SW Engineering CSC648/848 Summer 2019
Safe SF
Team 2
Milestone 2
July 12, 2019

Team: Local

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Reversion Table:

Version	Date	Description
1.0	July 12	Submitted For Review
1.1	July 16	Revised based off of feedback

Data Definitions V2

- **Category (String, Primary Key)**
  List of approved hazard types that a report can be tagged with.

- **Location (String, Primary Key)**
  List of notable locations that a report can be tagged with.

- **Report**
  - **Report_id (Int, Primary Key)**
    The id assigned to the report upon creation
  - **Report_user_id (Int, Foreign Key)**
    Reference to the user in the User table that created the report
  - **Report_details (String)**
    Additional details about the hazard provided by the user
  - **Report_image (String)**
    Filename of image file on server
  - **Report_status (String)**
    Either unassigned, assigned, or completed
  - **Category (Int, Foreign Key)**
    Reference to a type of hazard in the Category table.
  - **Location (Int, Foreign Key)**
    A reference to a location in the Locations table
  - **Loc_long (Float)**
    longitude of the location being reported
  - **Loc_lat (Float)**
    Latitude of the location being reported
  - **Report_creation_date (DATE)**
    Timestamp of report creation date

- **Report_update_date (DATE)**
  Timestamp of the last time the report was updated

- **User**
  - **User_id (Int, Primary Key)**
    ID assigned to the user

  - **Status (String)**
    Either registered or admin

  - **Display_name (String)**
    The user's display name

  - **Email (String)**
    The email of the user

  - **Password (String)**
    The hashed password of the user

  - **Report_count (Int)**
    How many reports the user has made

  - **Join_date (DATE)**
    The join date of the user

2. Functional Requirements V2

Priority 1

Unregistered Users:

1. Shall be able to view existing reports.
2. Shall be able to filter through existing reports based on category.
3. Shall be able to register.
4. Shall be able to pan through a map of San Francisco to see the reported hazards marked by pins.

Registered Users:

5. Shall be able to do everything that an unregistered user can do.
6. Shall be able to make new reports for environmental hazards.
7. Shall be able to login.

Admins:

8. When logged in with their admin accounts shall be able to change the status of reported hazards after assigning them.

Priority 2

Unregistered User:

9. Shall be able to click on a pin on the map and view more details of the hazard.

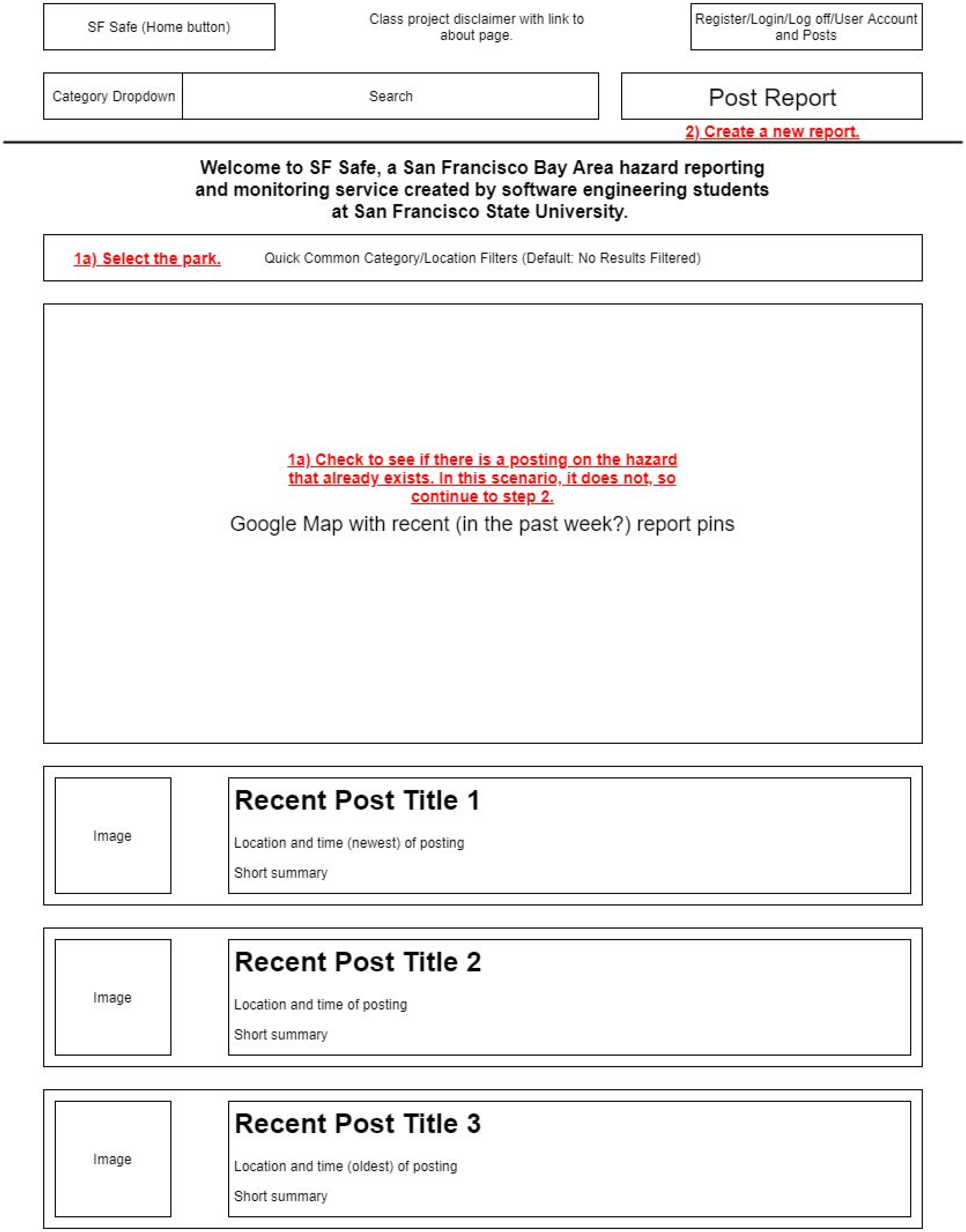
Admin:

10. Shall be able to manage user accounts

3) UI Mockups and Storyboard

Use Case 1: Dylan goes to a beach

Dylan decides to go to China Beach this weekend. He finds a deceased sea lion that has washed up on the beach and wants to report it, but he doesn't want to do it on his phone. So he takes a picture and waits until he gets home to make the report. At home on his PC, he checks for an existing post about the incident by using the hazard browsing feature. Once he confirms that no one has reported it yet, Dylan clicks the report button to create a new report. He is given clearly labeled input boxes to fill out for the location name, hazard category, location on a map, an optional image, and an optional description. On submission, if he is already logged in, the post is created. If not, he is prompted to register or login before he can post.



SF Safe (Home button)

Class project disclaimer with link to about page.

Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

2) Create a new report.

Welcome to SF Safe, a San Francisco Bay Area hazard reporting and monitoring service created by software engineering students at San Francisco State University.

1a) Select the park.

Quick Common Category/Location Filters (Default: No Results Filtered)

1a) Check to see if there is a posting on the hazard that already exists. In this scenario, it does not, so continue to step 2.

