CSC 648/848 SW Engineering Fall 2020

SurgeHut
Section 02
Team 03

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Milestone 2
10/6/20

1. FUNCTIONAL REQUIREMENTS - PRIORITIZED

Priority 1:

a. Integration of Covid-19 case data into the website, displays amount of active cases in state

b. Integration of basic fire data (square mileage burning, active fires etc)

c. Functioning navigation between each page

d. Functioning coordinate system with map

e. Tables for fire, Covid cases and AQI created with some test cases added

f. Every image on the WWW shall be royalty free.

g. No cost for services transaction shall be addressed, nor simulated in user interface.

h. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0.

i. Data shall be stored in the team's chosen database technology on the team's deployment server.

j. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.

k. The language used shall be English.

l. Google maps and analytics shall be added.

m. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.

n. The website shall prominently display the following exact text on all pages "SFSU Software Engineering Project CSC 648-848, Fall 2020. For Demonstration Only" at the top of the WWW page.

o. Site security: basic best practices shall be applied.

Priority 2:

p. No more than 1000 concurrent users shall be accessing the application at any time.

q. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers.

r. Map of California displayed properly with ability to zoom in/out and move around

s. System shall respond visually within 5 seconds.

t. Application shall not use any mail clients.

u. Template/skeleton of all pages completed

v. Application shall be developed using responsive UI implementation.

Priority 3:

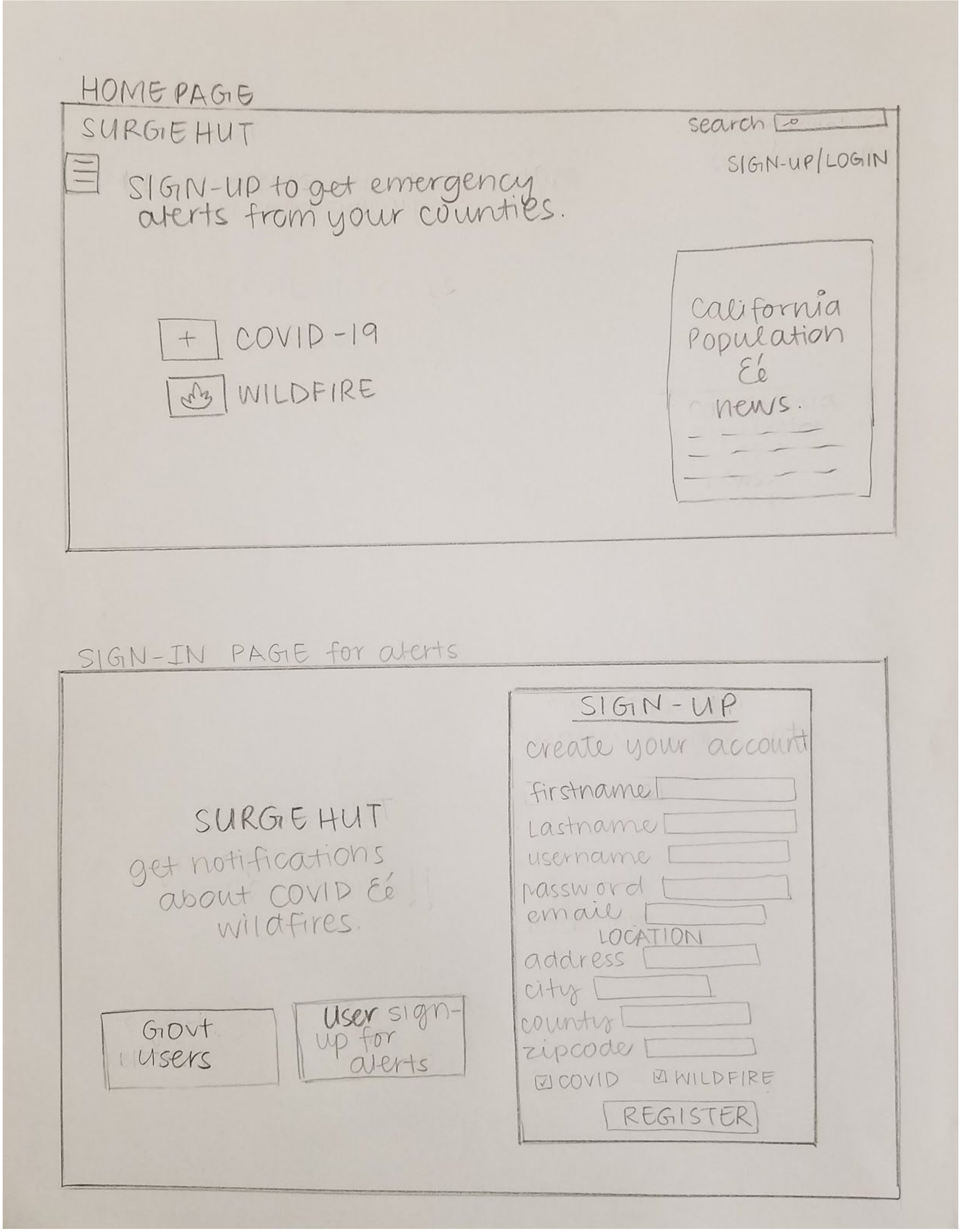
w. Application shall be very easy to use and intuitive.

x. Selected application functions must render well on mobile devices.

