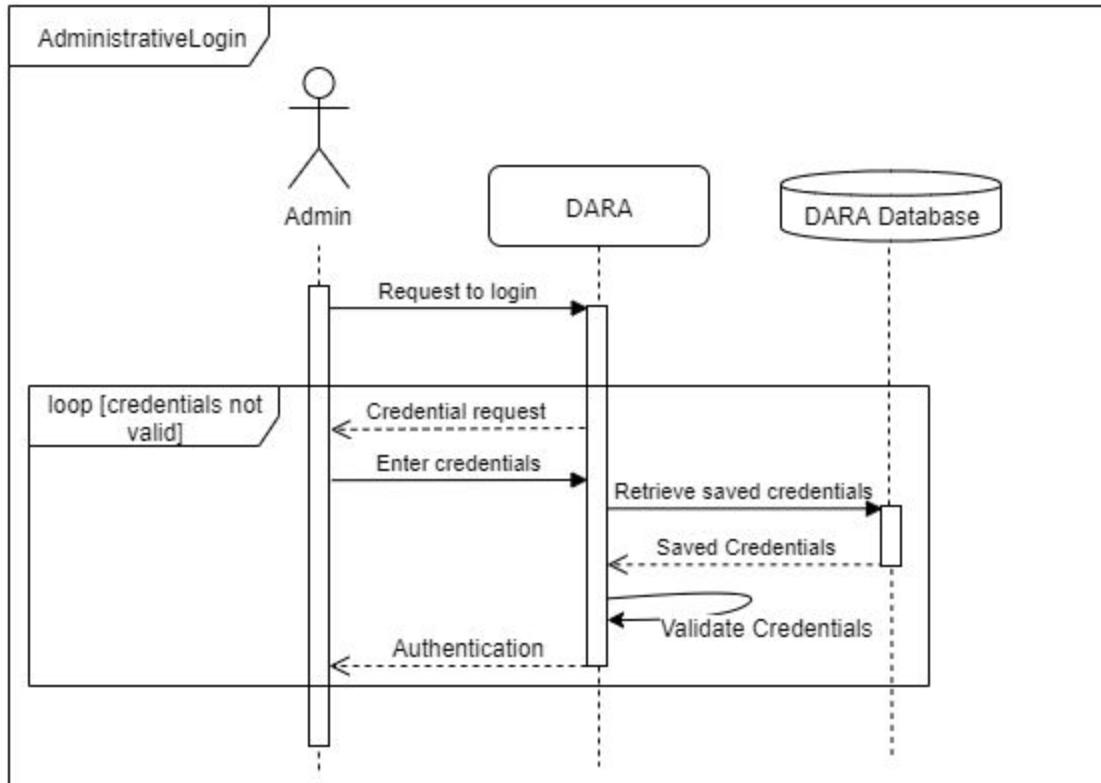


Figure 21: Administrative Login Sequence Diagram

7.4 Regional Administrative Users

The use cases that only regional administrative users can perform.

7.4.1 Add Aid Center
Use Case: AddAidCenter
ID: UC-8
Brief description: The regional administrative user adds a new aid center to one disaster regions the regional administrative user has regional privileges for.
Actor(s): Regional administrative user
Preconditions: 1. The regional administrative user is logged in..
Main flow: 1. The regional administrative user selects a disaster region that regional administrative user has regional privileges for. 2. The regional administrative indicates they would like to add an aid center.

3. The regional administrative user is prompted to provide status information for the new aid center.
4. The regional administrative user provides status information for the new aid center.
5. If no unassigned local administrative user exists in DARA then
 - 5.1. The regional administrative is notified that there is no local administrative user that can be assigned to the new aid center.
6. The regional administrative user is prompted with the option to add a new local administrative user.
 - 6.1. If the regional administrative user accepts the prompt extension point: NoLocalAdministrativeUser.
7. The regional administrative user chooses one unassigned local administrative to be assigned to the new aid center.
8. The regional administrative user confirms the entered information.
9. The regional administrative user is shown a message confirming that the new aid center has been added.

Postconditions:

1. The new aid center is added to the selected disaster region.

Alternative flow(s):

CancelAddingAidCenter

1. The alternate flow can begin anytime before step 8. 
2. The regional administrative user cancels adding a new aid center.
3. The regional administrative user is shown that the new aid center has *not* been added.

Table 11: Use Case - Add Aid Center

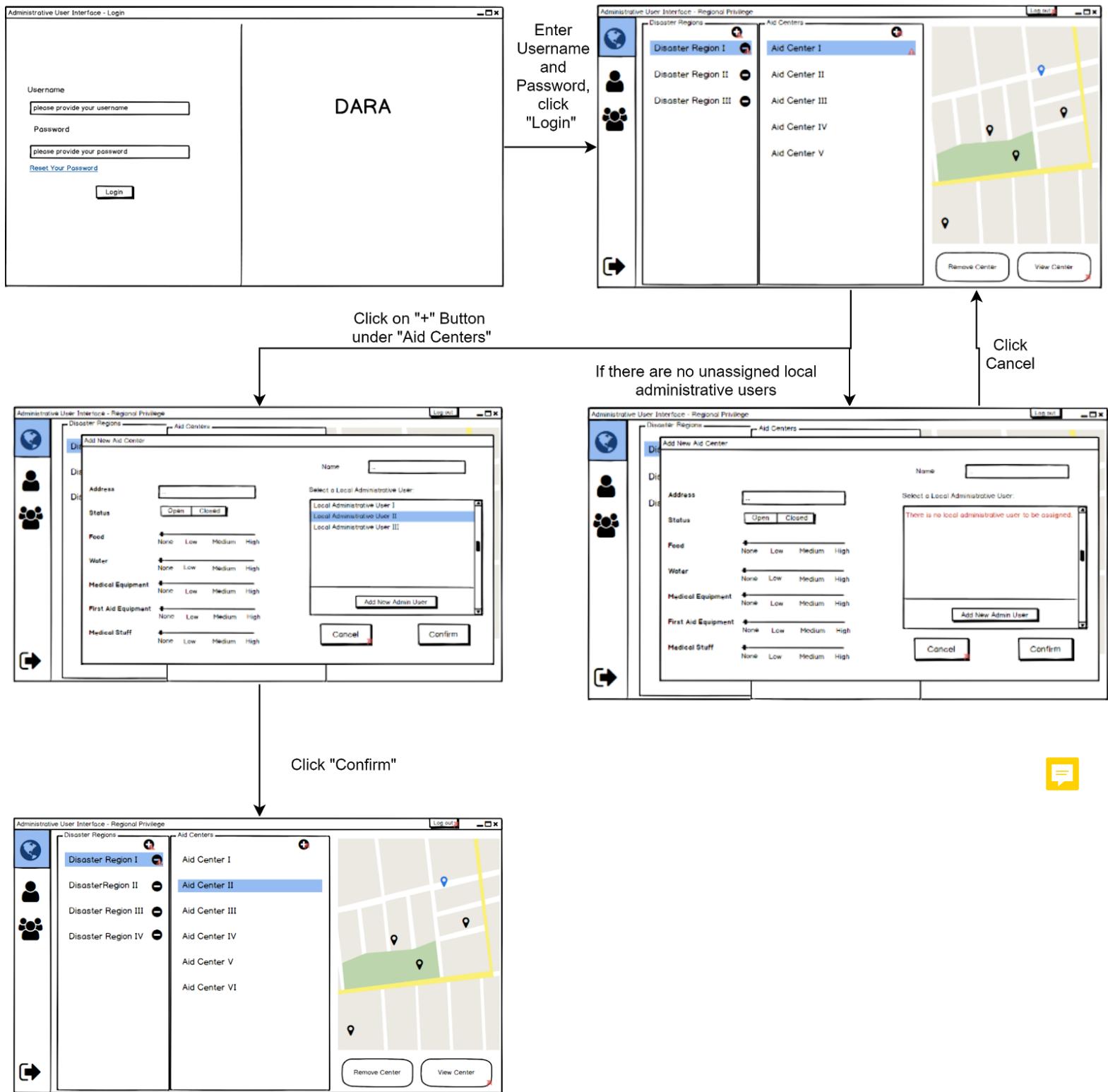


Figure 22: Add Aid Center Storyboard

Figure 22 showcases a low-fidelity prototype for how each regional administrative user would add an aid center to a disaster region that regional administrative user has regional privileges for. The regional administrative user would log in, select the “+” button in the listing of aid centers, enter the desired initial status information for the aid center, and would then select an unassigned local administrative user to assign to the new aid center. The regional administrative user would also see an optional prompt to add a new administrative user. If the regional administrative user selects “Confirm,” that regional administrative user would see the new aid center within the selected disaster region.

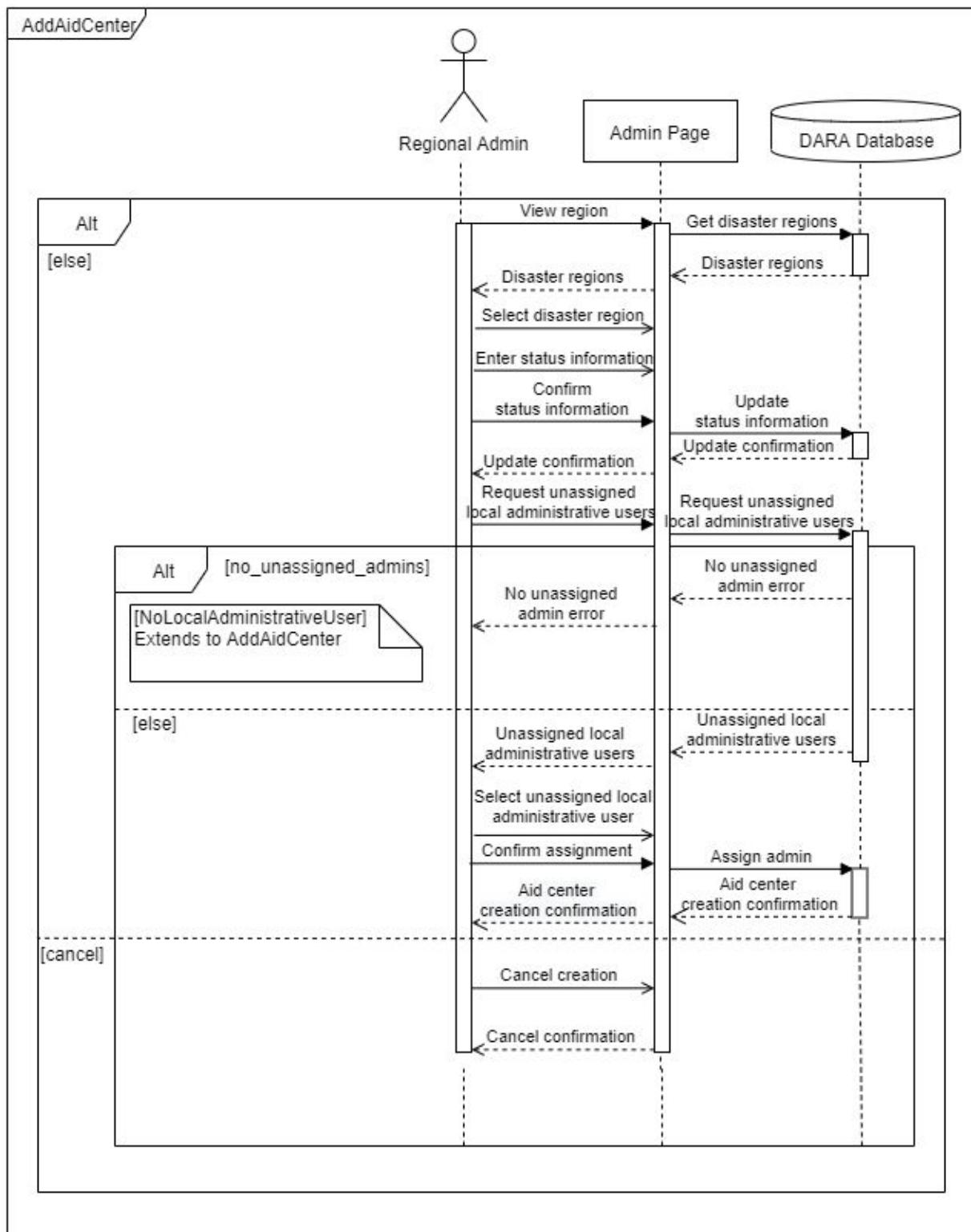


Figure 23: Add Aid Center Sequence Diagram

7.4.2 Remove Aid Center

Use Case: RemoveAidCenter
ID: UC-9
Brief description: The regional administrative user removes an existing aid center from one disaster region the regional administrative user has regional privileges for.
Actor(s): Regional administrative user
Preconditions: 1. The regional administrative user is logged in.
Main flow: 1. The regional administrative user is prompted to select one disaster region that regional administrative user has regional privileges for. 2. The regional administrative user selects a disaster region. 3. The regional administrative user selects an aid center in the selected disaster region to remove. 4. The regional administrative user confirms the removal. 5. The regional administrative user is shown a message confirming the removal.
Postconditions: 1. The aid center is removed from DARA. 2. The local administrative user assigned to that aid center is now unassigned.
Alternative flow(s): CancelRemoval 1. The alternate flow can begin anytime before step 5. 2. The regional administrative user cancels the removal of the selected aid center. 3. The regional administrative user is shown that the aid center has not been removed from the selected disaster region.