Google Map with recent (in the past week?) report pins

Image

Recent Post Title 1

Location and time (newest) of posting

Short summary

Image

Recent Post Title 2

Location and time of posting

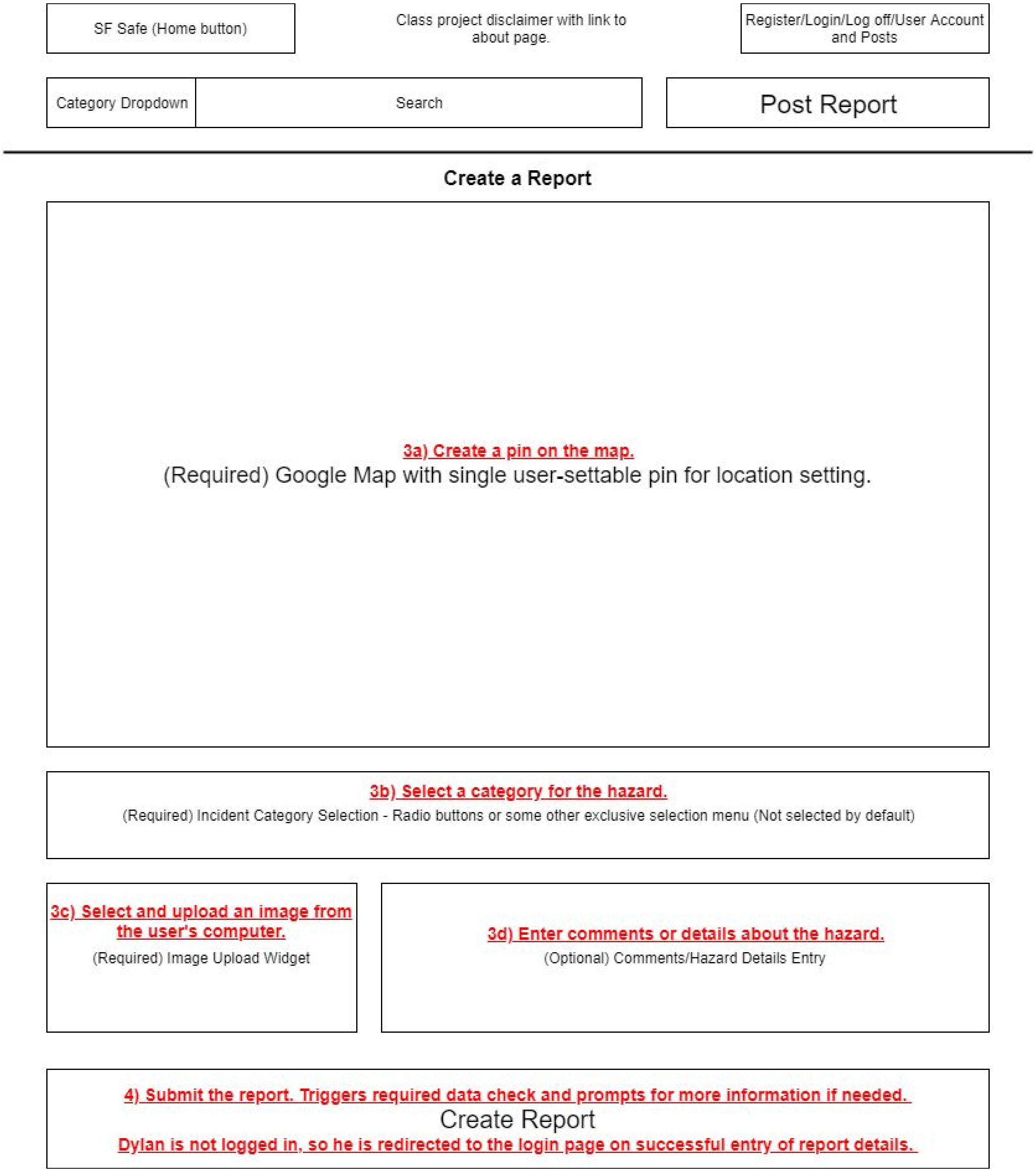
Short summary

Image

Recent Post Title 3

Location and time (oldest) of posting

Short summary



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Category Dropdown

Search

Post Report

Create a Report

3a) Create a pin on the map.

(Required) Google Map with single user-settable pin for location setting.

3b) Select a category for the hazard.

(Required) Incident Category Selection - Radio buttons or some other exclusive selection menu (Not selected by default)

3c) Select and upload an image from the user's computer.

(Required) Image Upload Widget

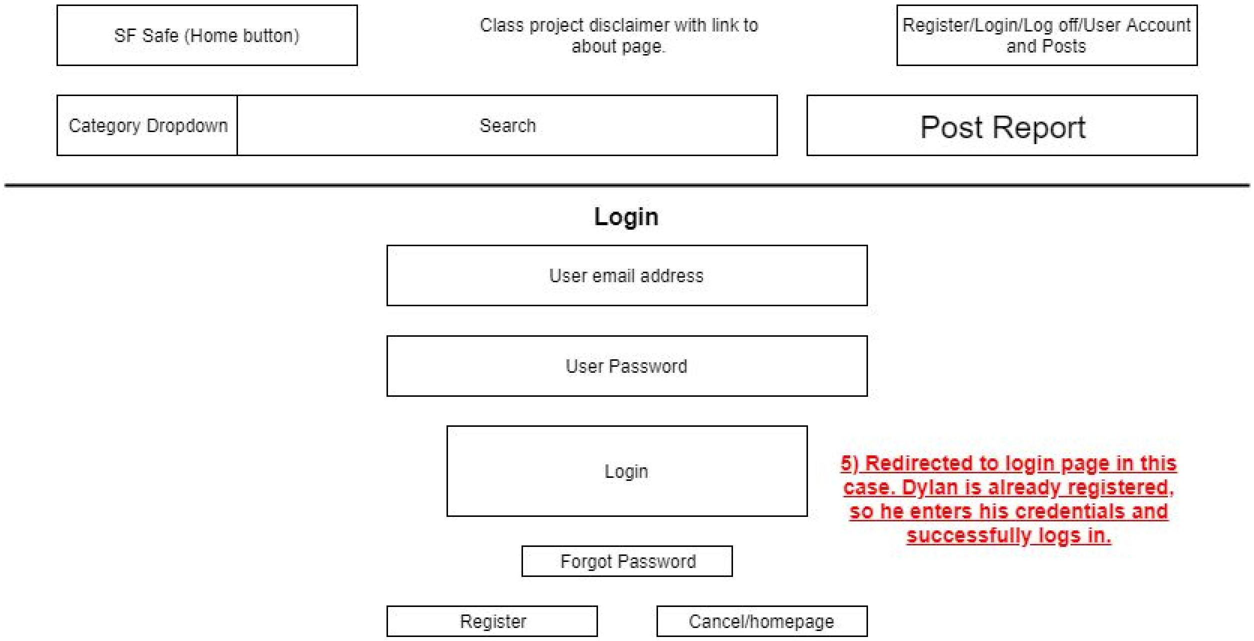
3d) Enter comments or details about the hazard.

(Optional) Comments/Hazard Details Entry

4) Submit the report. Triggers required data check and prompts for more information if needed.

Create Report

Dylan is not logged in, so he is redirected to the login page on successful entry of report details.



SF Safe (Home button)

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Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

Login

User email address

User Password

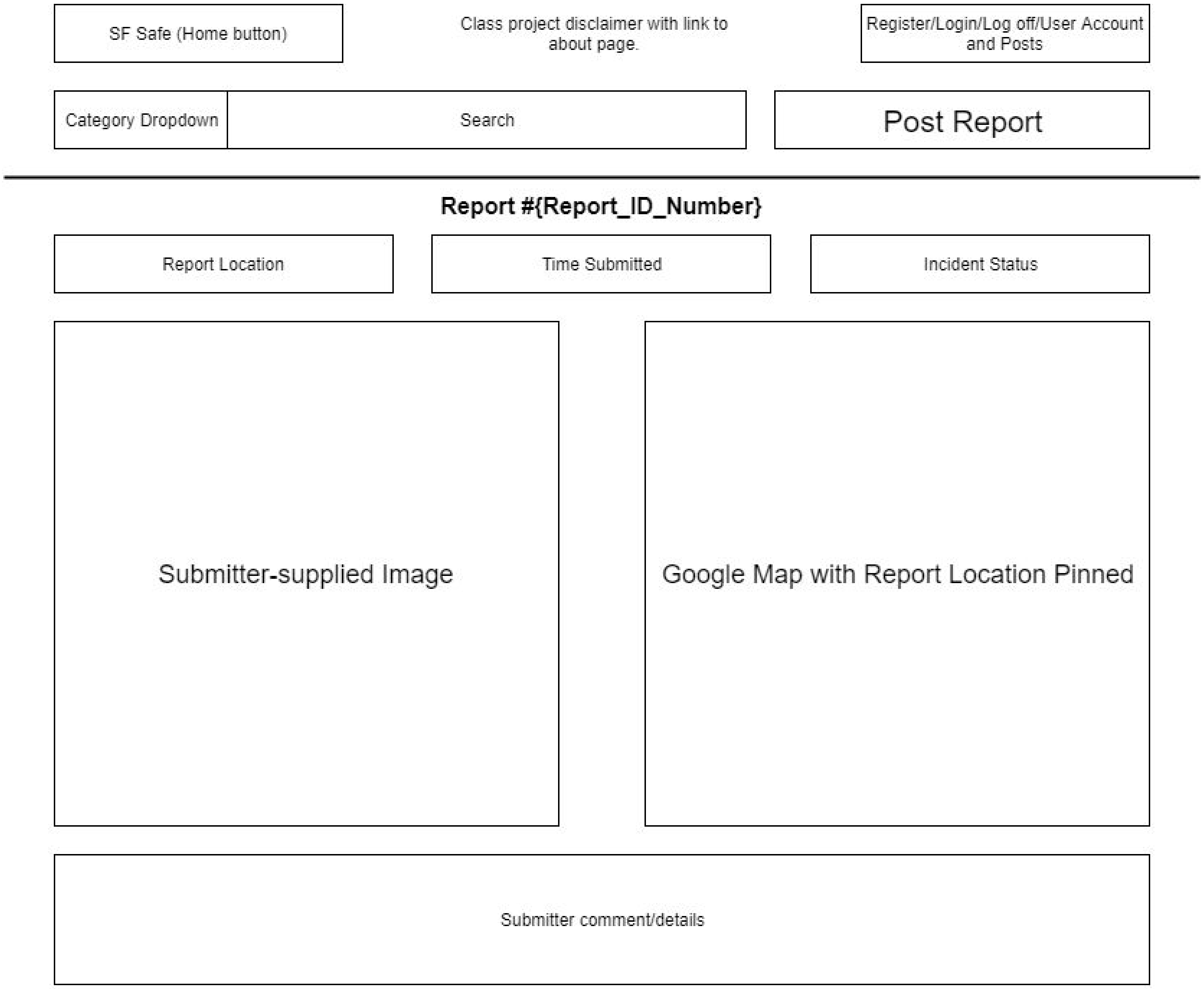
Login

Forgot Password

Register

Cancel/homepage

5) Redirected to login page in this case. Dylan is already registered, so he enters his credentials and successfully logs in.