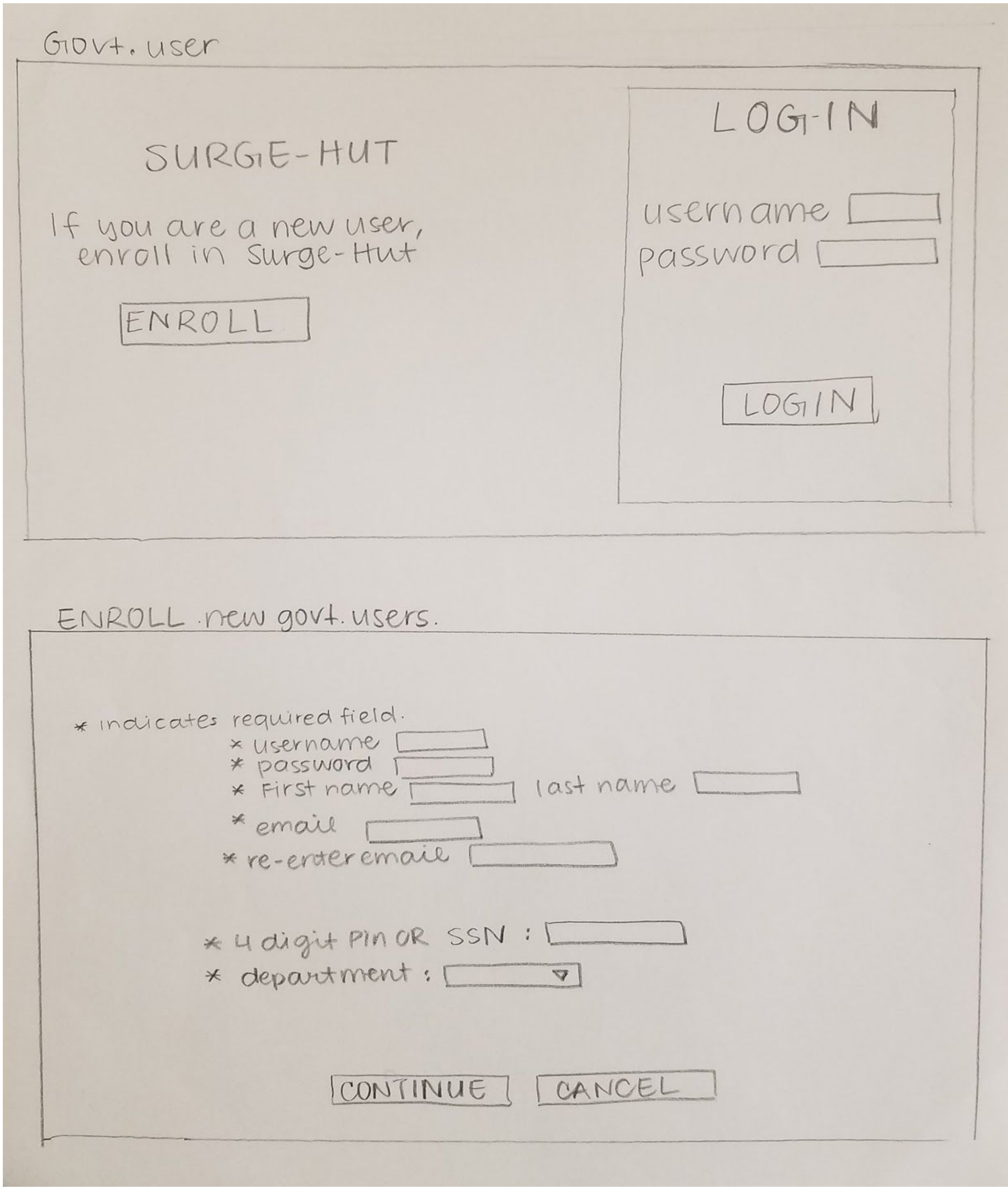
y. Fires given IDs and the ability to search by ID

z. Application should use email confirmation to verify a proper email address from the public.