Table 12: Use Case - Remove Aid Center



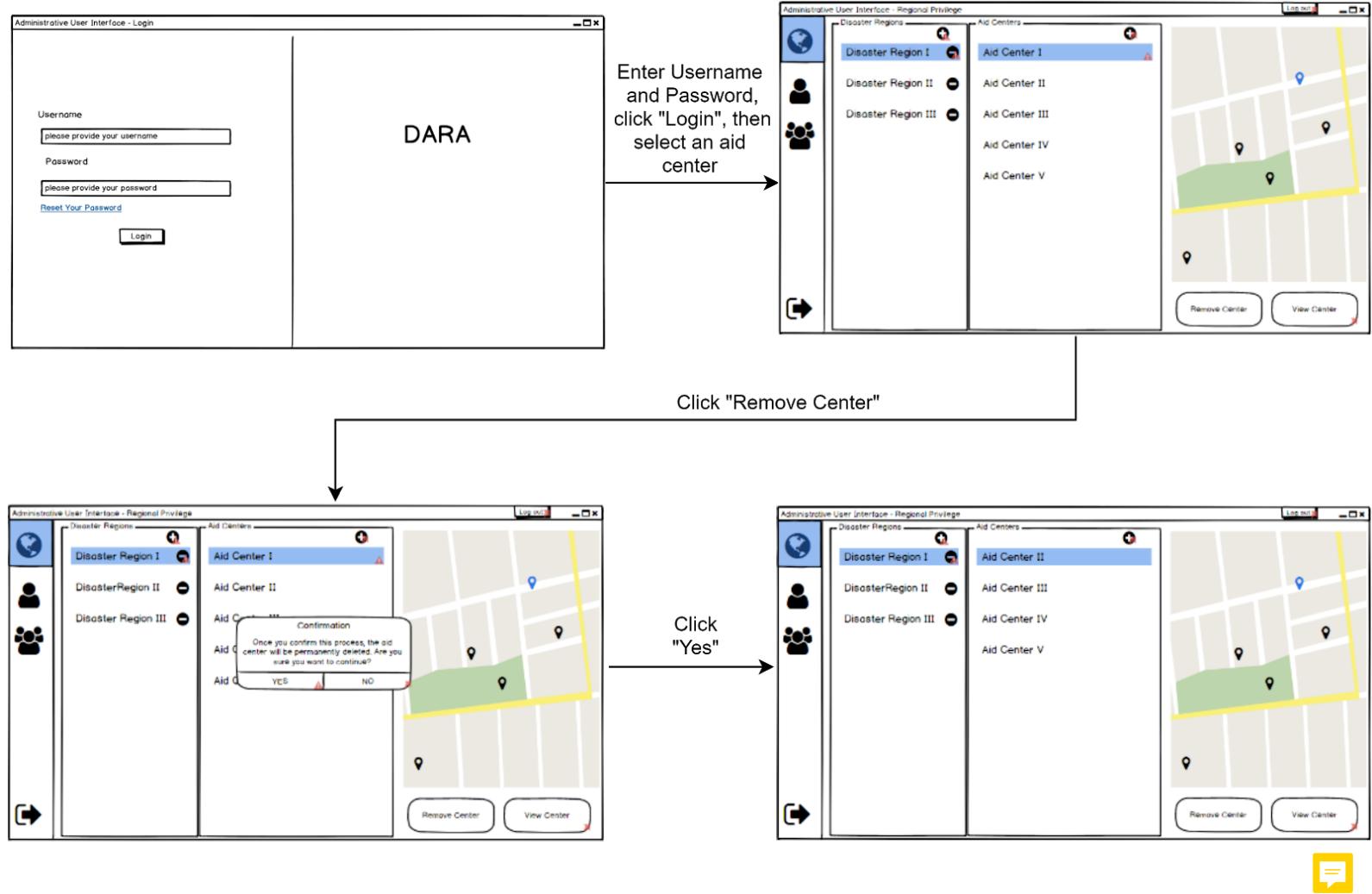


Figure 24: Remove Aid Center Storyboard

Figure 24 showcases a low-fidelity prototype of how each regional administrative user would remove an aid center. The regional administrative user would first log in, then select a disaster region that the respective regional administrative user has regional privileges for. The regional administrative user would then select an aid center within the chosen disaster region. The regional administrative user would then select “Remove Center” on the geographical representation of the disaster region on the right-hand-side of the screen to initiate removing the selected aid center. The regional administrative user would be prompted to confirm the deletion of the selected aid center. After confirmation, the selected aid center would no longer be present in the selected disaster region.

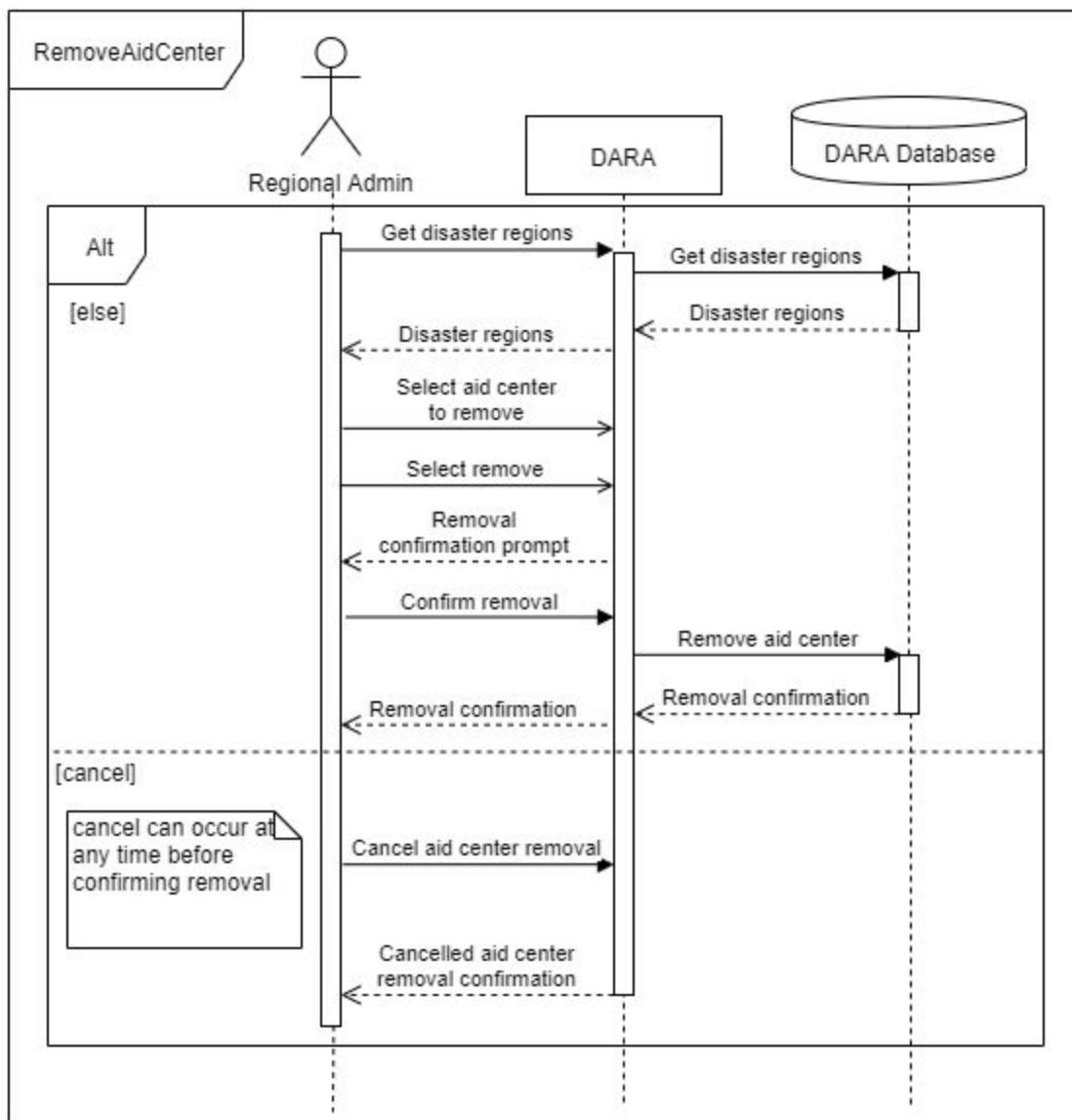


Figure 25: Remove Aid Center Sequence Diagram

7.4.3 Add an Administrative User

Use Case: AddAdministrativeUser

ID: UC-10

Brief description:

1. The regional administrative user adds an administrative user to DARA.

Actor(s):

Regional administrative user

Preconditions:

1. The regional administrative user is logged in DARA.

Main flow:

1. The regional administrative user indicates they would like to add a new administrative user.
2. The regional administrative user is prompted to enter details for the administrative user to be added.
3. The regional administrative user provides the name of the administrative user to be added.
4. **The regional administrative user provides a username for the administrative user to be added.** 
5. While an administrative user with the provided username exists in DARA:
 - 5.1. The regional administrative user is prompted to provide a new username.
 - 5.2. The regional administrative user provides a new username for the administrative user to be added.
6. The regional administrative user provides contact information for the administrative user to be added.
7. If the regional administrative user wants the new administrative user to be a regional administrative user then
 - 7.1. The regional administrative user grants regional privileges to the administrative user to be added.
8. Else
 - 8.1. The regional administrative user grants local privileges to the administrative user to be added.
9. The regional administrative user confirms the entered information.
10. The regional administrative user provides the temporary password to the new administrative user through the provided contact information.

Postconditions:

1. The new administrative user exists in DARA.

Alternative flow(s):

CancelingAddingAdmin

1. The alternative flow begins anytime before step 9. 
2. The regional administrative user cancels the process of adding a new administrative user.
3. The regional administrative user is shown that the new administrative user has not been added to DARA

Table 13: Use Case - Add an Administrative User

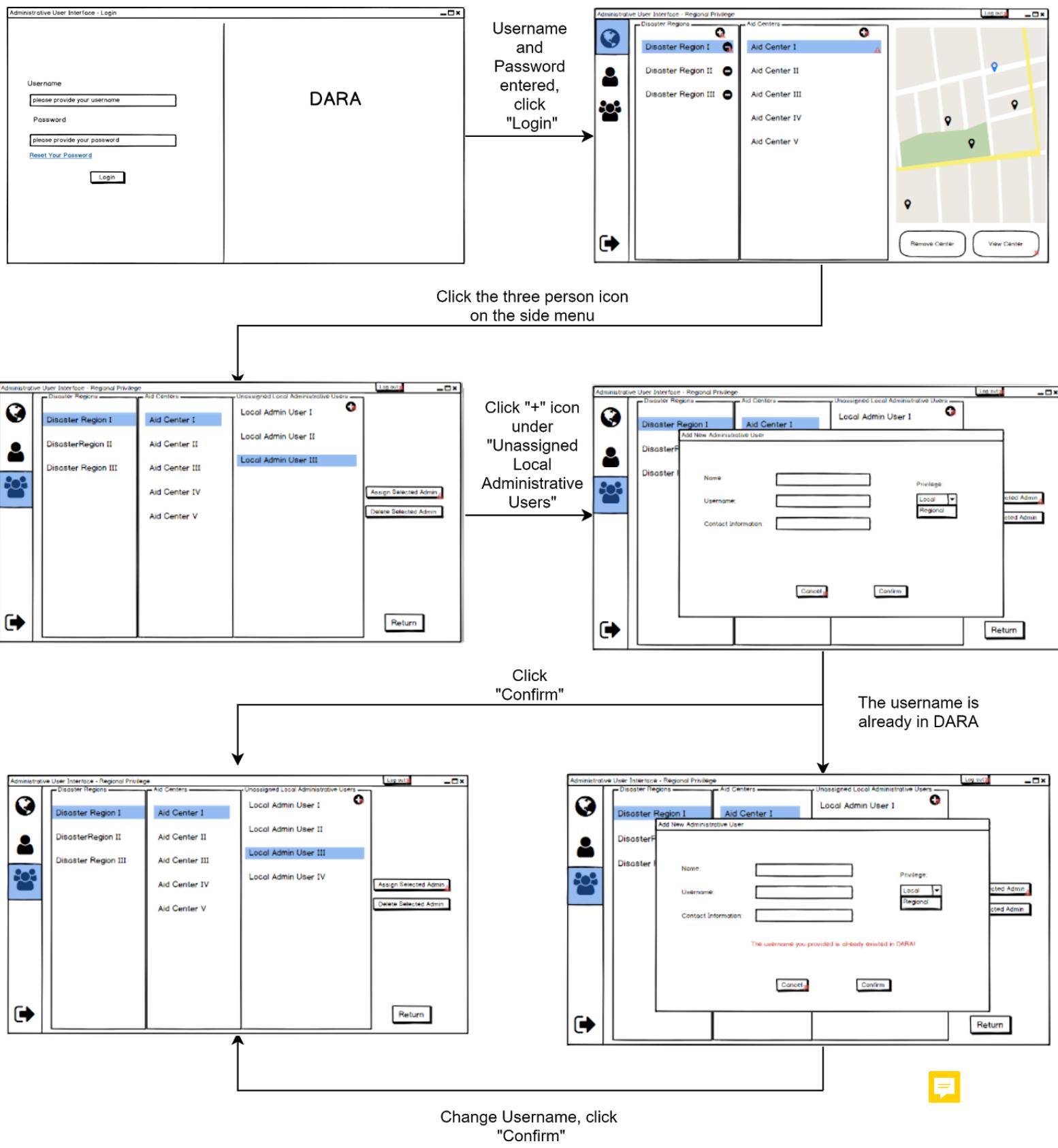


Figure 26 showcases a low-fidelity prototype of how each regional administrative user would add another administrative user to DARA. After logging in, the regional administrative user would navigate to the “Manage Administrative Users” view (represented by a three-person icon in the low-fidelity prototype) through the side menu , and click on the “+” icon under “Unassigned Local Administrative Users” to initiate adding a new administrative user. The regional administrative user would then see a window prompting the regional administrative user to enter a name, username, contact information, and select the privilege type for the new administrative user. While an administrative user with the entered username already exists within DARA, the regional administrative user would be prompted to enter a different username for the new administrative user. If the new administrative user is successfully created and was granted local privileges, the new administrative user would be visible in the list of unassigned local administrative users.