SF Safe (Home button)

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Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

Report #{Report_ID_Number}

Report Location

Time Submitted

Incident Status

Submitter-supplied Image

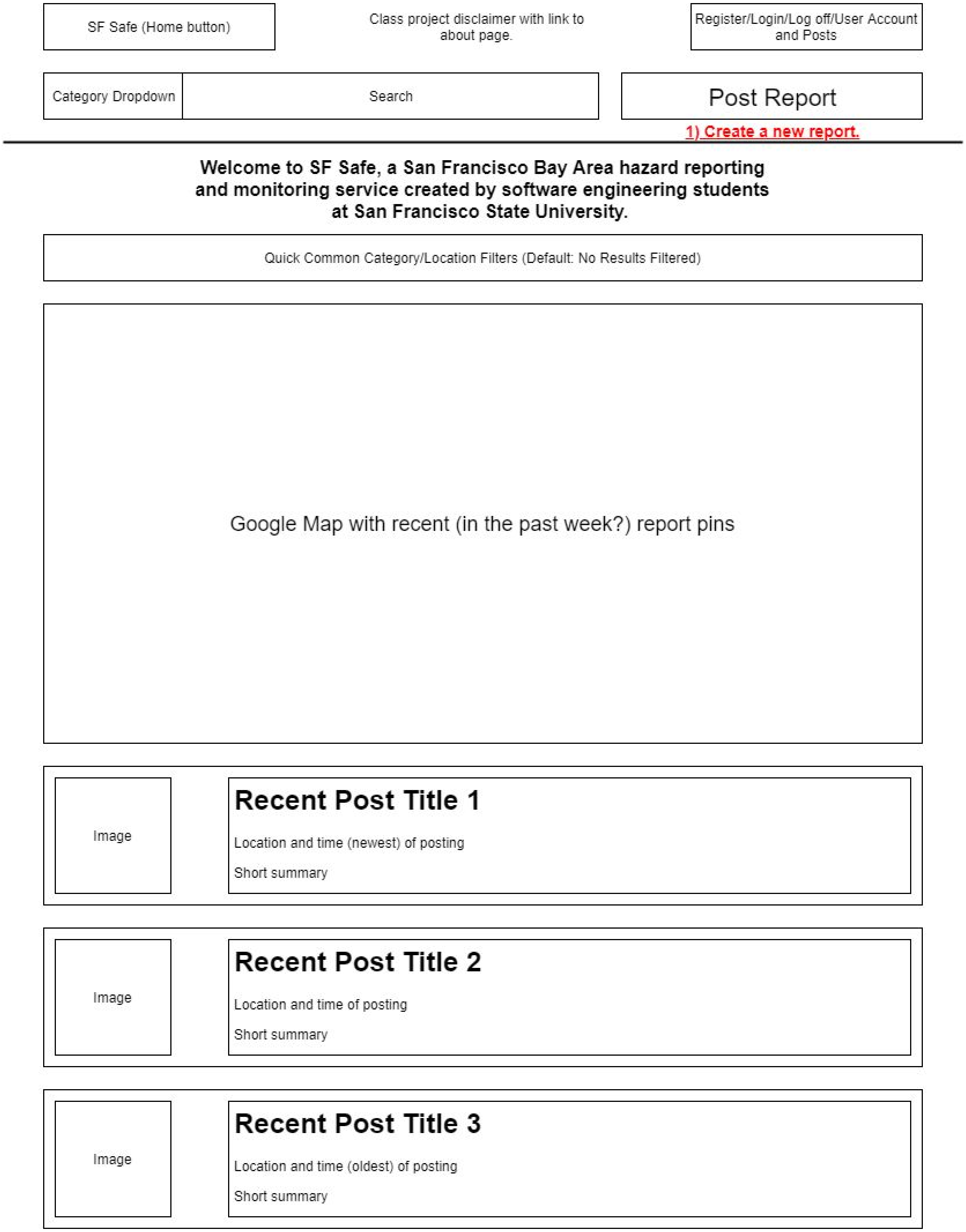
Google Map with Report Location Pinned

Submitter comment/details

6) Dylan is redirected to the newly created report posting after successful login.

Use Case 2: Patricia and Eddie go to The Panhandle

The couple go to the Golden Gate Park Panhandle. They come across a downed tree and would like to report on it. They take a picture of the tree and make a post when they get home. On their PC, they create a new hazard report. They are given clearly labeled input boxes to fill out for the location name, hazard category, location on a map, an optional image, and an optional description. On submission, if they are already logged in, the post is created. If not, they are prompted to register or login.



SF Safe (Home button)

Class project disclaimer with link to about page.

Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

1) Create a new report.

Welcome to SF Safe, a San Francisco Bay Area hazard reporting and monitoring service created by software engineering students at San Francisco State University.

Quick Common Category/Location Filters (Default: No Results Filtered)

Google Map with recent (in the past week?) report pins

Image

Recent Post Title 1

Location and time (newest) of posting

Short summary

Image

Recent Post Title 2

Location and time of posting

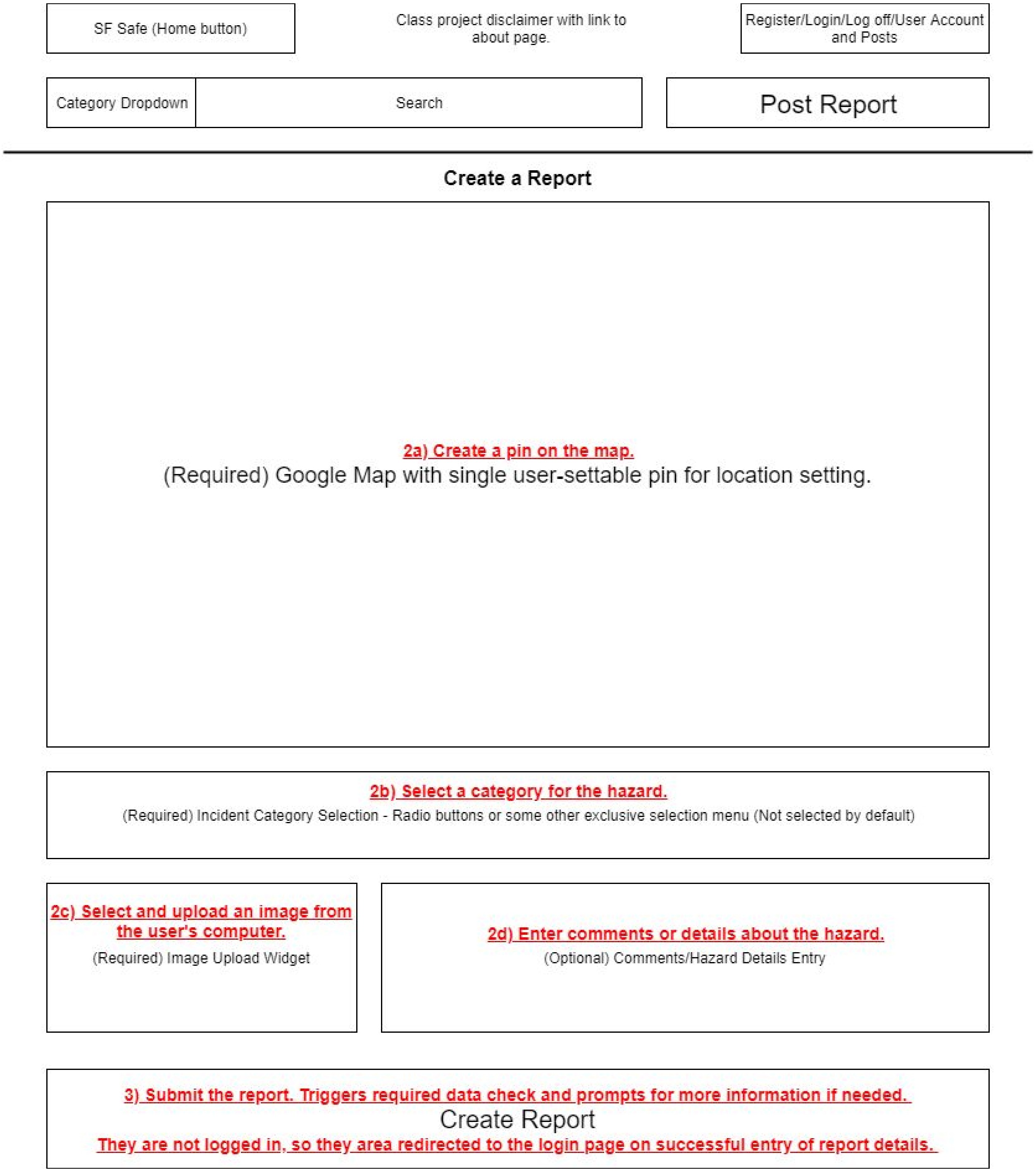
Short summary

Image

Recent Post Title 3

Location and time (oldest) of posting

Short summary



SF Safe (Home button)

Class project disclaimer with link to about page.

Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

Create a Report

2a) Create a pin on the map.

(Required) Google Map with single user-settable pin for location setting.

2b) Select a category for the hazard.

(Required) Incident Category Selection - Radio buttons or some other exclusive selection menu (Not selected by default)

2c) Select and upload an image from the user's computer.

(Required) Image Upload Widget

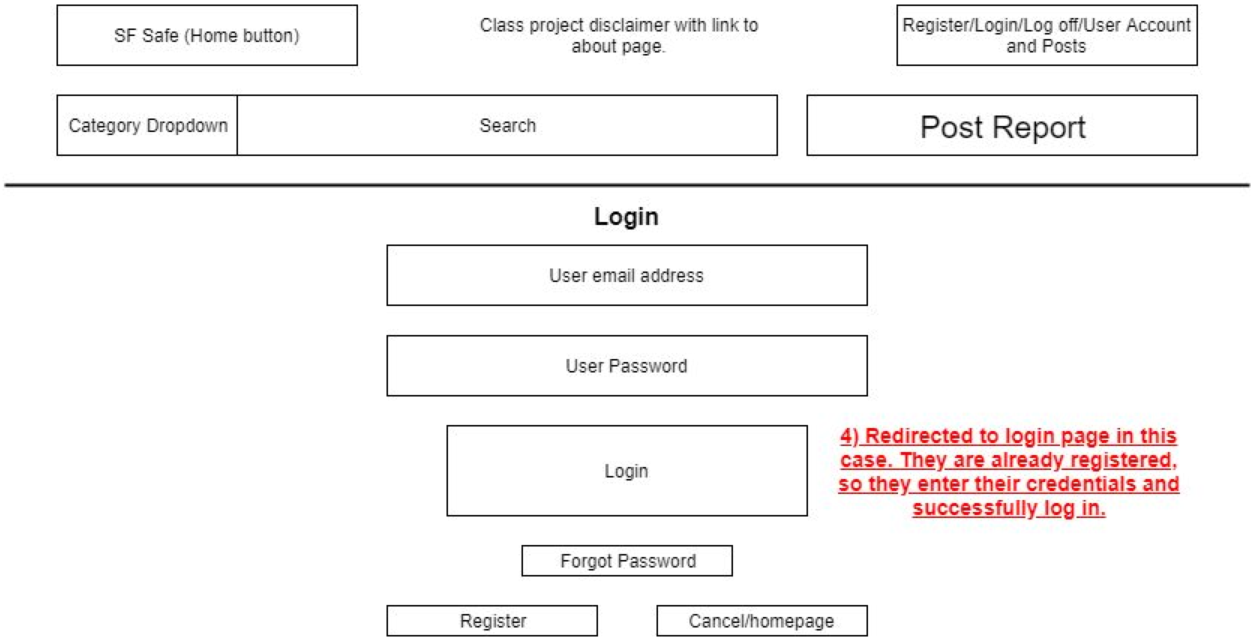
2d) Enter comments or details about the hazard.

(Optional) Comments/Hazard Details Entry

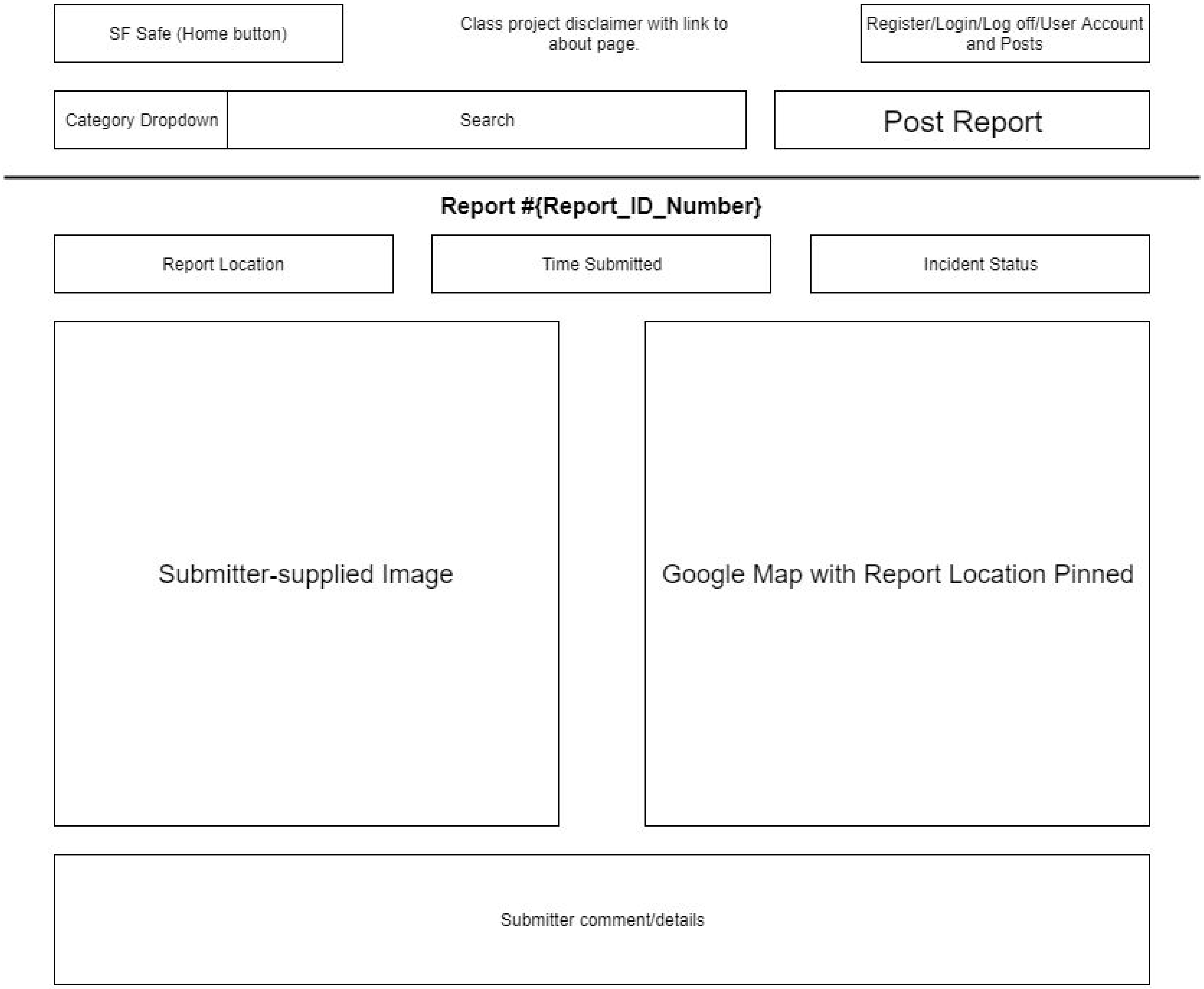
3) Submit the report. Triggers required data check and prompts for more information if needed.

Create Report

They are not logged in, so they area redirected to the login page on successful entry of report details.