2. UI MOCKUPS AND STORYBOARDS (HIGH LEVEL ONLY)

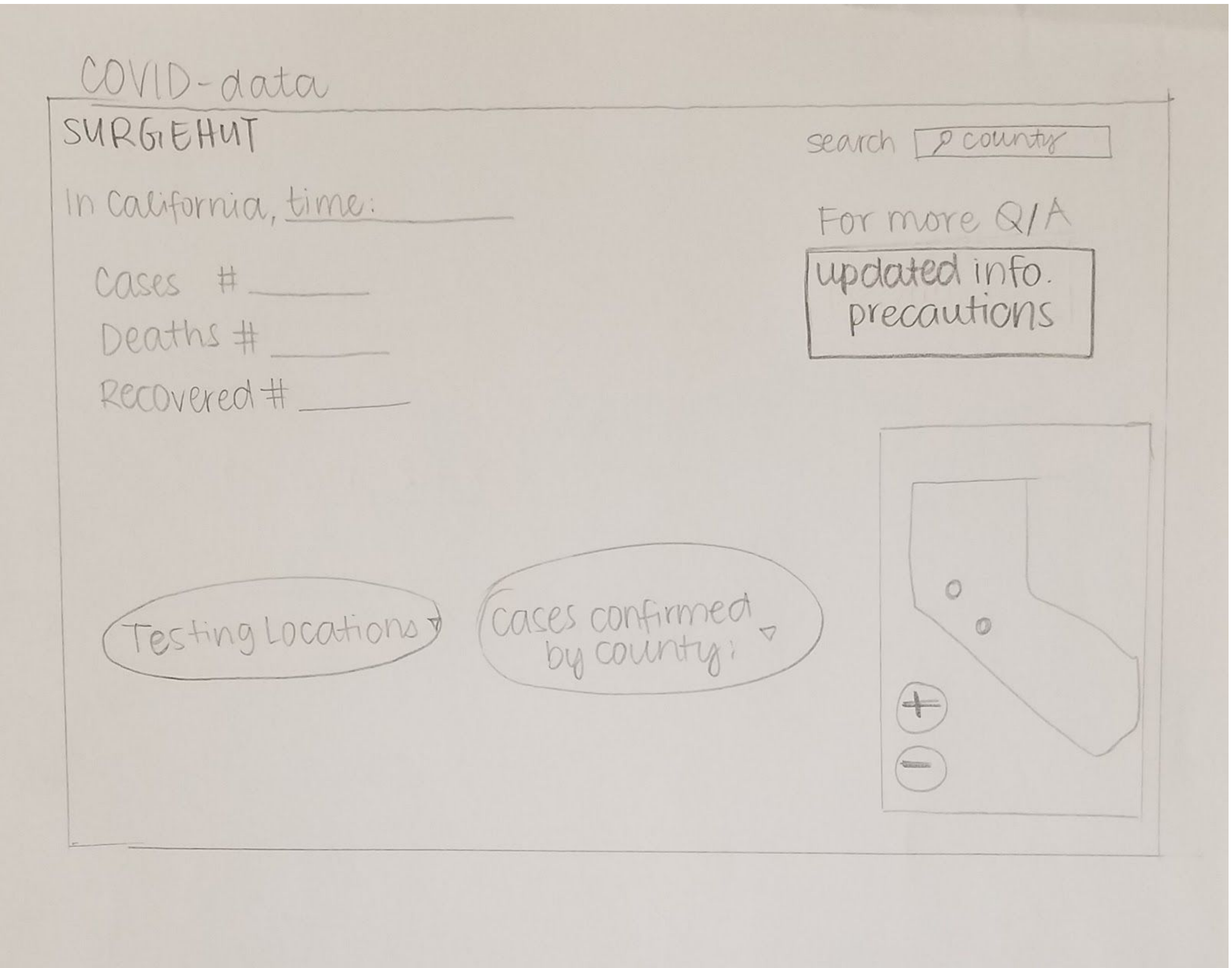


LOGin for Govt users

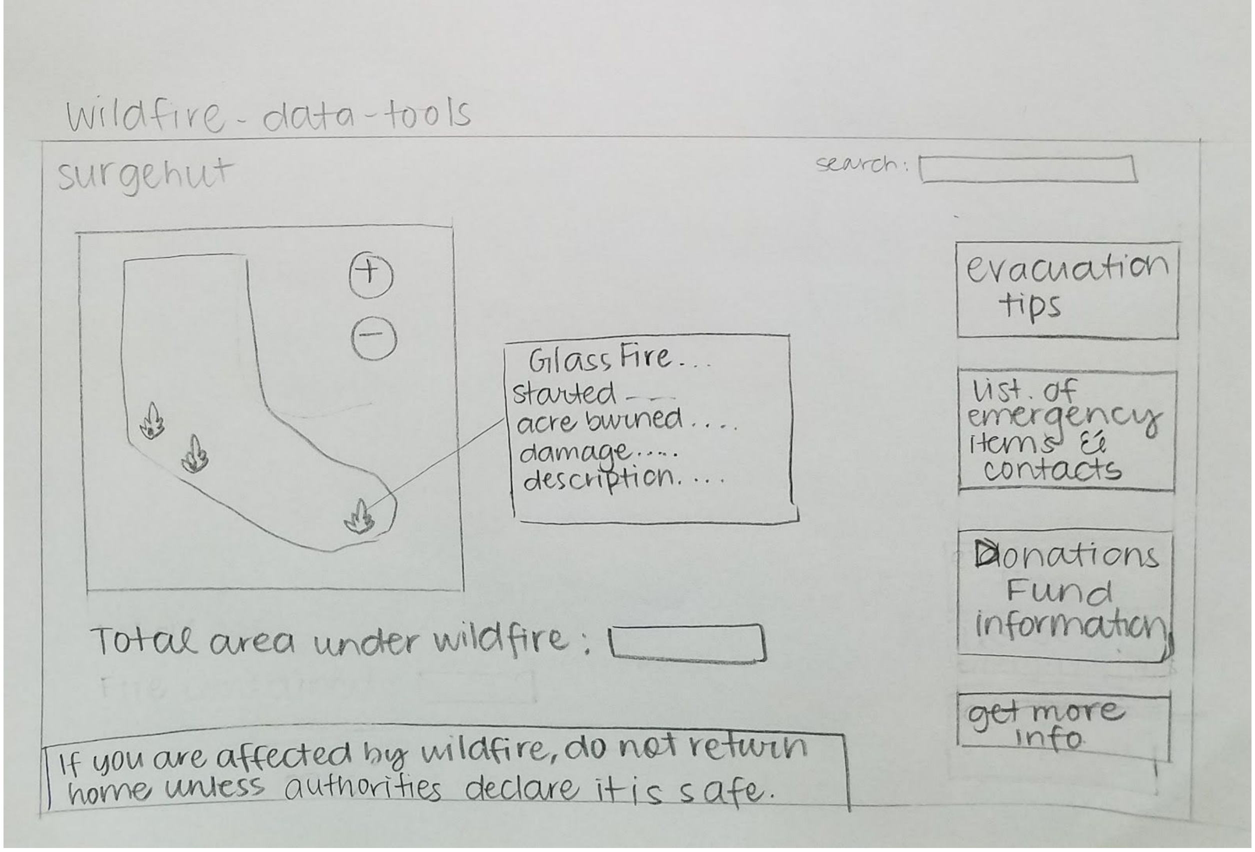


If you are a new user, enroll in Surge-Hut

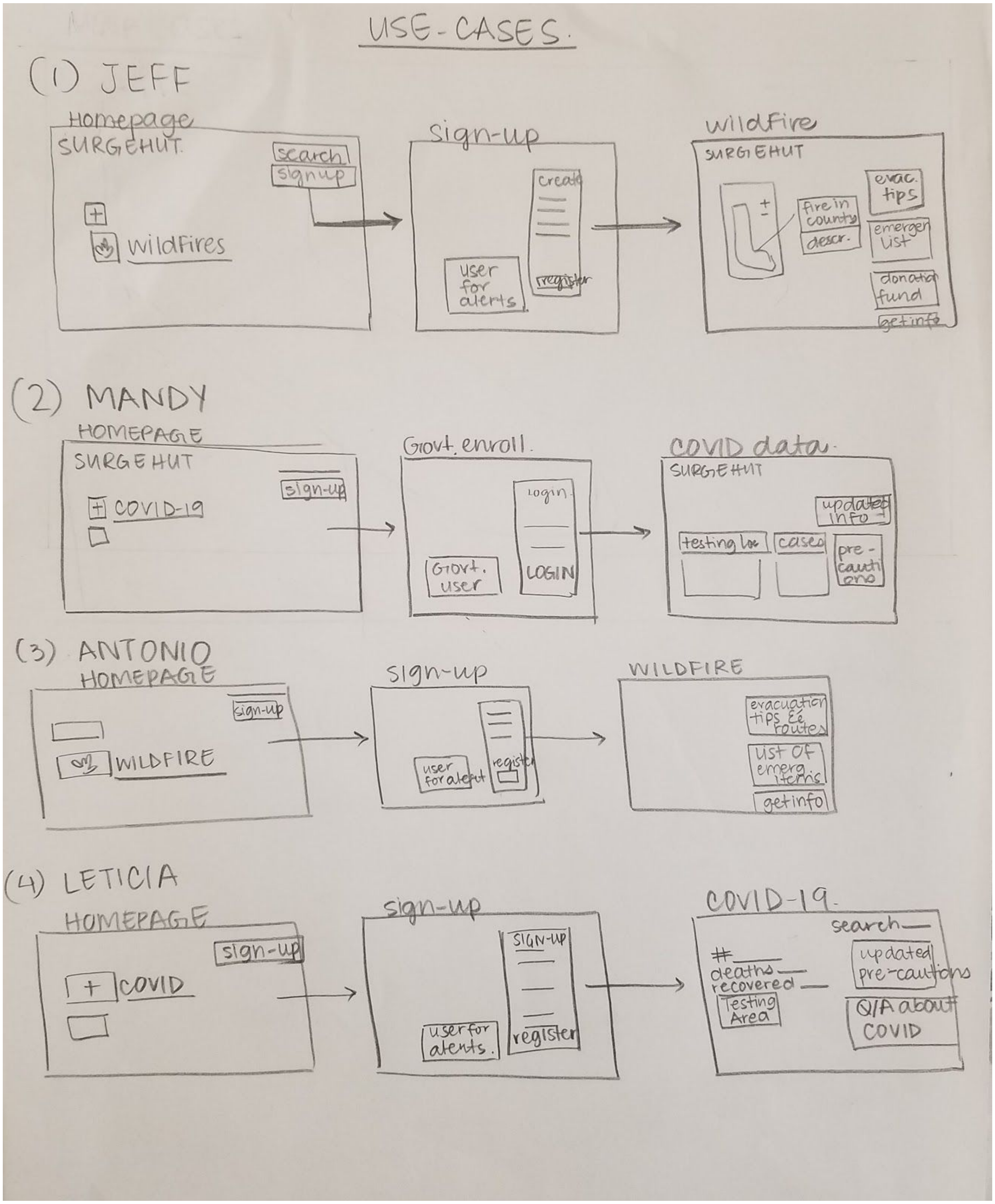
* indicates required field.



When users select COVID19 from the Homepage, they will be directed to this page with all information about COVID-19


wildfire - data - tools
surgehut
search:
+
−
Glass Fire...
started - -
acre burned....
damage.....
description....
evacuation tips
list. of emergency items & contacts
Donations Fund information
get more info
Total area under wildfire :
If you are affected by wildfire, do not return home unless authorities declare it is safe.

If users select WILDFIRE from HOMEPAGE, they will be directed to WILDFIRE DATA page.


USE-CASES.
(1) JEFF
Homepage
SURGEHUT.
search
signup
+