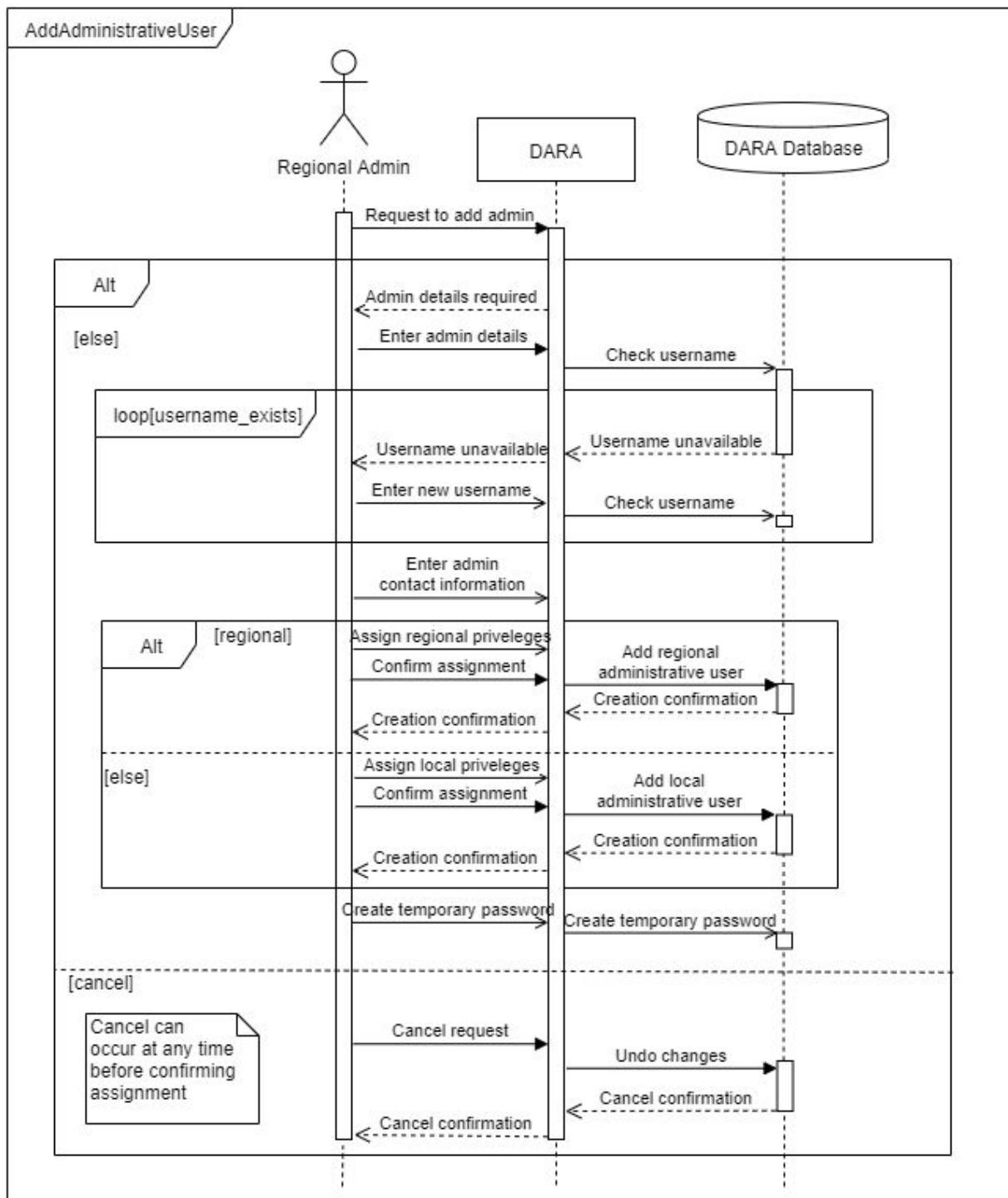


Figure 27: Add Administrative User Sequence Diagram

7.4.4 Assign a Local Administrative User to an Aid Center

Use Case: AssignLocalAdmin

ID: UC-11

Brief description: The regional administrative user assigns an unassigned local administrative user to an aid center in one disaster region the regional administrative user has regional privileges for.
Actor(s): Regional administrative user
Preconditions: 1. The regional administrative user is logged in to DARA. 2. The local administrative user being assigned already exists in DARA.
Main Flow: 1. The regional administrative user indicates they would like to assign an unassigned local administrative user to an aid center. 2. The regional administrative user is prompted to select an unassigned local administrative user to be assigned to an aid center. 3. The regional administrative user selects an unassigned local administrative user. 4. The regional administrative user is prompted to select one disaster region the respective regional administrative user has regional privileges for. 5. The regional administrative user selects one disaster region the respective regional administrative user has regional privileges for.  6. The regional administrative user selects an aid center from the selected disaster region to assign the unassigned local administrative user to. 7. The regional administrative user is notified that the local administrative user currently assigned to that aid center will be unassigned and the currently unassigned local administrative user will be assigned to that aid center. 8. The regional administrative user confirms that they want to assign the unassigned local administrative user to the aid center.
Postconditions: 1. The selected local administrative user is assigned to the aid center selected by the regional administrative user.
Alternative Flow(s): CancelAssignment 1. The alternative flow begins at any time.  2. The regional administrative user cancels the assignment process. 7 b) CancelViaPrompt 7.1 The regional administrative user rejects the prompt. 7.2 The regional administrative user is shown that the local administrative user remains unassigned.

Table 14: Use Case - Assign a Local Administrative User to an Aid Center

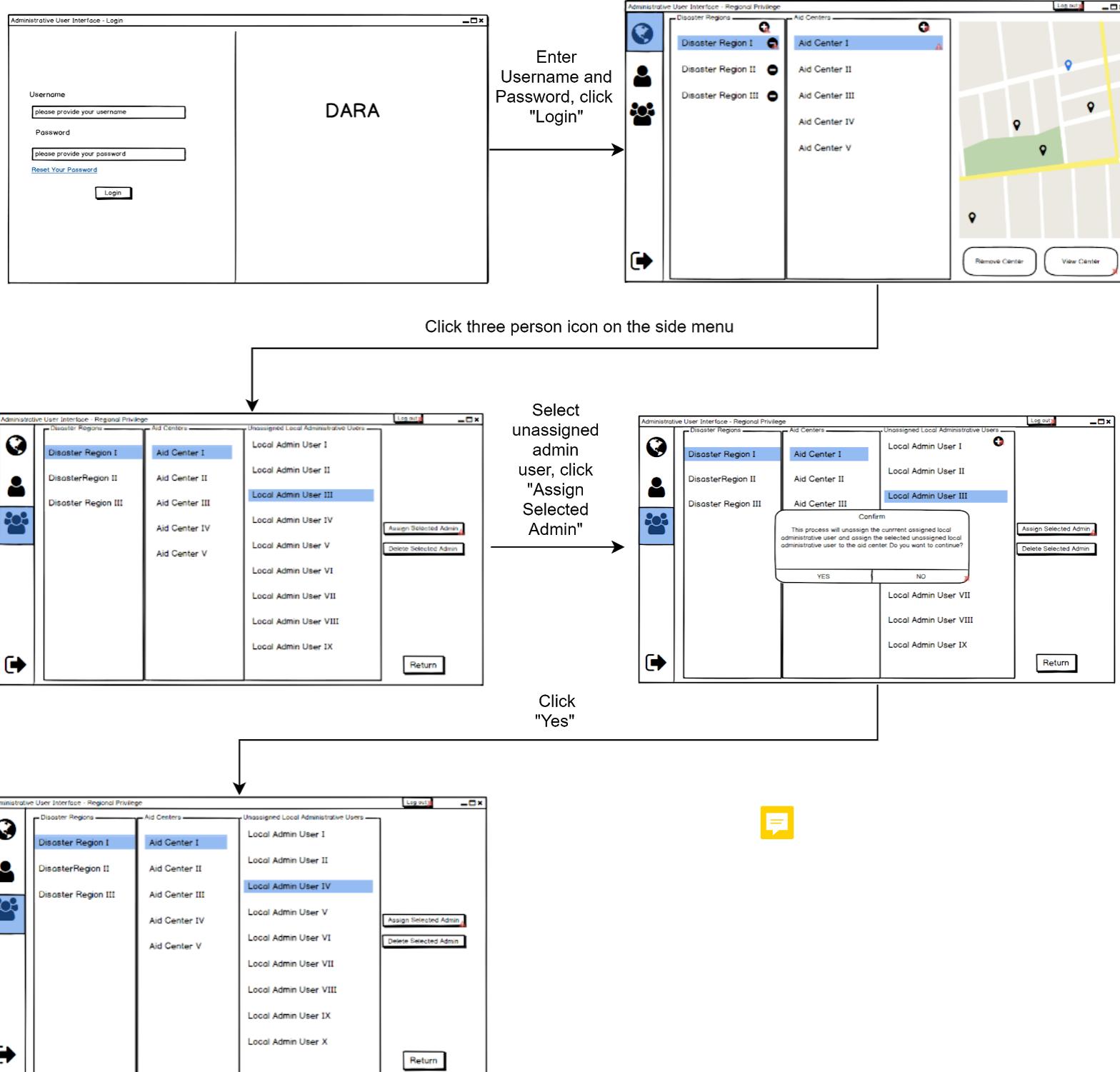


Figure 28: Assign Local Administrative User Storyboard

Figure 28 showcases a low-fidelity prototype of how each regional administrative user would assign a local administrative user to an aid center. After logging in, the regional administrative user would navigate to the “Manage Administrative Users” view (represented in the low-fidelity prototype as a three-person icon) through the side menu, and would then select a disaster region, followed by selecting an aid center from the list on the left-hand side of the screen. The regional administrative user would then select an unassigned local administrative user from the list on the right-hand-side of the screen, select “Assign Selected Admin”, and then select “Confirm” at the prompt. After confirmation, the selected administrative user would become the new assigned local administrative user for the selected aid center and the previously assigned local administrative user would become unassigned.

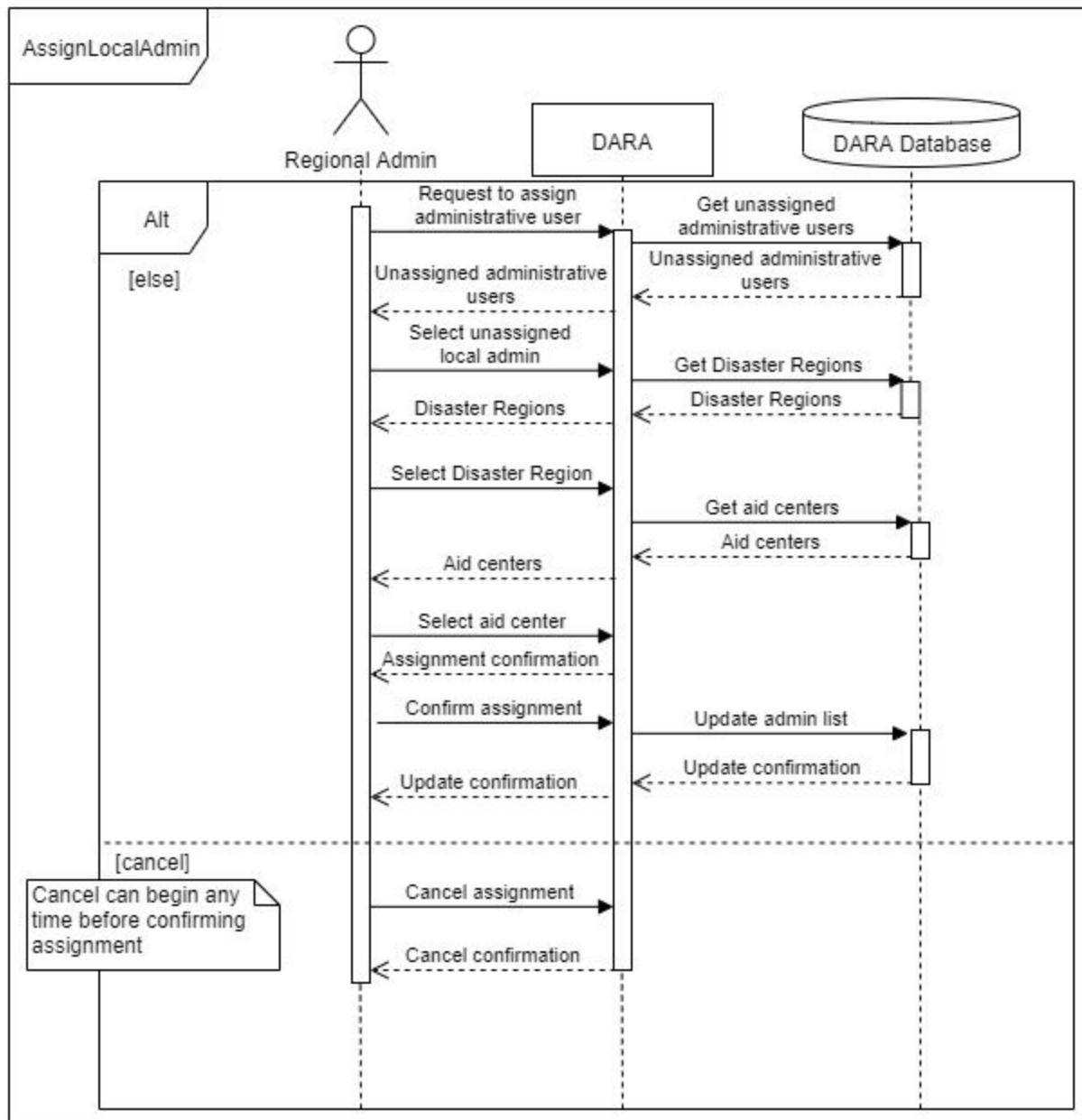


Figure 29: Assign Local Admin Sequence Diagram

7.4.5 Remove a Local Administrative User From DARA

Use Case: RemoveLocalAdmin
ID: UC-12
Brief description: The regional administrative user removes an unassigned local administrative user from DARA.
Actor(s): Regional administrative user
Preconditions: <ol style="list-style-type: none"> 1. The regional administrative user is logged in to DARA. 2. The local administrative user being removed has not been unassigned to each aid center in DARA. 
Main Flow: <ol style="list-style-type: none"> 1. The regional administrative user indicates they would like to manage unassigned local administrative users in DARA. 2. The regional administrative user is prompted to select an unassigned local administrative user. 3. The regional administrative user selects the unassigned local administrative user to remove from DARA. 4. The regional administrative user indicates they would like to remove the selected unassigned local administrative user. 5. The regional administrative user is prompted to confirm the removal of the unassigned local administrative user. 6. The regional administrative user confirms that they want to remove the unassigned local administrative user from DARA.
Postconditions: <ol style="list-style-type: none"> 1. The selected local administrative user is removed from DARA.
Alternative Flow(s): CancelUnassignment <ol style="list-style-type: none"> 1. The alternative flow begins at any time. 2. The regional administrative user cancels the process.  3. The selected local administrative user is not removed from DARA.

