United States Natural Disaster Service

Business & Functional Requirements

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# Problem Statement

The United States continues to face a number of natural disasters on a regular basis. The goal of our application is to track ongoing natural disasters across the United States. In the long term, we’d like to expand this service to also provide historical logs and analytical views of disasters.

In this document, we outline the business and functional requirements for the United States Natural Disaster Service web application.

# Use Cases

## Disaster Details

U1

As a United States Natural Disaster Service customer, I want to get a detailed explanation of a disaster when I open a disaster details page.

## Topological Map

U2

As a United States Natural Disaster Service customer, I want to access a topological map showing ongoing natural disasters.

## Create Disaster

U3

As a United States Natural Disaster Service administrator, I want to create new logs of natural disasters.

## Update Disaster

U4

As a United States Natural Disaster Service administrator, I want to update logs of existing natural disasters.

# Functional Requirements

## U1: [Disaster Details](#_U1:_Disaster_Details)

### valid\_inputs\_get\_disaster\_returns\_disaster\_details

FR 1.1

GIVEN:

* Disaster ID
* Existing disaster with the given disaster ID

WHEN:

* User gets the disaster details

THEN:

* Return valid disaster details, including:
  + ID
  + Death toll
  + Injuries
  + Financial Impact
  + Start Date
  + End Date
  + Severity
  + Type of disaster

### no\_matching\_disaster\_get\_disaster\_not\_found\_error

FR 1.2

GIVEN:

* Disaster ID
* No existing disaster with the given disaster ID

WHEN:

* User gets the disaster details

THEN:

* UX: Return a 404 – Not Found Error
* Backend: Return NotFoundError

## U2: [Topological Map](#_U2:_Topological_Map)

### current\_disasters\_map\_current\_disasters\_returns\_disasters

FR 2.1

GIVEN:

* Existing ongoing disasters

WHEN:

* User gets the topological map of current disasters

THEN:

* UX: Return a map rendering the current disasters
  + Each disaster has its own area shown on the map
* Backend: Return a list of ongoing disasters
  + Disasters filtered to those with no end date
  + For each disaster, return:
    - ID
    - Area
      * Polygon (Points – Lattitude & Longitude)
    - Start Date
    - Severity
    - Type of disaster

### no\_current\_disasters\_map\_current\_disasters\_returns\_empty\_map

FR 2.2

GIVEN:

* No existing ongoing disasters

WHEN:

* User gets the topological map of current disasters

THEN:

* UX: Return a map with no disasters shown
* Backend: Return an empty list

### click\_on\_disaster\_area\_renders\_popup

FR 2.3

GIVEN:

* Topological map of current disasters with current disasters

WHEN:

* User clicks on a disaster’s area

THEN:

* UX: Render pop-up of disaster details on map, including:
  + Start Date
  + Severity
  + Type of disaster
  + Link to disaster details page for the given disaster
    - Type of disaster

## U3: [Create Disaster](#_U3:_Create_Disaster)

### valid\_administrator\_create\_disaster\_creates\_disaster

FR 3.1

GIVEN:

* An authenticated, authorized administrator
* A valid disaster, including:
  + Area
    - Polygon (Points – Lattitude & Longitude)
  + Death toll
  + Injuries
  + Financial Impact
  + Start Date
  + Severity
  + Type of disaster

WHEN:

* User creates a disaster

THEN:

* Disaster is added to data store, including:
  + Generated ID
  + Area
    - Polygon (Points – Lattitude & Longitude)
  + Death toll
  + Injuries
  + Financial Impact
  + Start Date
  + End Date (NULL)
  + Severity : 1-5
  + Type of disaster

### unauthorized\_user\_create\_disaster\_forbidden\_error

FR 3.2

GIVEN:

* An unauthorized user

WHEN:

* User creates a disaster

THEN:

* Return a 403 Forbidden error

### missing\_data\_create\_disaster\_bad\_request\_error

FR 3.3

GIVEN:

* A valid administrator password
* A disaster, missing one or more of the following fields:
  + Area
    - Polygon (Points – Lattitude & Longitude)
  + Death toll
  + Injuries
  + Financial Impact (USD)
  + Start Date
  + Severity
  + Type of disaster

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### future\_start\_date\_create\_disaster\_bad\_request\_error

FR 3.4

GIVEN:

* A valid administrator password
* A disaster, with a start date set for the future

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### invalid\_disaster\_type\_create\_disaster\_bad\_request\_error

FR 3.5

GIVEN:

* A valid administrator password
* A disaster, with a non-supported disaster type