wildfires
sign-up
create
user for alerts
register
wildfire
SURGEHUT
+
-
fire in county
descr.
evac. tips
emergen list
donation fund
get info
(2) MANDY
HOMEPAGE
SURGEHUT
sign-up
+ COVID-19
Govt. enroll.
login
Govt. user
LOGIN
COVID data.
SURGEHUT
updated info
testing loc
cases
pre-cautions
(3) ANTONIO
HOMEPAGE
sign-up
WILDFIRE
sign-up
user for alert
register
WILDFIRE
evacuation tips & routes
list of emerg. items
get info
(4) LETICIA
HOMEPAGE
sign-up
+ COVID
sign-up
SIGN-UP
user for alerts.
register
COVID-19.
search
#
deaths
recovered
Testing Area
updated pre-cautions
Q/A about COVID

3. HIGH LEVEL ARCH AND DATABASE ORGANIZATION

DB organization: Main Tables

- ***user_table***: *user_id*, fname, name, email, password, county, zipcode, date, age, age_group, active
- ***covid_data***: *zipcode*, cases, population, rate
- ***aqi_data:*** *location*, rating, aqi, particle_pollution, date
    - Location = city, rating = good/moderate/unhealthy etc, particle pollution = microns
- ***health_department:*** health_id, hdept_name, health_director, date, active
- ***fire_department:*** fire_id, fdept_name, fire_director, date, active
- ***county_table:*** county_id, county_name, county_zipcode, date, active
- ***category:*** categ_id, wildfires, covid_cases, covid_death_count, air_quality safe_zones, ratings, reviews, date, active
- ***metrics:*** mid, covid_reports, wilfire_reports, AQI_report,
- ***evacuation_level:*** level_id, level_one, level_two, level_three
- ***search_table:*** search_id, help_lines, aqi_county, fire_safe_zone, covid_test
- ***fire_safe_zones:*** fzone_id, zipcodes, address, date
- ***covid_test_zones:*** ctest_id, zipcodes, address, date
- ***GPS_table:*** gps_id, map, location, date, active