Table 15: Use Case - Remove a Local Administrative User

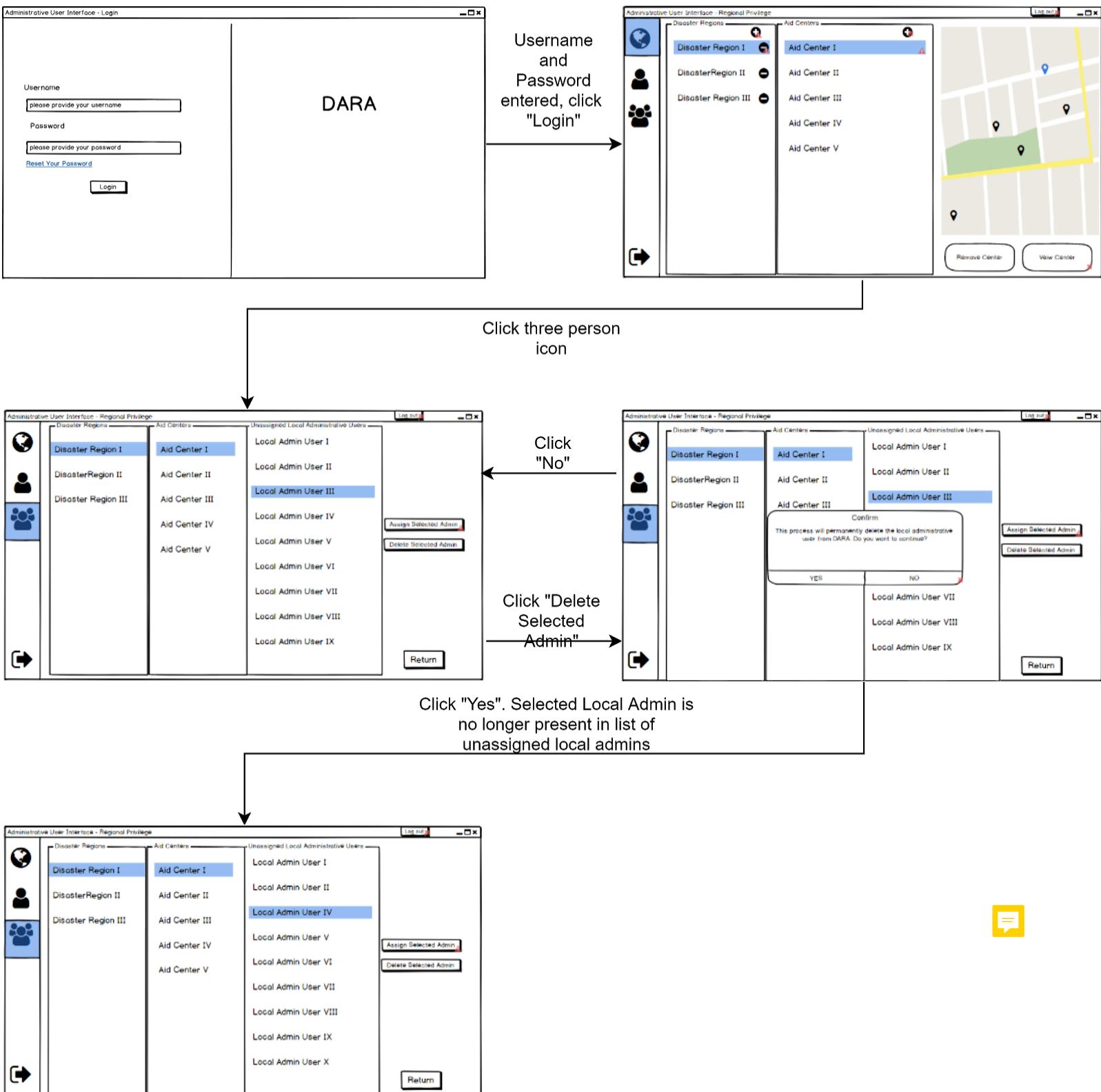


Figure 30: Remove Local Administrative User Storyboard

Figure 30 showcases a low-fidelity prototype of how each regional administrative user would remove an unassigned local administrative user from DARA. After logging in, the regional administrative user would navigate to the “Manage Administrative Users” view (represented by a three-person icon in the low-fidelity prototype) through the side menu, and then select an unassigned local administrative user shown on the right-hand-side of the screen. The regional administrative user would then select “Delete Selected Admin”. The regional administrative user would then select “Confirm” at the prompt. After confirming the removal of the unassigned local administrative user, the selected local administrative user would be removed from DARA.

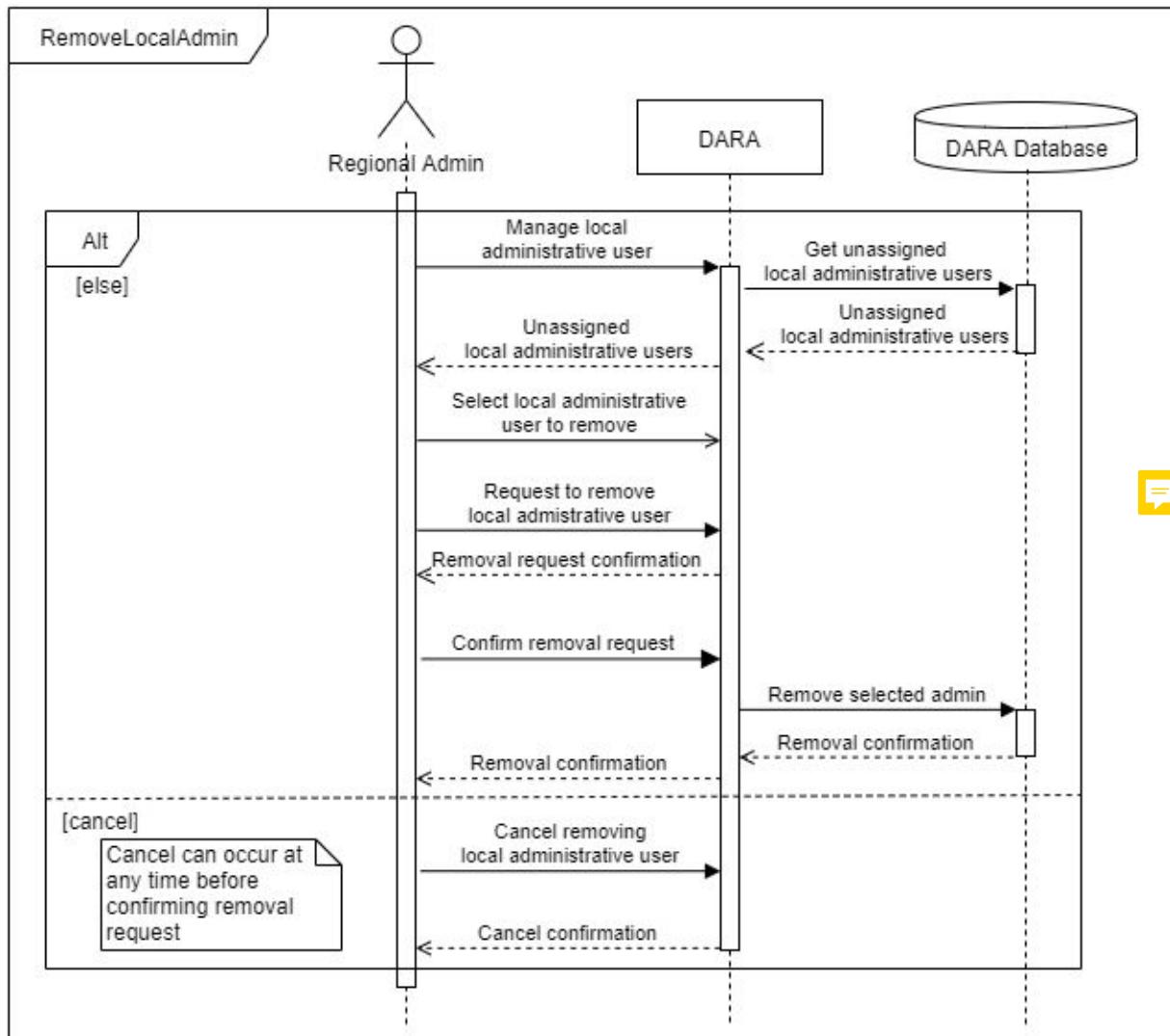


Figure 31: Remove Local Admin Sequence Diagram

7.4.6 Add Disaster Region

Use Case: AddDisasterRegion

ID: UC-13

Brief description: The regional administrative user adds a new disaster region to DARA.
Actor(s): Regional administrative user
Preconditions: 1. The regional administrative user is logged into DARA.
Main Flow: 1. The regional administrative user indicates that they would like to add a new disaster region. 2. The regional administrative user is prompted to provide a name for the new disaster region. 3. While the name of the new disaster region already exists in DARA: 3.1. The regional administrative user is shown an error message stating that the disaster region name already exists. 3.2. The regional administrative user provides a name for the new disaster region. 4. The regional administrative user confirms the creation of the new disaster region.
Postconditions: 1. The new disaster region is added to DARA. 2. Aid center entries can now be added to the listing of aid centers for the new disaster region.
Alternative Flow(s): Cancel adding disaster region. 1. This alternative flow begins at any step before step 4. 2. The regional administrative user chooses to cancel adding a new disaster region. 3. The new disaster region is not added to DARA.

Table 16: Use Case - Add Disaster Region



Figure 32: Add New Disaster Region Storyboard

Figure 32 showcases a low-fidelity prototype of how each regional administrative user would add a new disaster region to DARA. After logging in, the regional administrative user would select “+” under “Disaster Regions” to begin adding a new disaster region. While a disaster region with the entered name already exists within DARA, the regional administrative user would be prompted to enter a name for the new disaster region. Upon successfully entering a disaster region name that is not already present in

DARA and selecting “Confirm”, the regional administrative user would be able to see the new disaster region present under the list of ‘Disaster Regions’.

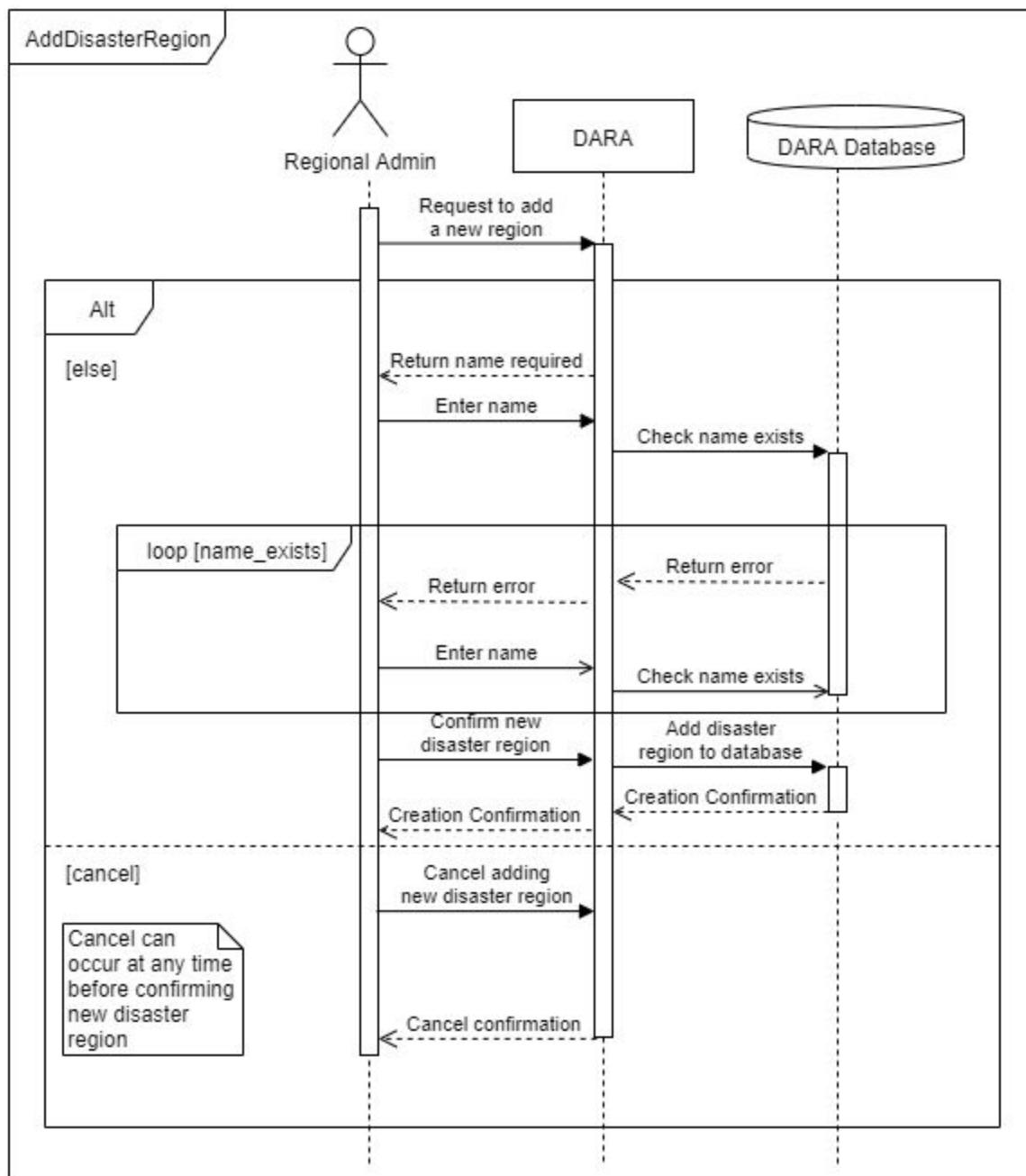


Figure 33: Add Disaster Region Sequence Diagram

7.4.7 Remove Disaster Region

Use Case: RemoveDisasterRegion

ID: UC-14

Brief description: The regional administrative user removes a disaster region from DARA.
Actor(s): Regional administrative user
Preconditions: <ol style="list-style-type: none"> 1. The regional administrative user is logged in to DARA. 2. The regional administrative user has regional privileges for the disaster region.
Main Flow: <ol style="list-style-type: none"> 1. The regional administrative user is shown each disaster region they have regional privileges for. 2. The regional administrative user selects a disaster region they would like to remove. 3. The regional administrative user removes the disaster region. 4. The regional administrative user is prompted to confirm the removal of the disaster region. 5. The regional administrative user confirms that they want to remove the disaster region
Postconditions: <ol style="list-style-type: none"> 1. The disaster region no longer exists in DARA. 2. Each aid center within the disaster region no longer exists in DARA.
Alternative Flow(s): CancelRemovingDisasterRegion <ol style="list-style-type: none"> 1. This alternative flow begins anytime before step 4. 2. The regional administrative user chooses to cancel removing a disaster region. 3. The regional administrative user is shown each disaster region that the regional administrative user has regional privileges for. 4. The disaster region has not been removed.