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### invalid\_severity\_create\_disaster\_bad\_request\_error

FR 3.6

GIVEN:

* A valid administrator password
* A disaster, with a severity <= 0 or >5

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### negative\_deaths\_create\_disaster\_bad\_request\_error

FR 3.7

GIVEN:

* A valid administrator password
* A disaster, with a death toll < 0

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### negative\_injuries\_create\_disaster\_bad\_request\_error

FR 3.8

GIVEN:

* A valid administrator password
* A disaster, with injuries < 0

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### negative\_financial\_impact\_create\_disaster\_bad\_request\_error

FR 3.9

GIVEN:

* A valid administrator password
* A disaster, with financial\_impact < 0.00

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### too\_many\_decimals\_financial\_impact\_create\_disaster\_bad\_request\_error

FR 3.10

GIVEN:

* A valid administrator password
* A disaster, with financial\_impact with more than 2 decimal pales

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### invalid\_location\_create\_disaster\_bad\_request\_error

FR 3.11

GIVEN:

* A valid administrator password
* A disaster, with an invalid location

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

### invalid\_area\_create\_disaster\_bad\_request\_error

FR 3.12

GIVEN:

* A valid administrator password
* A disaster, with an invalid area

WHEN:

* User creates a disaster

THEN:

* Return a 400 Bad Request error

## U4: [Update Disaster](#_U4:_Update_Disaster)

### valid\_administrator\_update\_disaster\_creates\_disaster

FR 4.1

GIVEN:

* An authenticated, authorized administrator
* A valid disaster, including:
  + ID
  + Area
    - Polygon (Points – Lattitude & Longitude)
  + Death toll
  + Injuries
  + Financial Impact
  + Start Date
  + End Date (optional)
  + Severity
  + Type of disaster
* An existing disaster for the provided ID

WHEN:

* User updates a disaster

THEN:

* Disaster is updated with provided disaster information in datastore
  + ID is not updated

### unauthorized\_user\_update\_disaster\_forbidden\_error

FR 4.2

GIVEN:

* An authorized user

WHEN:

* User updates a disaster

THEN:

* Return a 403 Forbidden error

### disaster\_does\_not\_exist\_update\_disaster\_not\_found\_error

FR 4.3

GIVEN:

* A valid administrator password
* A valid disaster
* No existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 404 Not Found error

### missing\_data\_update\_disaster\_bad\_request\_error

FR 4.4

GIVEN:

* A valid administrator password
* A disaster, missing one or more of the following fields:
  + ID
  + Area
    - Polygon (Points – Lattitude & Longitude)
  + Death toll
  + Injuries
  + Financial Impact (USD)
  + Start Date
  + Severity
  + Type of disaster
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### future\_start\_date\_update\_disaster\_bad\_request\_error

FR 4.5

GIVEN:

* A valid administrator password
* A disaster, with a start date set for the future
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### future\_end\_date\_update\_disaster\_bad\_request\_error

FR 4.6

GIVEN:

* A valid administrator password
* A disaster, with an end date set for the future
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### invalid\_disaster\_type\_update\_disaster\_bad\_request\_error

FR 4.7

GIVEN:

* A valid administrator password
* A disaster, with a non-supported disaster type
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### invalid\_severity\_update\_disaster\_bad\_request\_error

FR 4.8

GIVEN:

* A valid administrator password
* A disaster, with a severity <= 0 or > 5
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### negative\_deaths\_update\_disaster\_bad\_request\_error

FR 4.9

GIVEN:

* A valid administrator password
* A disaster, with a death toll < 0
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### negative\_injuries\_update\_disaster\_bad\_request\_error

FR 4.10

GIVEN:

* A valid administrator password
* A disaster, with injuries < 0
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### negative\_financial\_impact\_update\_disaster\_bad\_request\_error

FR 4.11

GIVEN:

* A valid administrator password
* A disaster, with a financial impact < 0.00
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### too\_many\_decimals\_financial\_impact\_update\_disaster\_bad\_request\_error

FR 4.12

GIVEN:

* A valid administrator password
* A disaster, with a financial impact with more than 2 decimals
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### invalid\_location\_update\_disaster\_bad\_request\_error

FR 4.13

GIVEN:

* A valid administrator password
* A disaster, with an invalid location
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error

### invalid\_area\_update\_disaster\_bad\_request\_error

FR 4.14

GIVEN:

* A valid administrator password
* A disaster, with an invalid area
* An existing disaster with a matching ID

WHEN:

* User updates a disaster

THEN:

* Return a 400 Bad Request error