4) Redirected to login page in this case. They are already registered, so they enter their credentials and successfully log in.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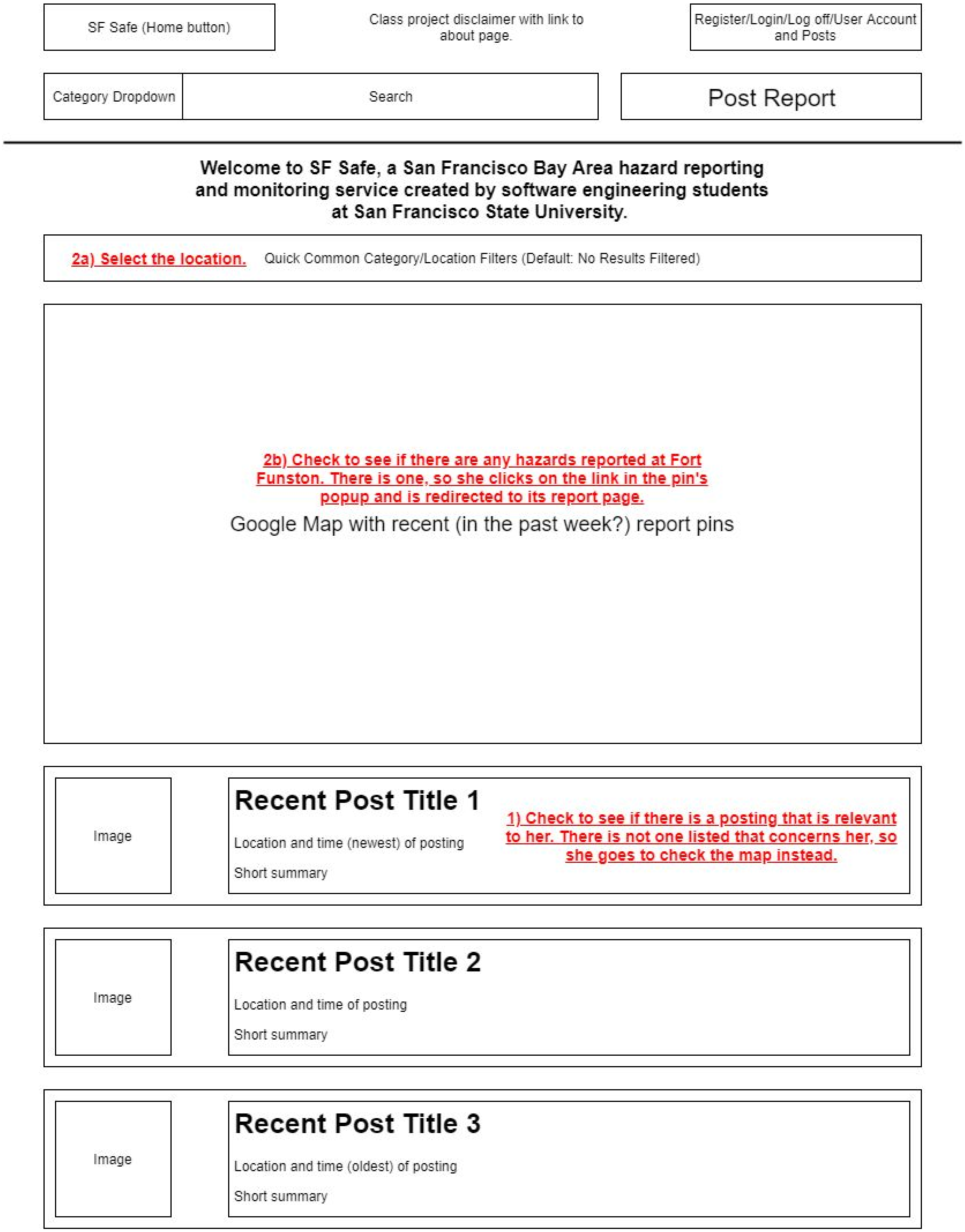
Category Dropdown
Search
Post Report
Report #{Report_ID_Number}
Report Location
Time Submitted
Incident Status
Submitter-supplied Image
Google Map with Report Location Pinned
Submitter comment/details

5) They are redirected to the newly created report posting after successful login.

Use Case 3: Jenna goes to Fort Funston

Jenna wants to go to Fort Funston today. Since the Fort Funston has record of closing down due to environmental hazards, Jenna wants to check to see if there are any problems before going out. She goes to the hazard browsing page of the site. Jenna then uses the filtering options to restrict the results to Fort Funston. She finds one that there was a mudslide on the trail she was planning to take and alters her course.



SF Safe (Home button)

Class project disclaimer with link to about page.

Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

Welcome to SF Safe, a San Francisco Bay Area hazard reporting and monitoring service created by software engineering students at San Francisco State University.

2a) Select the location. Quick Common Category/Location Filters (Default: No Results Filtered)

2b) Check to see if there are any hazards reported at Fort Funston. There is one, so she clicks on the link in the pin's popup and is redirected to its report page.

Google Map with recent (in the past week?) report pins

Image

Recent Post Title 1

Location and time (newest) of posting

Short summary

1) Check to see if there is a posting that is relevant to her. There is not one listed that concerns her, so she goes to check the map instead.