Table 17: Use Case - Remove Disaster Region



Figure 34: Remove Disaster Region Storyboard

Figure 34 showcases a low-fidelity prototype of how each regional administrative user would remove a disaster region that the respective regional administrative user has regional privileges for. After logging in, the regional administrative user would select “-” next to the disaster region under “Disaster Regions” in order to initiate removing that disaster region. The regional administrative user would then be prompted to confirm the removal. After confirmation, the disaster region and each aid center within that disaster region would be removed from DARA, and the regional administrative user would no longer be able to view the disaster region.

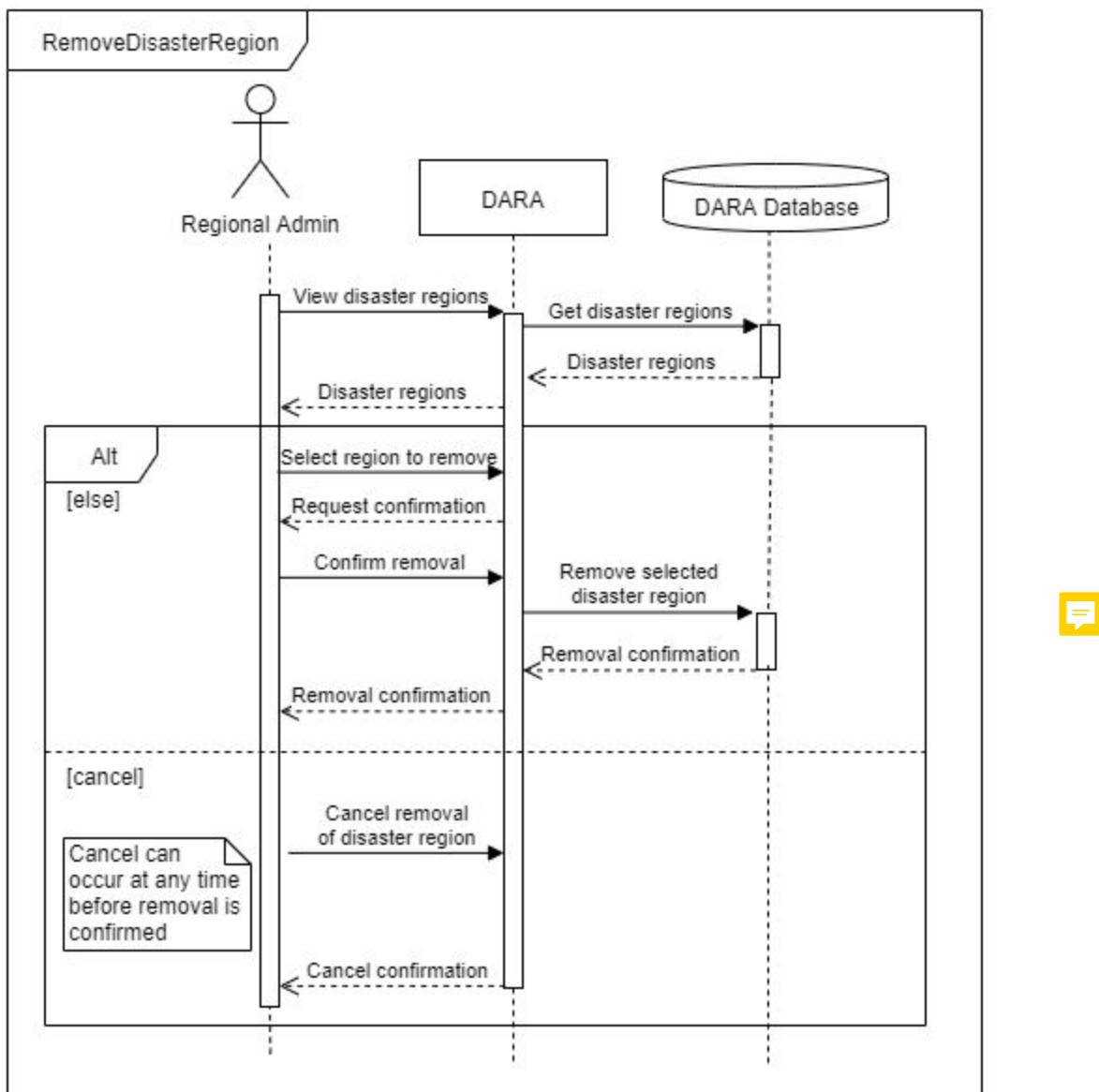


Figure 35: Remove Disaster Region Sequence Diagram

7.4.8 View Assigned Local Administrative Users



Use Case: ViewAssignedLocal

ID: UC-18



Brief description:

The regional administrative user views the assigned local administrative users.

Actor(s):

Regional administrative user

Preconditions:

1. The regional administrative user is logged in to DARA.
2. The regional administrative user has regional privileges for the disaster region.

Main Flow:

1. The regional administrative user indicates they would like to view each local administrative user assigned to each aid center.
2. The regional administrative user is shown each local administrative user assigned to each aid center within each disaster region that regional administrative user has regional privileges for

Postconditions:

1. The local administrative user assigned to each aid center is visible to the regional administrative user.

Alternative Flow(s):

None.

Table 18: Use Case - View Assigned Local Administrative User



Figure 36: View Assigned Local Administrative Users Storyboard

Figure 36 showcases a low-fidelity prototype of how each regional administrative user would view each local administrative user assigned to each aid center within each disaster region that regional

administrative user has regional privileges for. After logging in, the regional administrative user would select the “View Local Administrative Users” view (represented by a single-person icon in the low-fidelity prototype) from the left-hand-side menu. The regional administrative user can then see the list of assigned local administrative users.

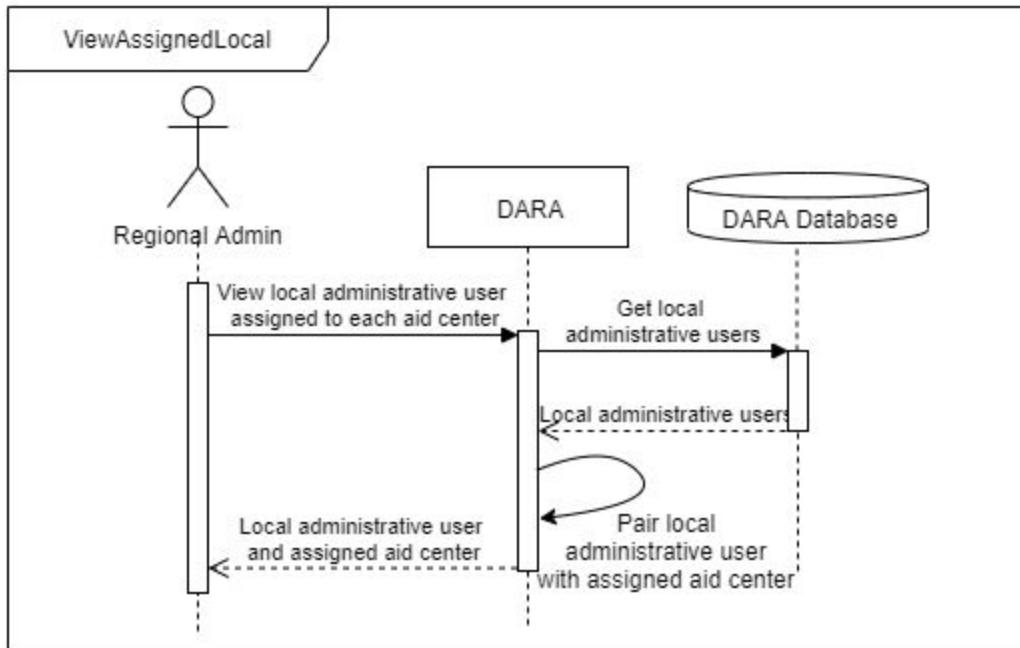


Figure 37: View Assigned Local Sequence Diagram

8 Diagrams



8.1 ER Diagram

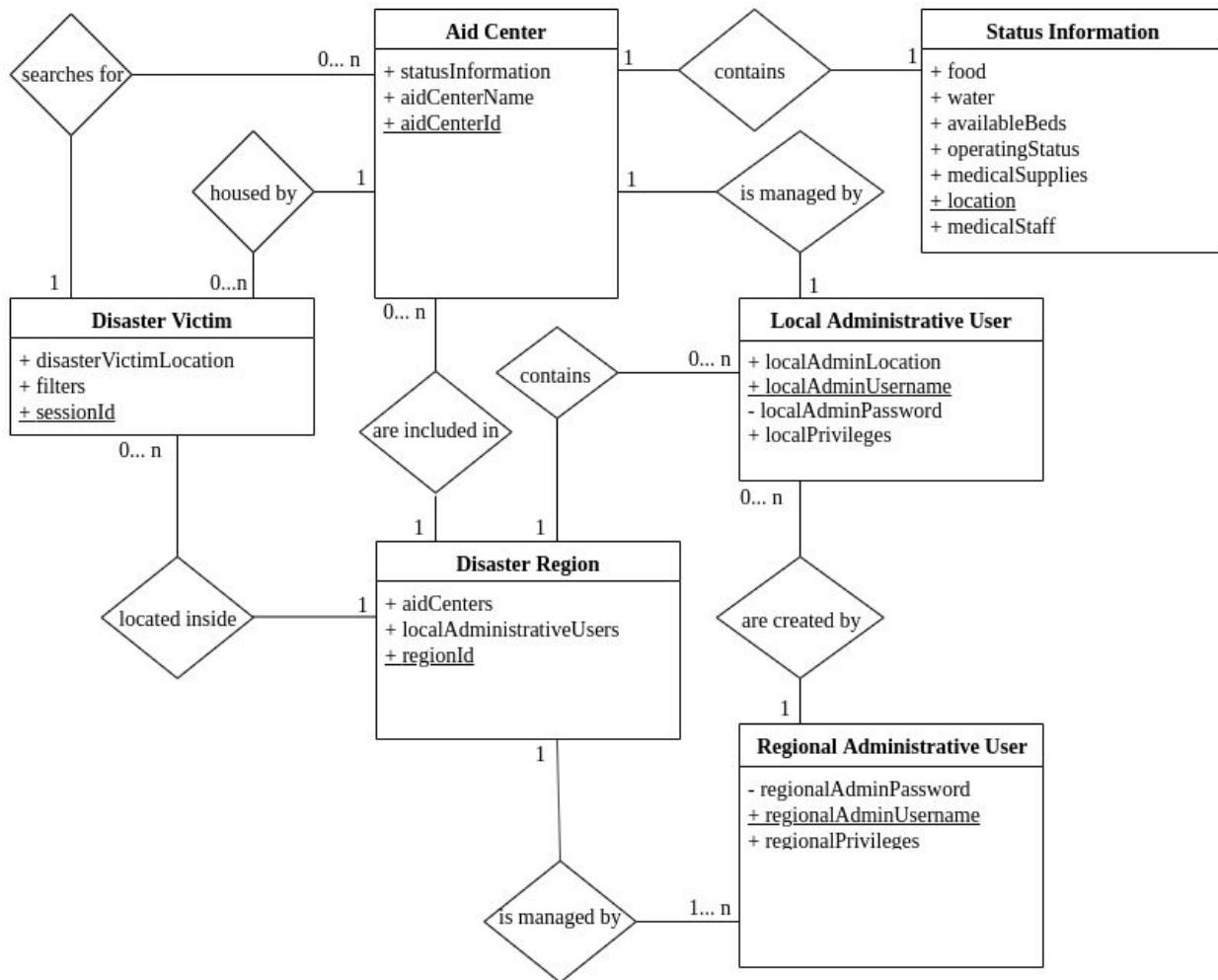


Figure 38: ER diagram in Yourdon notation

8.2 Data Dictionary



Attribute Name	Attribute Description	Attribute Type	Primary Key
Aid Center			
aidCenterId	A unique identifier for each aid center registered in DARA.	String	Yes
aidCenterName	The name associated with each aid center.	String	No

statusInformation	Consists of food, water, availableBeds, operatingStatus, medicalSupplies, location, and medicalStaff	Object	No
Disaster Region			
aidCenters	A list of every aid center contained within each disaster region.	List of strings	No
localAdministrativeUsers	A list of each local administrative user that has privileges within the disaster region.	List of strings	No
regionID	A unique identifier for each disaster region created within DARA.	String	Yes
Disaster Victim			
disasterVictimLocation	The geographical location of each disaster victim.	Object	No
filters	A set of status information criteria that define which aid centers are visible to the disaster victim who has set the filters.	Object	No
sessionId	A unique identifier for each disaster victim's session when the disaster victim connects to DARA.	String	Yes
Local Administrative User			
localPrivileges	The identifier for which aid center the local administrative user is able to update status information.	String	No
localAdminLocation	The geographical location of each local administrative user.	Object	No
localAdminPassword	The secure alphanumeric string used by each local administrative user to authenticate to DARA.	String	No
localAdminUsername	The unique alphanumeric identifier used by each local administrative user to authenticate to DARA.	String	Yes
Regional Administrative User			
regionalPrivileges	The identifier for which regions the regional administrative user can make changes to.	String	No

regionalAdminPassword	The secure alphanumeric string used by each regional administrative user to authenticate to DARA.	String	No
regionalAdminUsername	The unique alphanumeric identifier used by each regional administrative user to authenticate to DARA.	String	Yes
Status Information			
food	The amount of food each aid center has available to distribute to each disaster victim.	Int	No
location	The geographical location of each aid center.	Object	Yes
medicalStaff	The type and general availability of different medical staff at each aid center.	Int	No
medicalSupplies	The amount of medical supplies each aid center has available to distribute to each disaster victim.	Int	No
operatingStatus	An indicator of whether each aid center is accepting new disaster victims or not.	Boolean	No
water	The amount of water each aid center has available to distribute to each disaster victim.	Int	No