Search/Filter Architecture: (Model-View-Controller Architecture)

- **Model:** The model of this web app will share critical information to the end-user depending on the information health care and fire directors provide. SurgeHut is open to residents of California, however registered users will be able to receive notifications and major updates based on their request. They can follow fire surges or increase cases of covid with the built in map that captures the state, at no cost. The main purpose of the model component is to communicate with the database and find the information the user is searching for.
- **View:** The user will see updated information and the app will provide helpful suggestions of safety guidelines one should follow if they need to evacuate from fire endangerment or if their health is compromised. Depending on the user circumstance and which county they live in, the user will be able to navigate to their desired page, whether be for covid or for wildfires.
- **Controller:** The controller component validates the user input or request. It communicates with the model to extract the information from the database and displays the information in the view component. Another important piece of this design is the **browser,** which displays the output of the users request. Users will be allowed to search for the nearest safe zones in their county and track down the closest wildfire in their area. Key terms to use are: safe zones, covid safety guidelines, help line, county evacuation level, AQI in specified county, risk, etc. The browser code will be located in the controller component.

Useful APIs

The team has decided to add **Google Analytics** so we can track visitors usage and analyze the web application traffic. Google Analytics reveals a great amount of information that will be valuable to the team. Useful information includes how long a user spends on the web page, what pages they click on, the demographics of the users, among other data. Google Analytics will help track the user's geological location and track down wildfires and COVID testings. The **Google Sign-in** feature will also be integrated into the homepage so users can log-in conveniently with their google account. This will be a great way to authenticate whether the user has a valid email and profile with google.

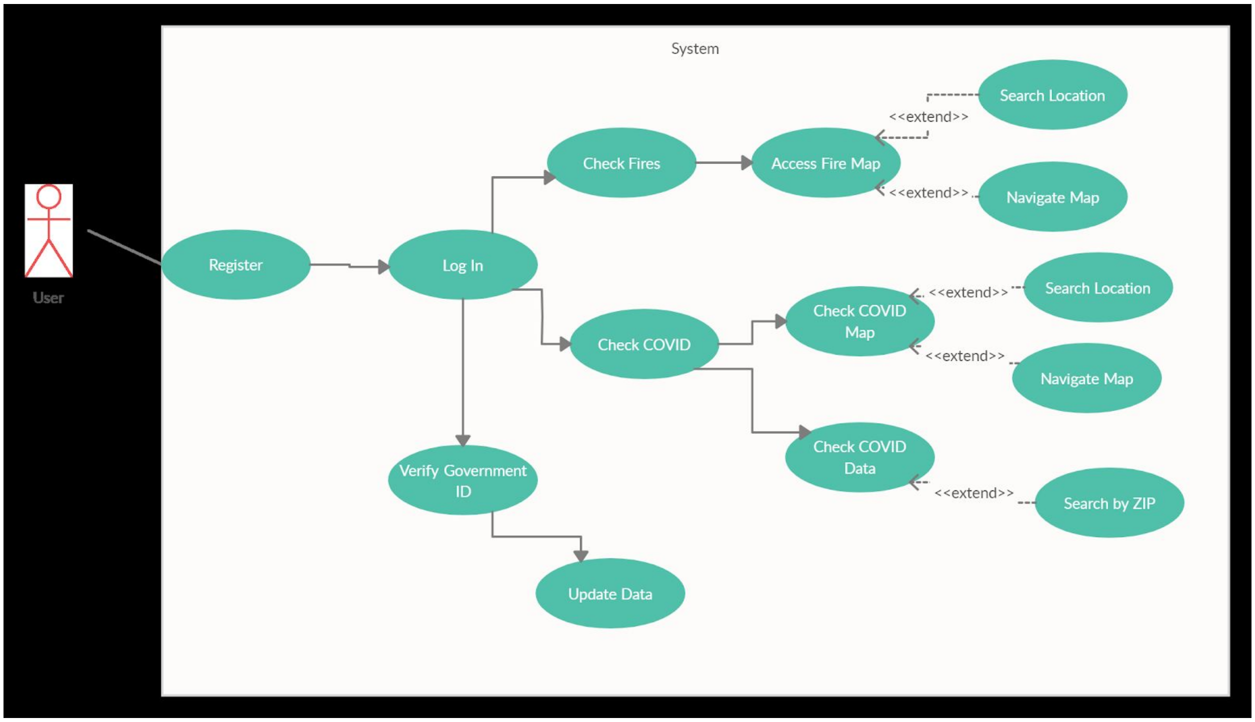
SurgeHut will be retrieving data from **AirNow**, a one-stop source that reports the air quality in California. This data will help illustrate which counties are most affected by the air due to the Wildfires. For COVID cases and important updates, the app will be retrieving their information from the **California Department of Public Health** Open Data Portal, which shares the total count of cases confirmed and death counts in each county. The **Wildfire Perimeters** data portal will be used for Wildfire data that reports active fires.