Image

Recent Post Title 2

Location and time of posting

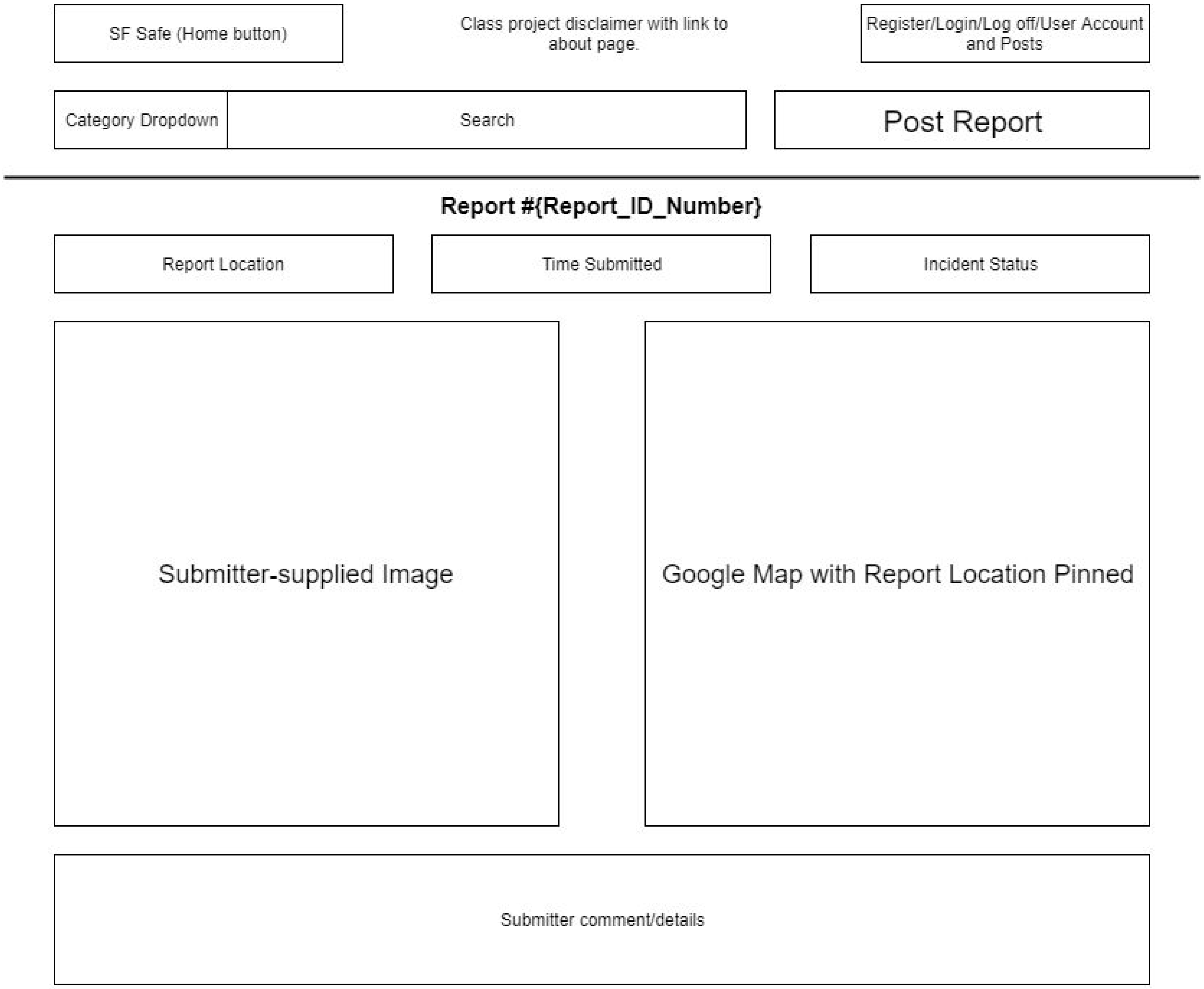
Short summary

Image

Recent Post Title 3

Location and time (oldest) of posting

Short summary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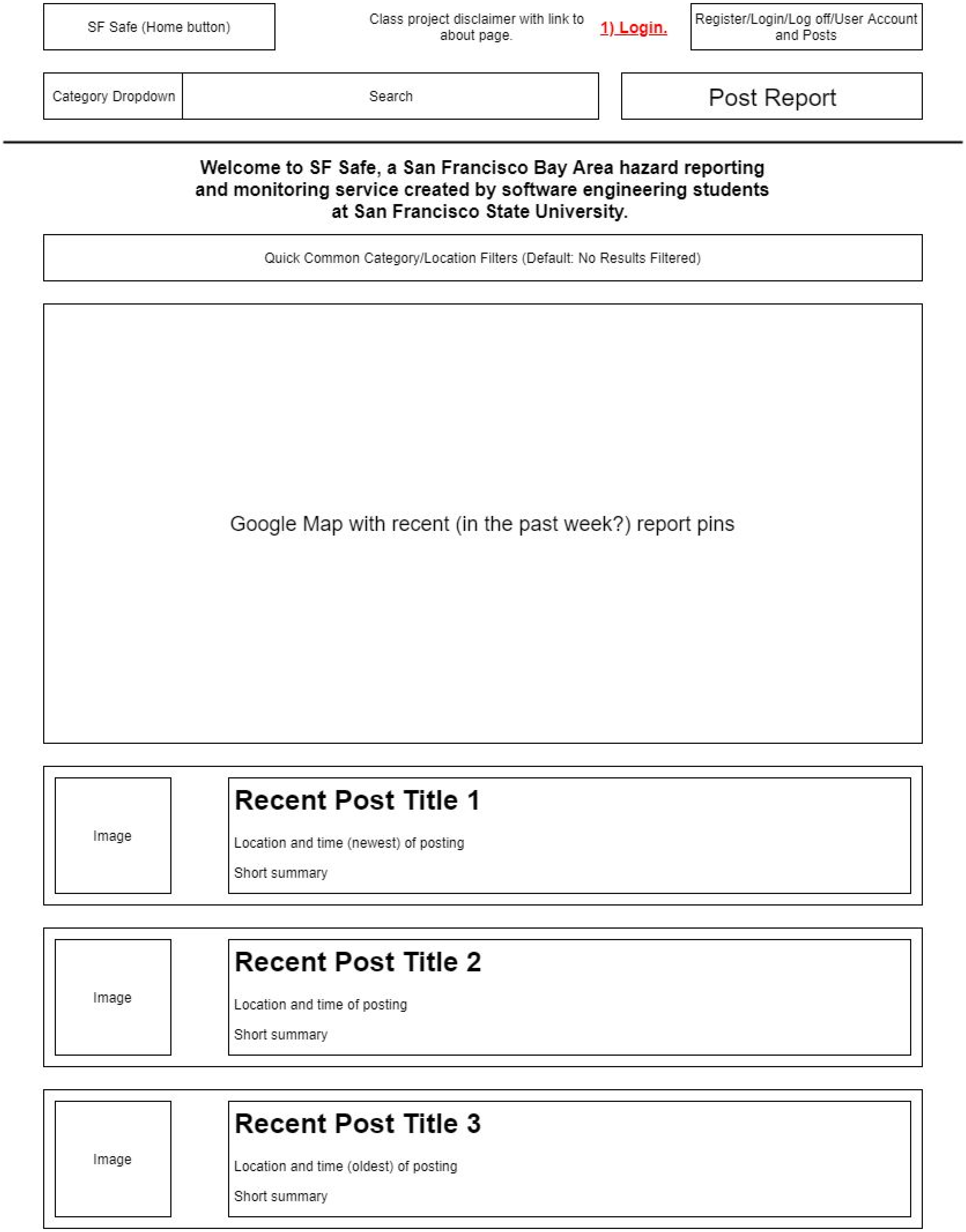
Post Report
Report #{Report_ID_Number}
Report Location
Time Submitted
Incident Status
Submitter-supplied Image
Google Map with Report Location Pinned
Submitter comment/details

3) Jenna discovers that the hazard requires her to alter her planned activities at the location. No further action required.

Use Case 4: Kevin’s Typical Workday

Kevin’s typical workday involves looking at, updating the status of, approving, and rejecting reports made by users of the website. He starts off by logging in to his account using the appropriate function on the website homepage. When he logs in, he is redirected to the homepage, but because he is an admin, he sees different elements than a lower privileged user. His homepage consists entirely of a list of reports that by default is sorted by time and status (oldest, unprocessed reports first), though he can change the sorting and filtering with functions on the webpage. To update the status of a report, he finds a report using filter functions or search, and then uses the appropriate function on the report page to change the status of the report. When he is done for the day, he needs to logoff, and does so with the function on top of all pages.



SF Safe (Home button)

Class project disclaimer with link to about page.

1) Login.

Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

Welcome to SF Safe, a San Francisco Bay Area hazard reporting and monitoring service created by software engineering students at San Francisco State University.

Quick Common Category/Location Filters (Default: No Results Filtered)