Table 19: Data dictionary for ER diagram

8.3 DFD level 0

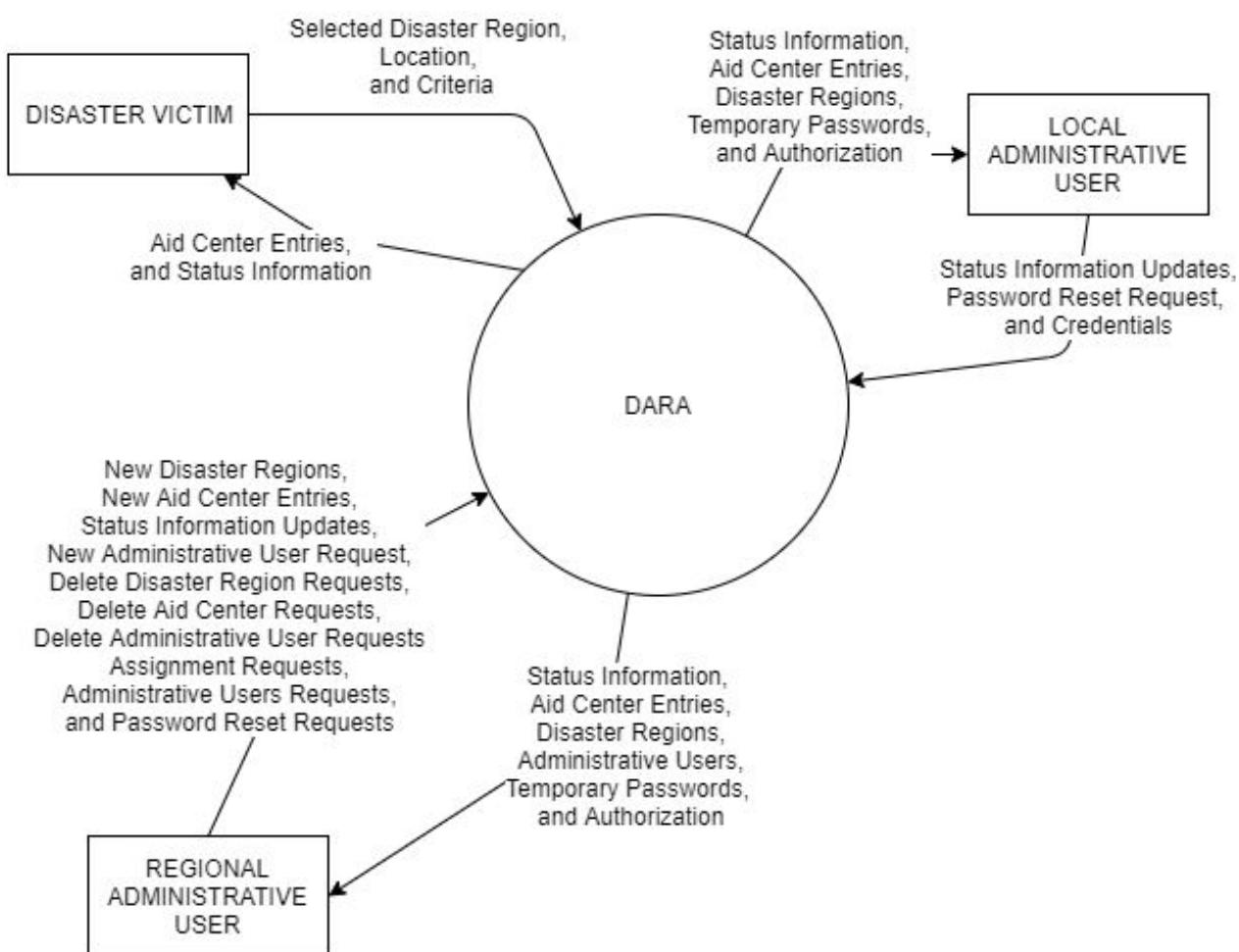


Figure 39: DFD level 0

8.4 DFD level 1

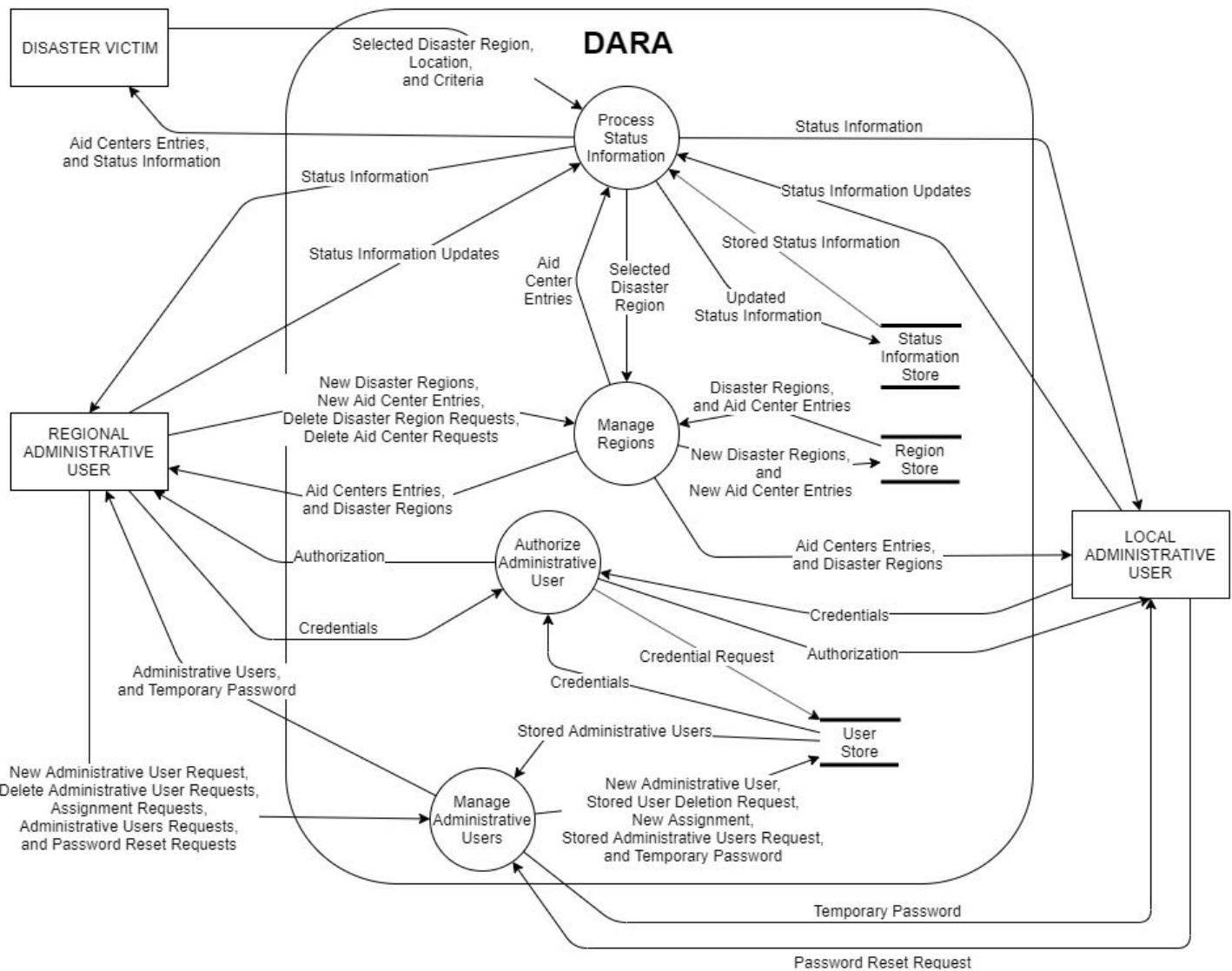


Figure 40: DFD level 1

8.5 DFD level 2

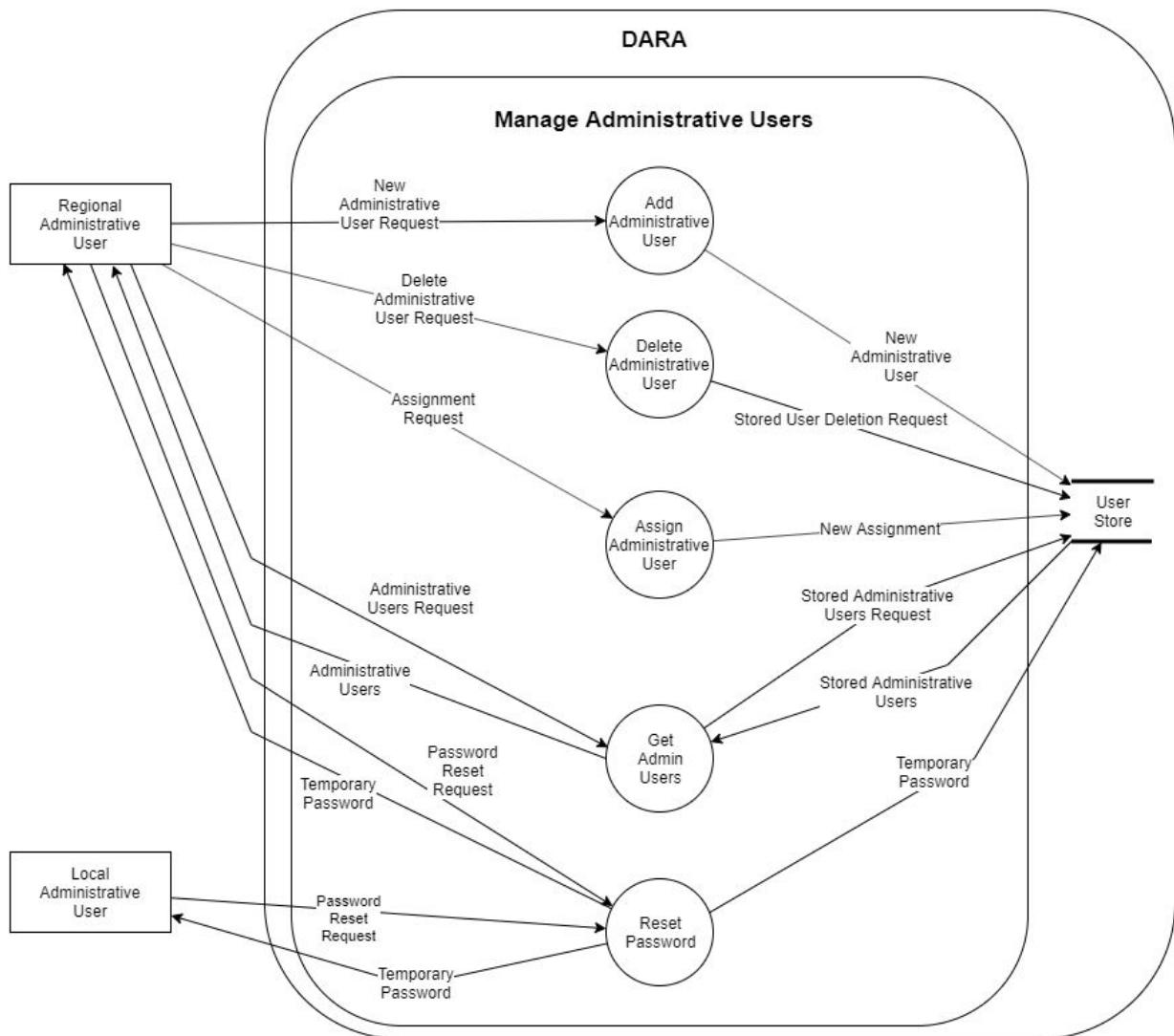


Figure 41: DFD level 2

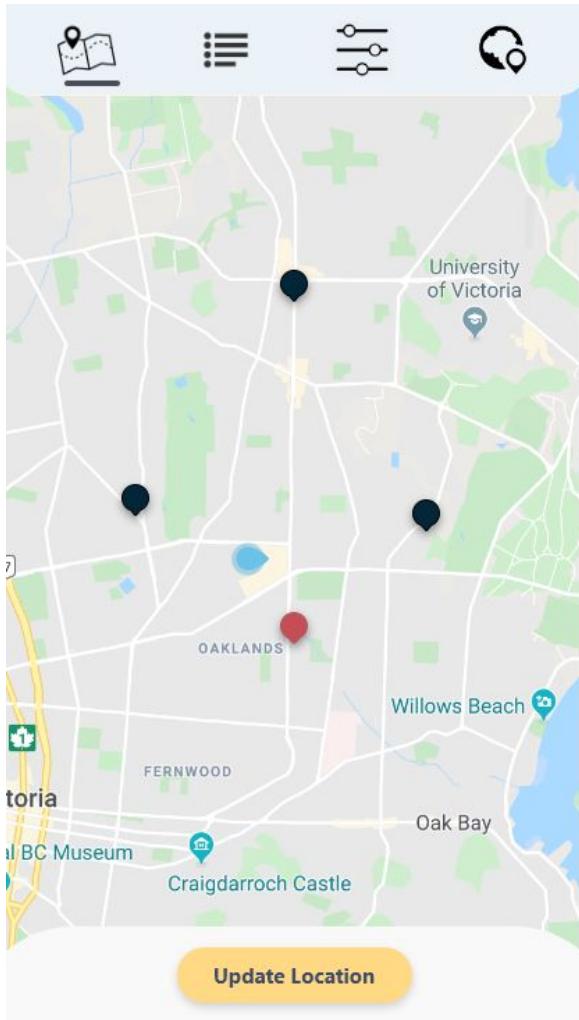
9 User Interface Models

The high fidelity user interface models cover each use case and alternate flow as shown in the storyboards. Pop-up windows are listed below the interface they will overlay in some use cases. The models can be viewed as an interactive prototype at the link below:

<https://xd.adobe.com/view/b81fe32d-5217-4e8f-710d-8510f4e18b94-ce2e/>



9.1 Map View



9.2 Update User Location

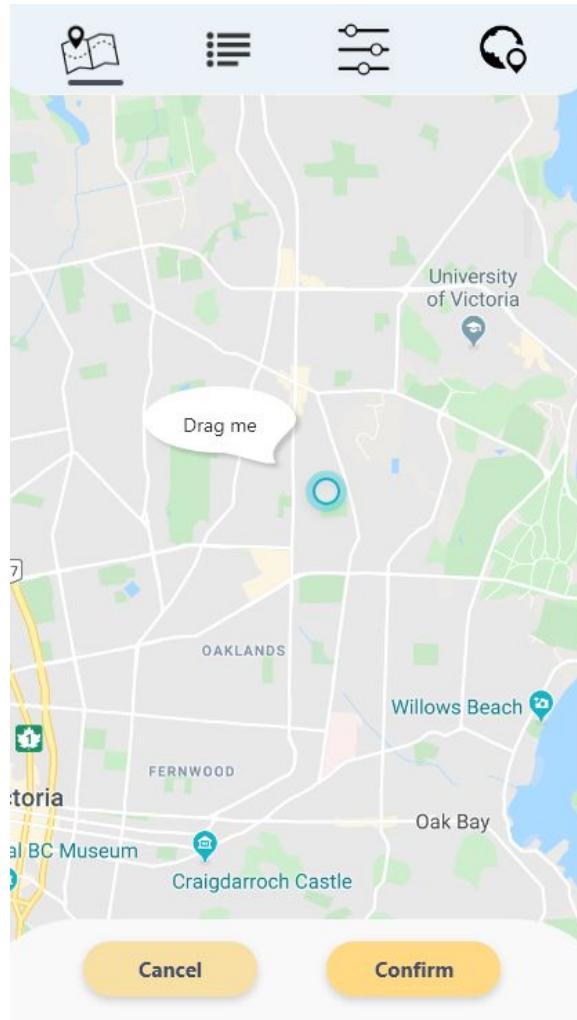


Figure 42: Map View

Figure 43: Update User Location

9.3 Aid Center Selected

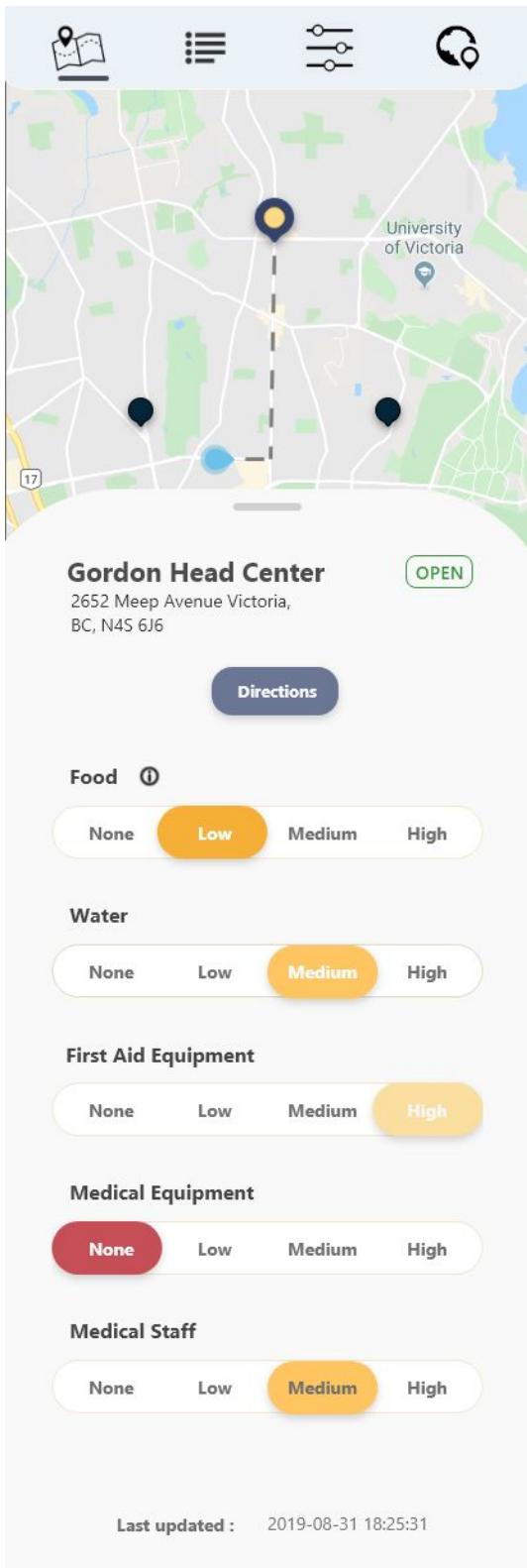


Figure 44: Aid Center Selected

9.4 List View

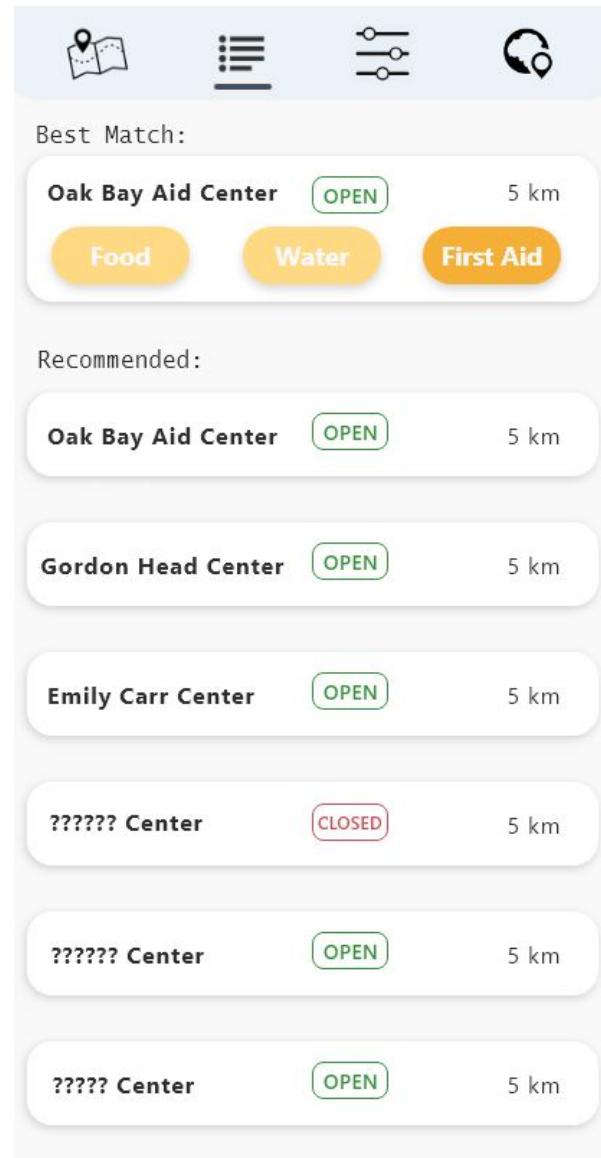


Figure 45: List View

9.5 Filter Selection

The interface includes the following filter options:

- Minimum Supplies:** A yellow circular button with a refresh icon.
- Food:** A slider from None to High. The 'None' position is selected.
- Water:** A slider from None to High. The 'None' position is selected.
- First Aid Equipment:** A slider from None to High. The 'Low' position is selected.
- Medical Equipment:** A slider from None to High. The 'Medium' position is selected.
- Medical Staff:** A slider from None to High. The 'Low' position is selected.
- Display:** Buttons for 'Open' (dark blue) and 'Closed' (light blue).
- In The Radius:** A text input field containing '100 Km'.
- Buttons:** 'Cancel' and 'Confirm' at the bottom.

Figure 46: Filter Selection

9.6 Region Selection

The interface includes the following region selection components:

- Disaster Region:** A map showing several disaster regions in orange, including 'A Place', 'Millstream', and 'Sidney'. A callout indicates the current region is 'Saanich'.
- Text:** 'Tap a disaster region or search below'.
- Country:** A dropdown menu set to 'Canada'.
- Province:** A dropdown menu set to 'BC'.
- Region:** A dropdown menu set to 'Saanich'.
- Buttons:** 'Cancel' and 'Apply' at the bottom.

Figure 47: Region Selection

9.7 Administrator Login

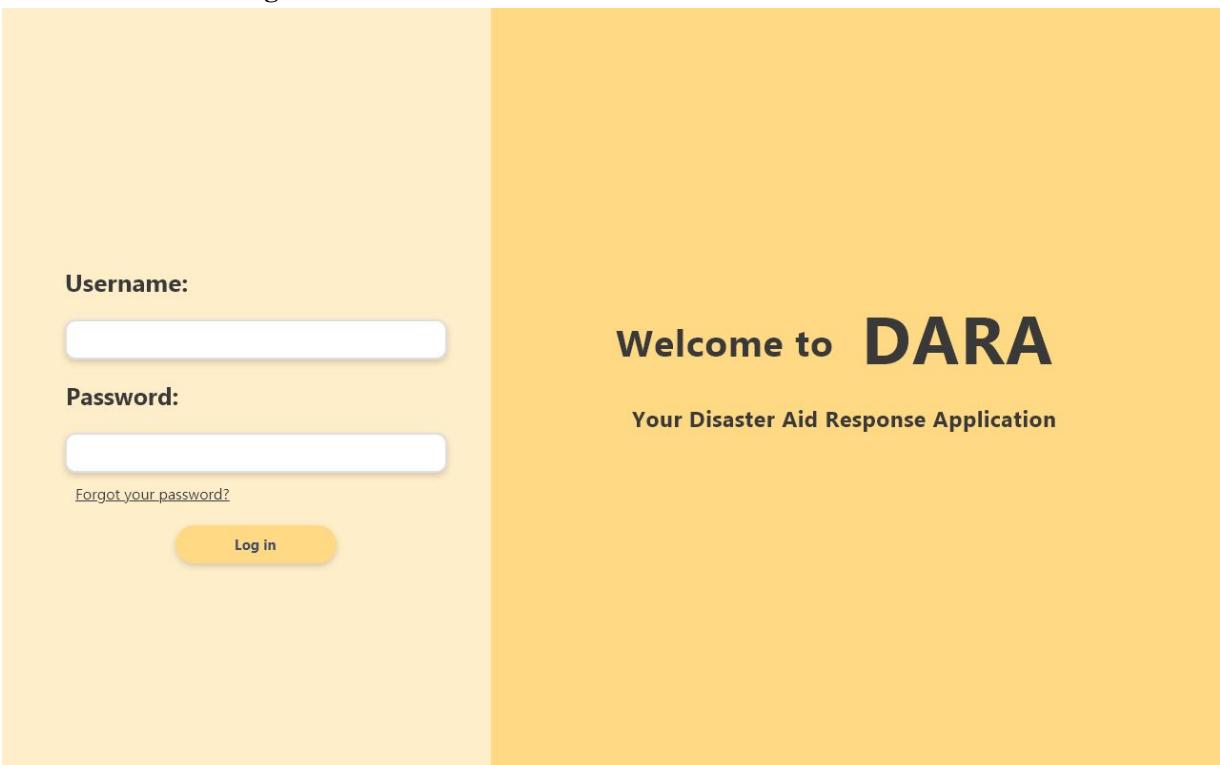


Figure 48: Administrator Login

9.7.1 Reset Password Request

A rounded rectangular form titled "Password Reset Request". It contains two input fields: "Please provide your username:" and "Please provide your contact information:". At the bottom are two yellow buttons, "Cancel" and "Confirm".

Figure 49: Reset Password Request

9.7.2 Reset Password

A rounded rectangular form titled "Password Reset". It contains two input fields: "Please provide your new password:" and "Confirm the new password:". At the bottom are two yellow buttons, "Cancel" and "Confirm".