Non-trivial Algorithm

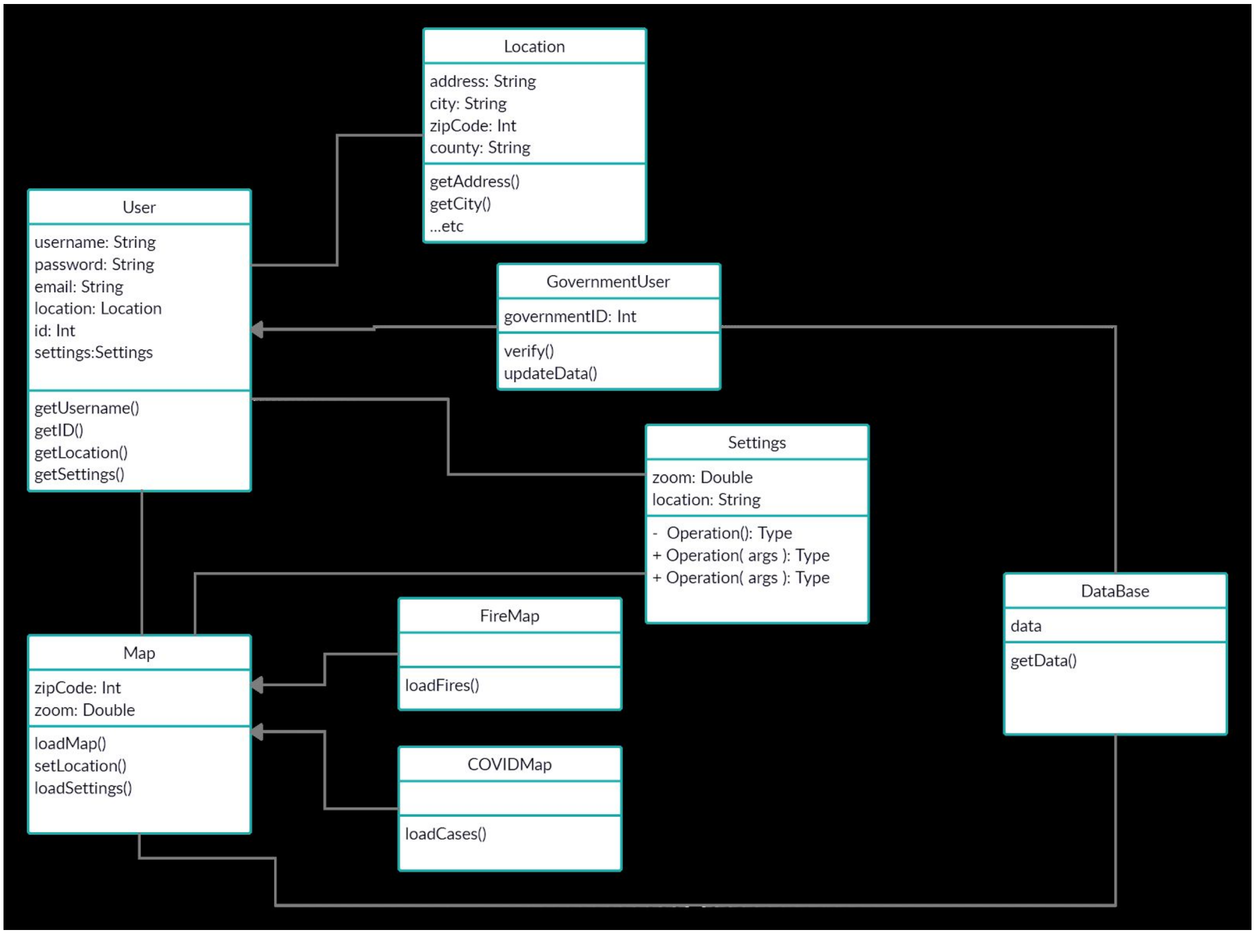
The team is unfamiliar in verifying government officials and would be too tricky to authenticate. The Wildfire map will also be difficult to implement and how to report active cases or fire around the users area.