Google Map with recent (in the past week?) report pins

Image

Recent Post Title 1

Location and time (newest) of posting

Short summary

Image

Recent Post Title 2

Location and time of posting

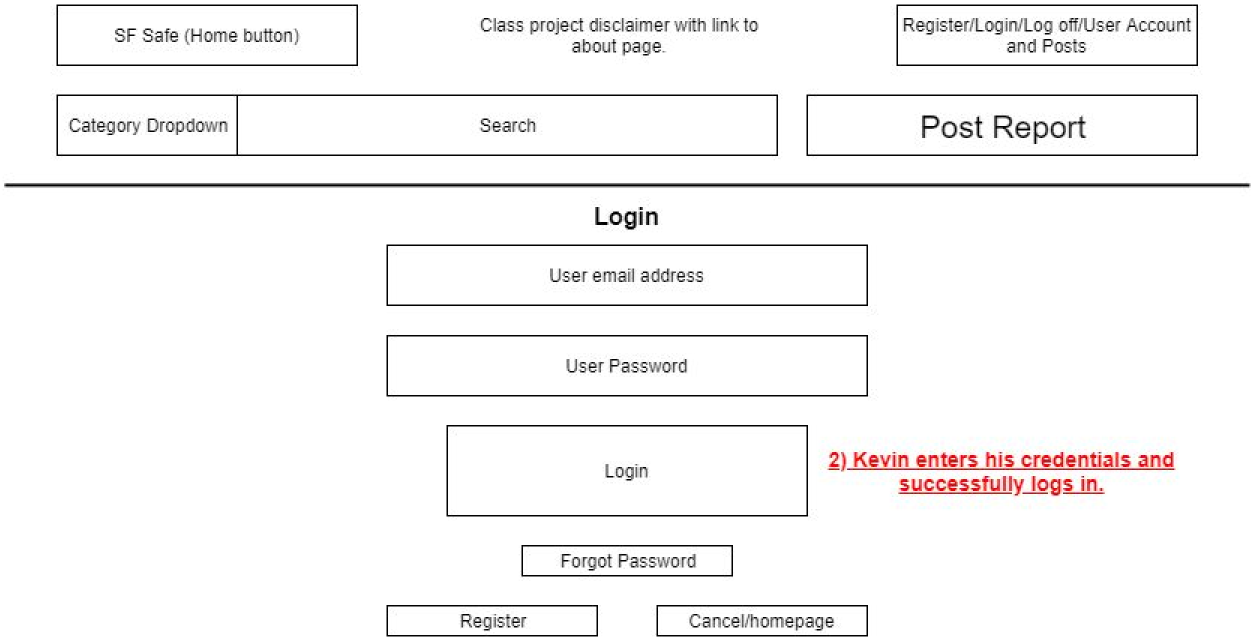
Short summary

Image

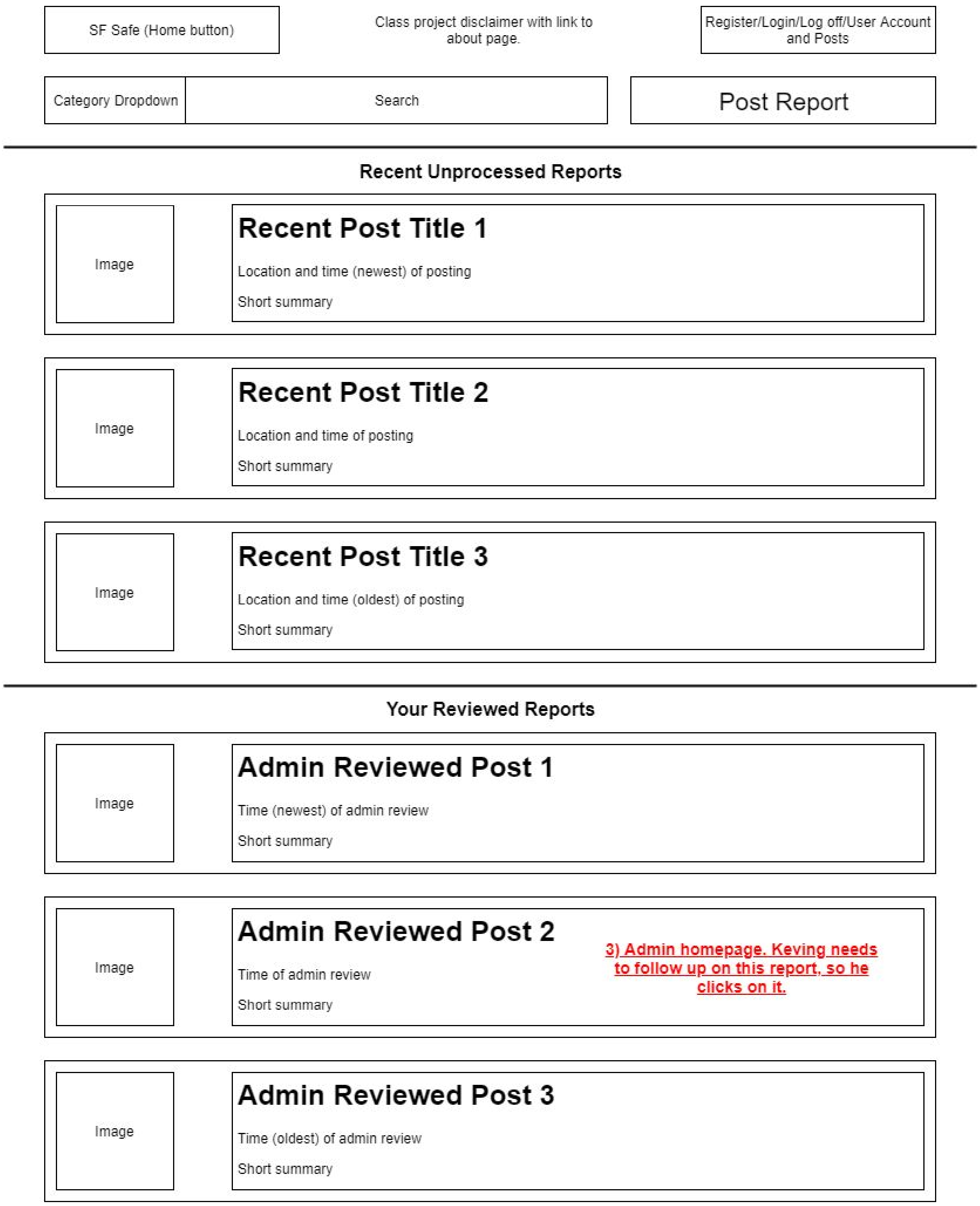
Recent Post Title 3

Location and time (oldest) of posting

Short summary



2) Kevin enters his credentials and successfully logs in.



SF Safe (Home button)

Class project disclaimer with link to about page.

Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

Recent Unprocessed Reports

Image

Recent Post Title 1

Location and time (newest) of posting

Short summary

Image

Recent Post Title 2

Location and time of posting

Short summary

Image

Recent Post Title 3

Location and time (oldest) of posting

Short summary

Your Reviewed Reports

Image

Admin Reviewed Post 1

Time (newest) of admin review

Short summary

Image

Admin Reviewed Post 2

Time of admin review

Short summary

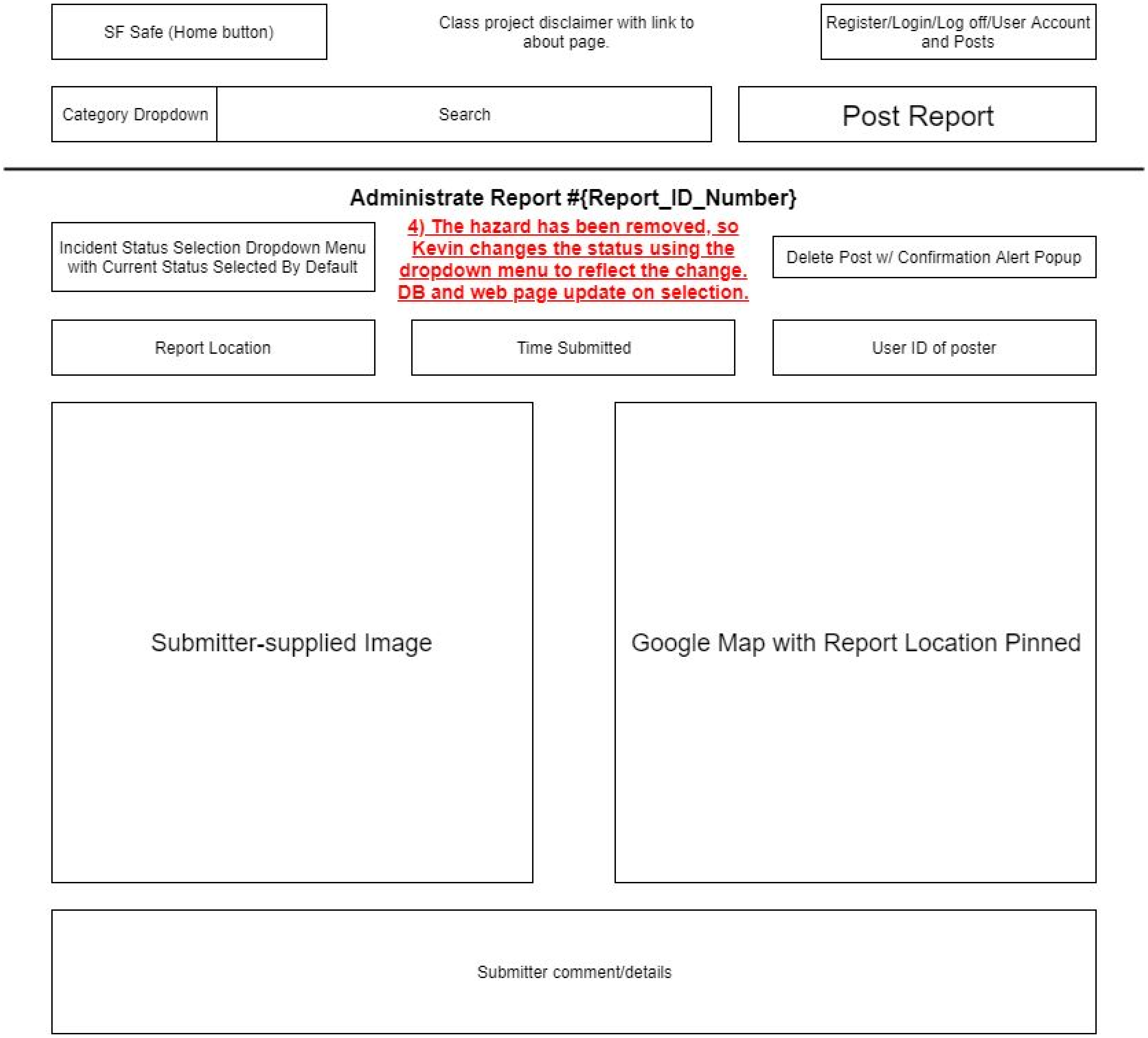
3) Admin homepage. Keving needs to follow up on this report, so he clicks on it.

Image

Admin Reviewed Post 3

Time (oldest) of admin review

Short summary



SF Safe (Home button)

Class project disclaimer with link to about page.

Register/Login/Log off/User Account and Posts

Category Dropdown

Search

Post Report

Administrate Report #{Report_ID_Number}

Incident Status Selection Dropdown Menu with Current Status Selected By Default

4) The hazard has been removed, so Kevin changes the status using the dropdown menu to reflect the change. DB and web page update on selection.

Delete Post w/ Confirmation Alert Popup

Report Location

Time Submitted

User ID of poster

Submitter-supplied Image

Google Map with Report Location Pinned

Submitter comment/details

4) High level Architecture, Database Organization

Database Organization:

Our database will contain four tables: **Category**, **Location**, **Report**, and **User**. The **Category** and **Location** tables only contain a list of hazards and locations that are referenced in other tables and used to populate drop down menus on the webpage.

The **Report** table contains important information about the hazard and metadata used to search for it. The primary key is the **Report_id**, a unique number generated to represent the report. The **Report_user_id** is an integer corresponding to the user who created the report in the **Users** table. The **Report_details** field is a string containing a description of the hazard provided by the user. The **Report_image** is the filename of the image for the report. The image is stored on the server. The **Report_status** is a string and can only be one of three states: unassigned, assigned, and complete. The **Category** field is an integer corresponding to a one of the categories in the **Category** table. Same with the **Location** field, which points to a location in the **Location** table. **Loc_long** and **Loc_lat** are floating point numbers representing the longitude and latitude of the hazard. And the **Report_creation_date** and **Report_update_date** contain date objects that define the date the report was created and the date is was last updated.

The **User** table contains personal information about the user. The **User_id** is a unique integer identifying the user. The **Status** field is a string which can either be "registered" or "admin." If the user is an admin, they can access the admin tools for moderating the site. The **Display_name** is the username the user chose. The **Email** of the user is stored, but doesn't have a use in this version of the website. The **Password** field contains the hashed password of the user. **Report_count** is a simple counter of how many reports the user has made. And **Join_date** holds the date that the user registered on the site.

Media Storage:

The only media we are storing are images of the hazards. They are stored in a file on the server as regular image files. Each report is only allowed to have one image attached, so the filenames of the images will be the report id. For the generated thumbnail images, the filename will be the report id followed by "_thumb."

The images are uploaded by users for the public to see, so we didn't take any extra measures to secure the images. However, images are only accessible through the endpoints provided through the webpage. To gain access to all of the images on the server, one would have to break into the server. And we are relying on Amazon's server security to prevent this from happening.