Figure 50: Reset Password

9.7.3 Incorrect Login Credentials

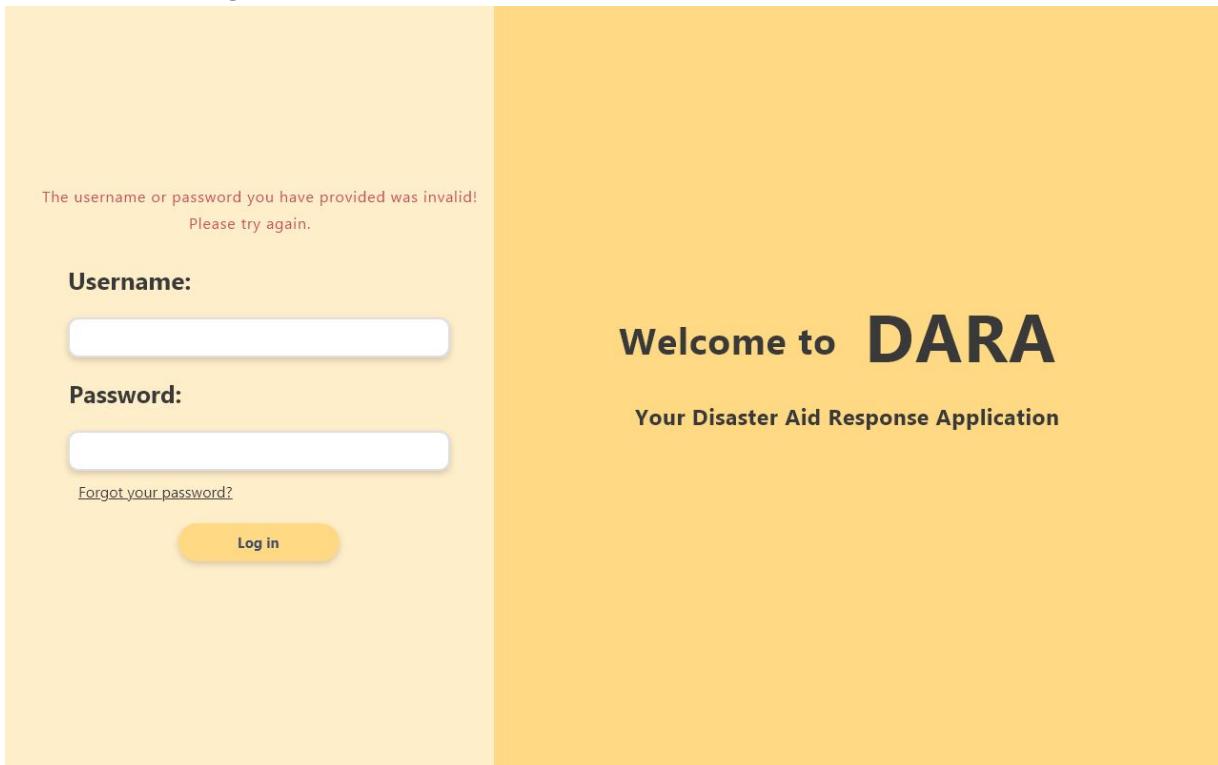


Figure 51 Incorrect Login Credentials

9.8 Aid Center View (Local Administrator)

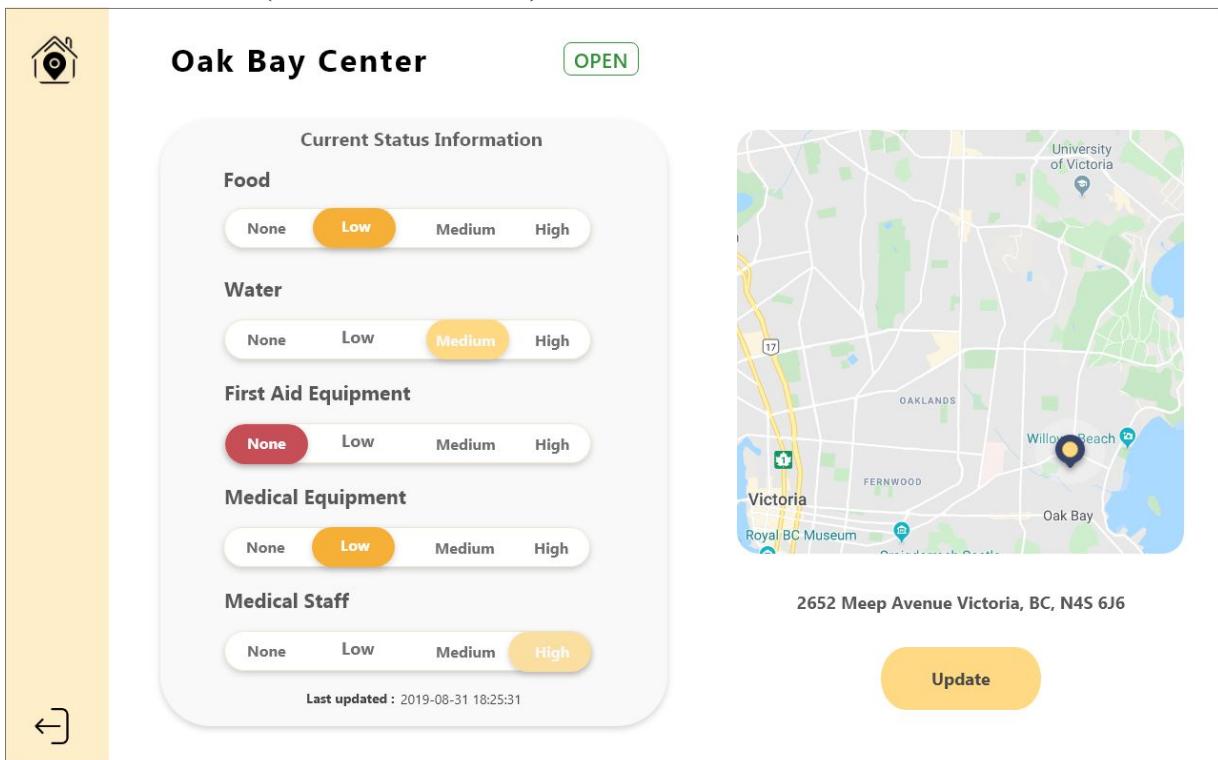


Figure 52: Aid Center View (Local Administrator)

9.9 Aid Center View (Regional Administrator)

The screenshot shows the Aid Center View for the Oak Bay Center, as indicated by the title at the top left. A green "OPEN" button is positioned to the right of the title. On the far left, there is a vertical yellow sidebar containing three icons: a magnifying glass, a user group, and a gear. At the bottom of this sidebar is a back arrow icon.

Current Status Information

Food
None **Low** Medium High

Water
None Low **Medium** High

First Aid Equipment
None **Low** Medium High

Medical Equipment
None **Low** Medium High

Medical Staff
None Low **Medium** High

Last updated : 2019-08-31 18:25:31

A map on the right side shows the location of the aid center, marked with a blue dot at Willow Beach, Victoria, BC, N4S 6J6. The map also displays surrounding areas like OAKLANDS, FERNWOOD, and Oak Bay, along with roads and landmarks like the Royal BC Museum.

2652 Meep Avenue Victoria, BC, N4S 6J6

Update **Return**

Figure 53: Aid Center View (Regional Administrator)

9.9.1 Edit Aid Center Status information

The screenshot shows the 'Edit Aid Center Status Information' interface for the 'Oak Bay Center'. On the left, there is a vertical navigation bar with icons for globe, users, and settings, and a back arrow at the bottom.

Oak Bay Center

Current Status Information

- Food**: A slider from 'None' to 'High'. The current value is 'Low'.
- Water**: A slider from 'None' to 'High'. The current value is 'Medium'.
- First Aid Equipment**: A slider from 'None' to 'High'. The current value is 'Low'.
- Medical Equipment**: A slider from 'None' to 'High'. The current value is 'Low'.
- Medical Staff**: A slider from 'None' to 'High'. The current value is 'Medium'.

Map: A map of Victoria, BC, showing the location of Oak Bay Center (marked with a yellow dot) and other landmarks like Willow Beach, Royal BC Museum, and University of Victoria.

Address: 2652 Meep Avenue Victoria, BC, N4S 6J6

Buttons:

Figure 54: Edit Aid Center Status Information

9.10 Aid Center List

The screenshot shows the 'Aid Center List' interface. On the left, there is a vertical navigation bar with icons for globe, users, and settings, and a back arrow at the bottom.

Disaster Regions

- Saanich
- Sidney
- Millstream

Aid Centers

- Gordon Head Center
- Gordon Head Center
- Gordon Head Center
- Oak Bay Center
- Gordon Head Center
- Gordon Head Center
- Gordon Head Center

Region Map: A map of Victoria, BC, showing the locations of various aid centers marked with colored dots (black, red, blue, yellow).

Buttons:

Figure 55: Aid Center List

9.10.1 Create Disaster Region Pop-up

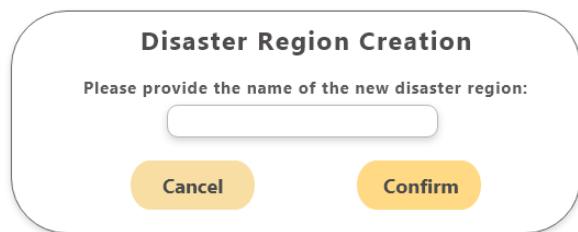


Figure 56: Create Disaster Region

9.10.2 Delete Disaster Region Pop-up

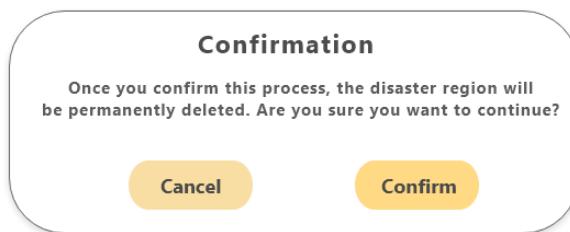


Figure 57: Delete Disaster Region

9.10.2 Create Aid Center Pop-up

A detailed rounded rectangular pop-up window titled "Aid Center Creation". It includes fields for "Address" and "Name", a "Status" dropdown set to "OPEN", and a "Select a Local Administrator" dropdown containing "Philip Payne", "Frieda Garcia", and "Barbara Staton", with a "New Admin" button. On the left, there are five sliders for resource levels: Food (Low), Water (Low), First Aid Equipment (Medium), Medical Equipment (None), and Medical Staff (High). Below the sliders are yellow "Cancel" and "Confirm" buttons.

Figure 58: Create Aid Center

9.10.2 Delete Aid Center Pop-up

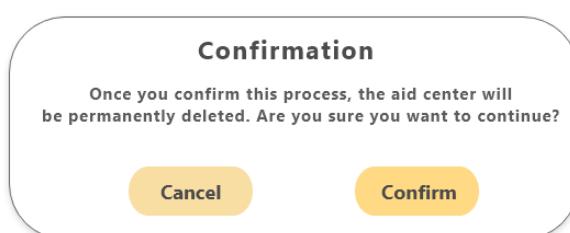


Figure 59: Delete Aid Center

9.11 Unassigned Local Administrator Management

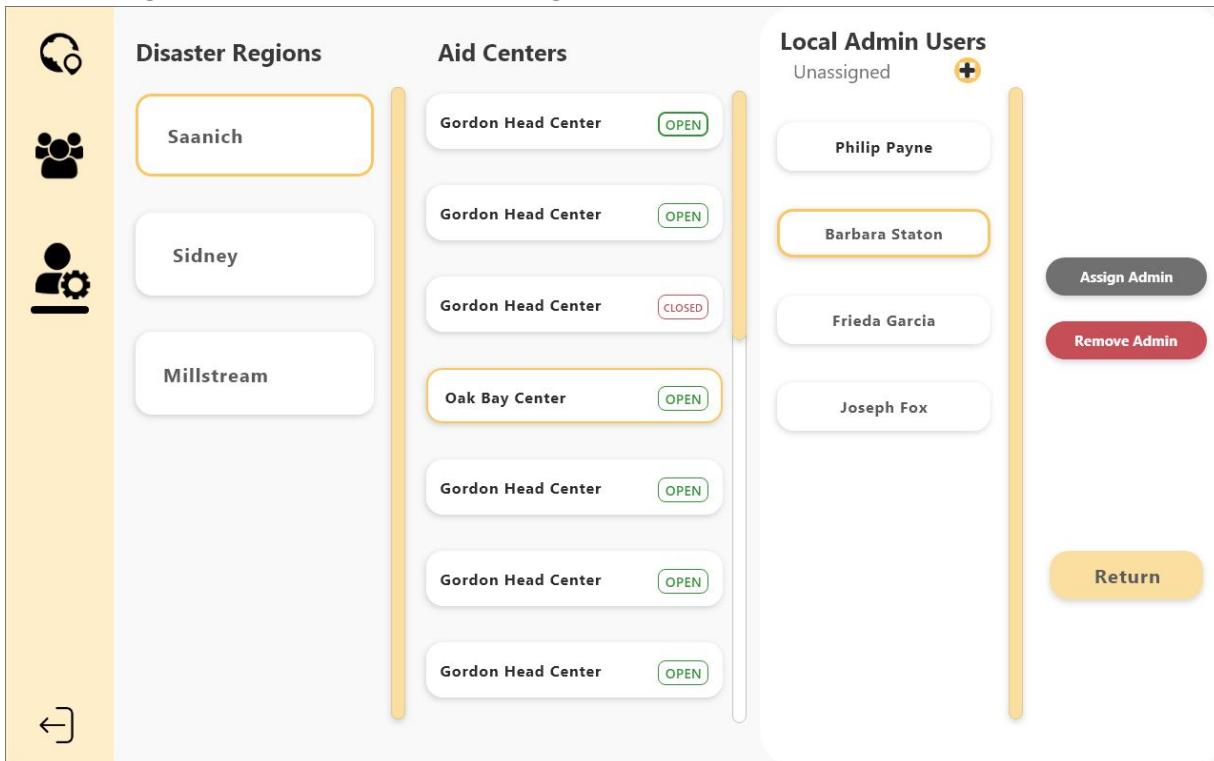


Figure 60: Unassigned Local Administrator Management

9.11.1 Assign Local Administrator Pop-up

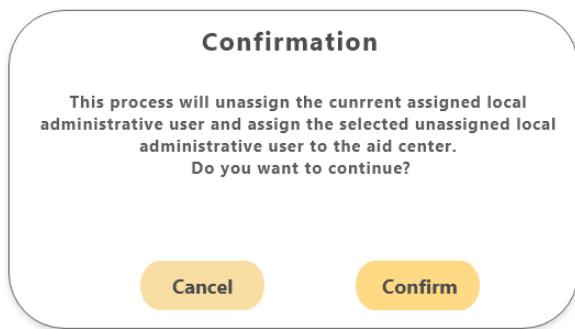


Figure 61: Assign Local Administrator

9.11.2 Delete Local Administrator Pop-up

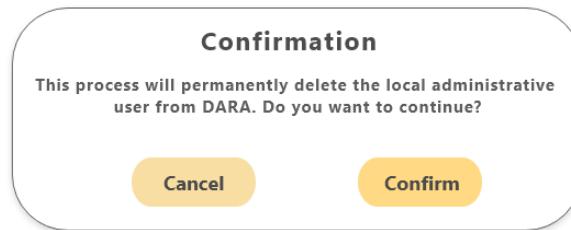


Figure 62: Delete Local Administrator

9.11.3 Create New Administrative User Pop-up

New Administrator

Name:

Username: Privilege: Local ▾

Contact Info:

Cancel **Confirm**

Figure 63: Create New Administrative User

9.11.4 Create New Administrative User (Error)

New Administrator

Name:

Username: Privilege: Local ▾

Contact Info:

The username you provided is already existed in DARA!

Cancel **Confirm**

Figure 64: Create New Administrative User Error

9.12 Assigned Local Administrator View

Disaster Regions		Aid Centers	Local Admin Users
Saanich		Gordon Head Center OPEN	Philip Payne
Sidney		Gordon Head Center OPEN	Barbara Staton
Millstream		Gordon Head Center CLOSED	Frieda Garcia
		Oak Bay Center OPEN	Joseph Fox
		Gordon Head Center OPEN	Joseph Fox
		Gordon Head Center OPEN	Joseph Fox
		Gordon Head Center OPEN	Joseph Fox

Assigned

Sort By: Aid Center ▾

Return

Figure 65: Assigned Local Administrator View

Appendix: Issues List

A1: Elicitation Clarification

A-1: DARA will not “find relevant information” [1] about a disaster. It was confirmed during the elicitation meeting that information about a disaster will be provided by an external government organization [2]. Additionally the provided information will not be distributed, see A-2.

A-2: DARA will not distribute information about an incoming or outgoing disaster. It was confirmed during the elicitation that information about a disaster will be distributed by a government organization, and not by DARA [2].

A-3: DARA will not have a unique interface for “disaster response communication centres” [1]. It was confirmed during the elicitation meeting that an administrative user, not an external center, will be responsible for manually updating the status information [2].

A-4: AidConnect does not have a budget for this project [2].

A-5: DARA will not use or create an additional network to deliver users information when primary networks are not available. It was confirmed during elicitation that a distributed network (aside from the primary network) was out of scope for this project [2].

A-6: AidConnect stated during the second client meeting that each disaster victim is expected to access DARA multiple times an hour while on the way to an aid center, and not at all once at an aid center [2].

A-7: AidConnect stated during the client meeting that the change of scope concerning an additional network (A-5) means that the priority of the network requirements is now medium [2].

A-8: Each disaster victim must be able to manually provide their location to DARA. This information is not included in “status information” [2].