4. HIGH LVL UML DIAGRAMS

- **Use Case:**



- **Classes:**


Location
address: String
city: String
zipCode: Int
county: String
getAddress()
getCity()
...etc
User
username: String
password: String
email: String
location: Location
id: Int
settings:Settings
getUsername()
getID()
getLocation()
getSettings()
GovernmentUser
governmentID: Int
verify()
updateData()
Settings
zoom: Double
location: String
- Operation(): Type
+ Operation(args): Type
+ Operation(args): Type
DataBase
data
getData()
Map
zipCode: Int
zoom: Double
loadMap()
setLocation()
loadSettings()
FireMap
loadFires()
COVIDMap
loadCases()

5. IDENTIFY ACTUAL KEY RISKS FOR THE PROJECT AT THIS TIME

- **Skills Risks:**
    - I believe our Front-End team, including me, may not be fully experienced with the language we are using to write our code so far. React is a new language for those working Front End on our team and not all of us are experienced with the language. During Milestone 0 we struggled a bit deciding on what language to use for our Front-End until we ended up deciding to use React, while it is not a language we are all familiar with, we decided that it was the best language to use to develop our website and application.
    - A big skill risk we are currently facing is the ability to use the Google Maps API as well as some additional APIs for the data we need to include in our application. The APIs are unfamiliar to us so retrieving the data and keeping it up to date would be an important issue that we are currently faced with.
        - **SOLUTION 1:** Currently we are doing most of the work with the guidance of Pierre who is the most experienced in React out of all of us. Additionally, we are looking into gaining knowledge of the languages and software that we will be using throughout the process of building our application. With some basic understanding of our language and software we will be able to better work

independently when working on our own tasks as well as a team when other team members require assistance with a task that they are working on.

        - **<u>SOLUTION 2:</u>** In order to keep the data up to date we are currently placing it in Excel files (CSV) and then using the data from those CSV files in our application to be able to use and show the data on the application for users to see and use on their end.

- **<u>Schedule Risks:</u>**
    - Our main schedule risk would be Pierre's timezone, currently Pierre is in France which means that he is about 8-9 hours ahead of us. Additionally, having different class schedules as well as work means that we are limited in the times that we can meet. So far we have been limited to meeting quite early on some occasions or using our team meeting time after class to discuss any information or issues about the project.
    -
        - **<u>SOLUTION:</u>** Our current solutions for this issue is that we do our best to communicate with each other through discord to make sure we are on track with our assignments or to ask any questions about the assignment as well as to make sure we are clear on our assignments and

- **Technical Risks:**
  - First major technical risk for our project would be the ability to use Github and do things such as pushing, pulling and merging branches as well as the ability to use Docker in our project. Both of these platforms are necessary to push our code to Github and to work on the Front End of our project
    - **SOLUTION:** To address these issues we assigned Diana as our Github Master to be able to upload things such as our Milestones into our repository. Additionally, our vertical prototype can be used as a tool to help facilitate the understanding and learning of any technical issues and hopefully have them resolved early in the developmental process of our project.

- **Teamwork Risks:**
  - As a team we have not had any teamwork risks so far. All team members have been clear in communicating any issues or questions that we may have about the project in general or about specific tasks that we may be working on. Additionally, team members have been responsible in letting others know when they will not be available for class sessions or team meeting and all team members have been concise with their work and meeting due dates for Milestones or tasks on the application itself

- **Legal/Content Risks:**
    - The only possible legal/content risks that can be thought of for the project would be the use of data from other websites. While we may use data and stock images from other websites on our application we will be clarifying on our website that the project is purely for demonstrational purposes. In the case of any actual legal/content risks then we can add a User Agreement with Terms and Conditions for the website that they will need to agree to before signing up and creating an account.

6. PROJECT MANAGEMENT

For the management of our team, we all agree to use GitHub tools.

We have created five dashboards to share our tasks in fonction of the theme of the dashboard. Each one have a ‘To do’, ‘In progress’ and ‘Done’ columns

- **Back end**: Every task here will be about the server side of our application. ***Kevin CHEN***, the back end lead, will be the manager of this one.
- **Front end**: Every task here will be about the client side of our application. ***Pierre ANTOINE***, the front end lead, will be the manager of this one.
- **SurgeHut**: Common tasks such as documentation will be assigned here. ***Josue Carreon*****,** the team lead, will be the manager of this one.
- **Bug**: Where all bugs in our application can be reported.

- **Pull request**: A dashboard to schedule merging requests between every branch of our project will be done by GitHub Master, **Diana Benavides**.

We are creating tasks by creating issues in our GitHub and it will be updated automatically in our dashboard at the ‘To do’ column. Every one can move a task from ‘To do’ to ‘In progress’ to show his current working task. When someone closes his issue, the associated task will be moved to ‘Done’.

Each issue can be assigned to someone and dashboard specifically. Some labels can be added to give more information about the type of task.

To show the progression of our task, each one can be associated with a dead line with a progression bar.

https://github.com/CSC-648-SFSU/csc648-02-fa20-team03/projects/1?add_cards_query=is%3Aopen