Search and Filter Implementation:

For the filtering, we will request all of the data in one SQL call. The options the user can filter are Location and Category. We can use the SQL call **SELECT * FROM table_name** to select all of the reports. Then we add **WHERE column_name = option** to only include that has the location or category that we want. So the full SQL call that returns only the reports that matches the users' filtering settings is:

SELECT * FROM Reports WHERE Category = chosen_category AND Location = option

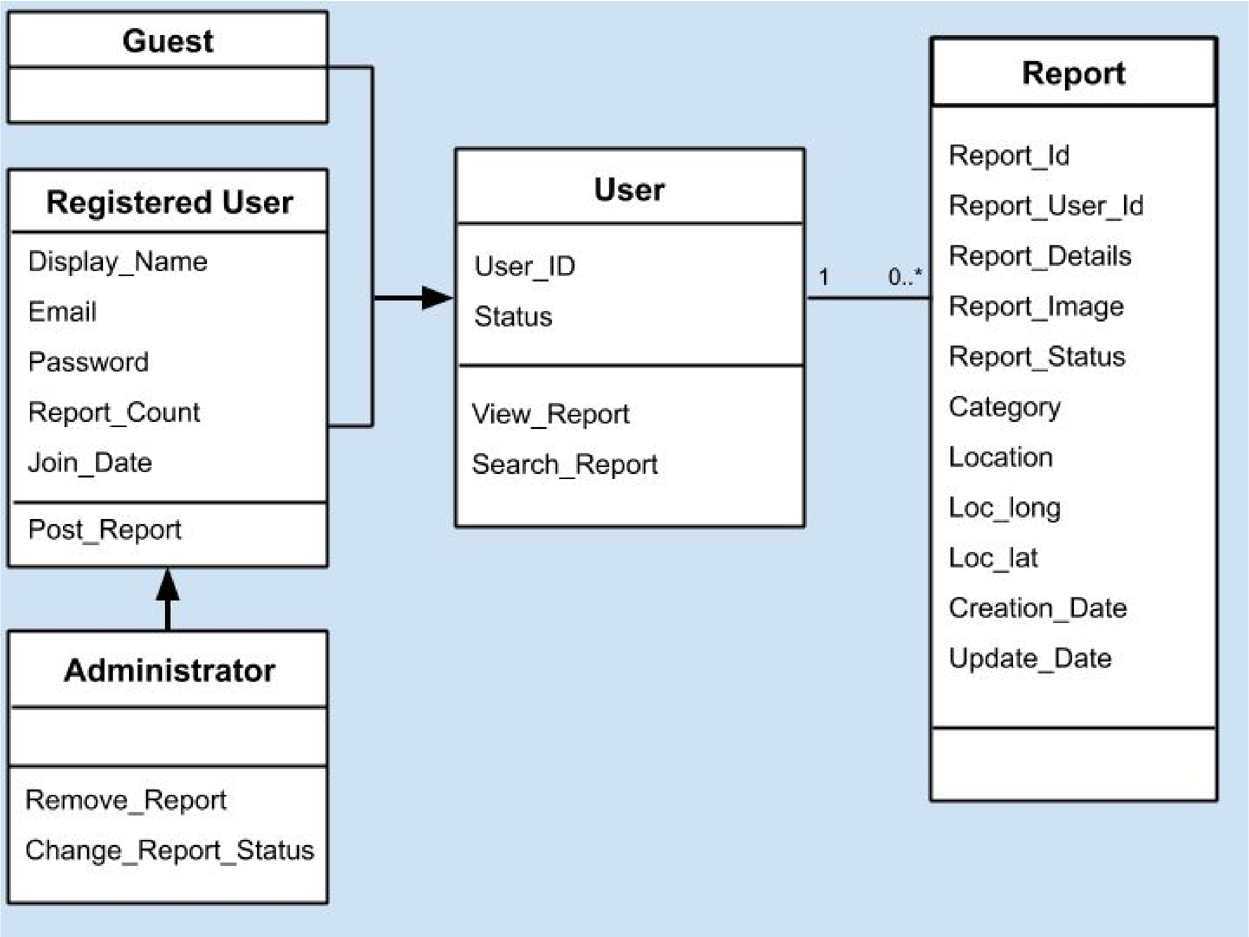
For the text search, we will use the **LIKE** SQL command. This will select the database entries that contain a key phrase. To search a column for a keyword, we would use the command: **SELECT * FROM table_name WHERE column_name LIKE search_term**. The columns we will be searching in are Category, Location, and Report_details. The SQL call that would search these columns is:

SELECT * FROM Reports WHERE Category LIKE "%search_term%" OR Location LIKE "%search_term%" OR Report_detailsLIKE "%search_term%"

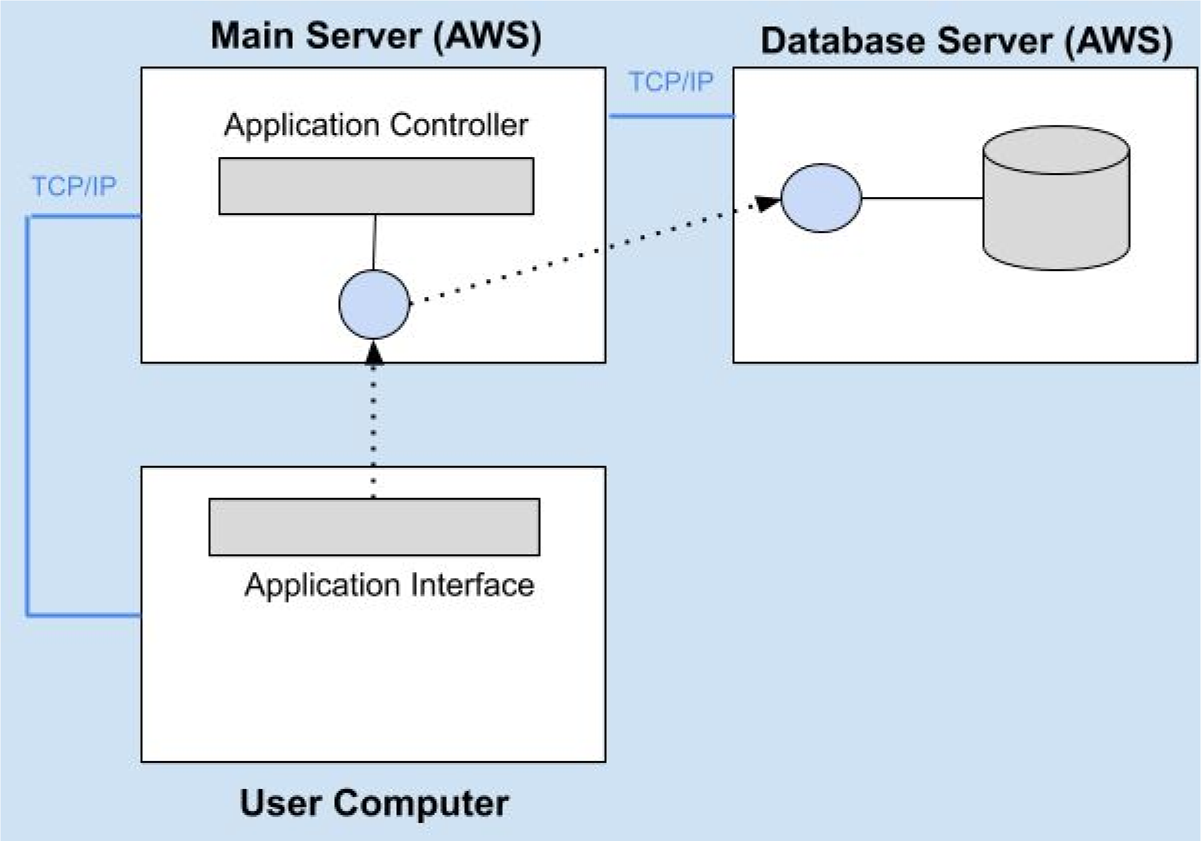
This command can easily be expanded to take multiple search terms, but currently it only takes one.

5) High Level UML Diagrams

Class Diagram:



Component and deployment diagram:



6) Identify actual key risks for your project at this time

1. Understand the existing system that is in place by the city

2. Even though this is not a live project, ensuring that the data we store and our system is secure.

3. Lack of experienced front end developers and the pressing time limits might demand some focussed code sprints.

4. Poor prioritization of tasks and investing time into unimportant features while leaving important features unfinished.

7) Project management

For the management of our team, we have been using Trello. We assign tasks to each member based on what else they are working on and their strongpoints. We have been careful to assign everyone a task that doesn't depend on another person's work so that we are all working concurrently. Unfortunately, none of us are experienced enough to accurately guess the duration of each task. So we have been assigning tasks only in the short term. And once a member completes a task, they are assigned a new one. This can be a problem since members don't have a deadline and may become complacent. In addition, the team doesn't have a good idea of how close to completion we are. So we can't alter our schedule or request an extension until closer to the deadline.

In the future, we plan to break down our objective into all of the tasks needed to complete it instead of creating tasks as we go. In addition, we will guess how long each task will take and plan out our time usage until the deadline.