SW Engineering CSC648/848 Spring 2023

Application Title: Dooms Day Alert
Section 02
Team 06

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Milestone 1
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History Table

Date Submitted	
Date Revised	

Executive Summary

Dooms Day Alert is a web-based service that aims to revolutionize the way California residents stay informed about potential dangers related to health, physical safety, and extreme weather conditions. Our platform provides for real-time input of metrics related to COVID-19/public infections, wildfire evacuation levels, and other security emergencies, which enables residents to access and search this information at a county level.

With an easy-to-use interface, it allows users to register if they would like to receive personalized alerts based on their location and preferences, helping them to shelter-in-place, evacuate for wildfire, or avoid certain areas for security or weather situations. Our platform includes a map-based interface for easy visualization of events, with all data being reviewed and validated by our team members to ensure accuracy and appropriateness.

One of the key advantages of web application is its commitment to maintaining user privacy, with clear communication of all privacy policies. The platform will also be optimized for desktop/laptop browsers and selected functions will render well on mobile devices, ensuring access for a broad range of users.

With the integration of Google maps and analytics, Dooms Day Alert provides a seamless and intuitive experience for all users. The platform is designed with well-organized and maintainable code, making it easy to modify for future improvements.

Our team consists of a talented group of students, with diverse skills and expertise, all committed to developing Dooms Day Alert's into a valuable resource for California residents. Our front-end developers are skilled in designing user-friendly interfaces and creating seamless user experiences. Our back-end developers are experts in creating scalability and they are

responsible for developing the underlying infrastructure of the platform, ensuring its reliability, and working with large amounts of data to provide real-time information to users.

Personas and Main Use Cases

In recent years, Earth has undergone radical changes when it comes to weather, health and security. Plenty of people were severely affected due to the Covid-19 pandemic. Our website, Dooms Day Alert, will serve a variety of audiences by providing resources and information regarding California counties. Users will be able to closely view the current status of Health, Security, Fire and Weather within California counties. This website will be free and accessible to the general public.

Users

This website will be especially useful for community and city leaders such as government officials, police officers, firefighters and the health department.

1. Government Officials: The contents of this map will indicate the different needs and issues occurring in each county. With these indicators government officials can analyze and create policies and interventions.
2. Police Officers**:** We will have a security section to show crime activity in the specified area. Officers may keep track of the upsurge in crime and help them understand which areas are in need of more help.
3. Firefighters: Those affected by fires, victims and firefighters, will also be benefited in our Wildfire section. The website will monitor and display wildfires happening in the area for community members to be well prepared and informed.

4. Health Officials: With the rise of Covid-19 cases, doctors and nurses will have to be well aware of the conditions of their counties. This website will also have a Covid-19 map to report the current prevalence and incidence rates of Covid-19.

How can you use it?

As stated, you may look up a county, given by a map of California to access the different features of the website. There, you may select what section of information you want to receive. The counties Directors of Health, Security, Weather and Fire Departments will be allowed to enter metrics to present the number of cases of Covid-19/infections per 100k, deaths per 100k in wildfires, respective levels of evacuation and security concerns which include acts of violence, roadblocks and detours for storms and other extreme weather conditions.

List of Main Data Items and Entities

California has been hit by a number of natural disasters, including wildfires, extreme weather, and the ongoing COVID-19 pandemic. The Dooms Day Alert provides information about these topics that requires various types of data items and entities in order to provide up-to-date information to visitors of the website. We will have a variety of user types that will use Dooms Day Alert . They could be interested in 4 different things or all of them at the same time:

- Wildfires
- Covid-19 Cases
- Weather Conditions
- Security

It is also important to keep in mind that county officials will have a special access to enter data to the site. They would have to sign up and select their profession for us to grant certain user privileges. These privileges will allow them to make additions to the metrics.

Let's break down and explore the data items and entities that are required for each of these sections.

Wildfires

The information regarding Wildfires in California will be provided in our website as:

1. Fire incidents: A fire can be expected at any point around California, which usually increases during summer. Important information that would be associated with the fire incident will be the duration of the fire (start and end date), size of the fire, the name of the fire if applicable and the casualties of the fire.
2. Evacuation orders or warnings: The city officials tend to give out evacuation plans and/or warnings when fire occurs. Dooms Day Alert will store those official orders, including the location of the affected areas, and the date and time of the warnings.

COVID-19 Cases

The information regarding COVID-19 cases in California will be provided in our website as:

1. Case counts: The number of Covid-19 cases in California is currently being tracked by the local and state health departments. Three items in this entity include: number of confirmed cases, death count, and recoveries.
2. Covid testing locations: City offers numerous sites that can provide COVID-19 testing to residents. We can store the name of the location, address, and open hours in this entity.

3. Covid vaccination locations: There are numerous locations to get vaccinated against COVID-19 in California. We can also store the name of the location, address, and open hours in this entity as well.

Weather Conditions

The information regarding Weather cases in California will be provided in our website as:

1. Temperature: The temperature can be different for every county in California. We can store the average current temperature of the city.
2. Air quality: Air quality can be dangerous during Wildfires, as we have experienced first hand before. To provide up to date information, this entity can include: air quality index (AQI), the level of pollutants, and any relevant health warnings.
3. Warnings: We tend to get warnings from city officials throughout the year. These warnings can include: Wind warning, Storm warning (thunderstorms, and tornadoes), Freeze warning, and Heat warning.

Security

The information regarding Security cases in California will be provided in our website as:

1. Incident: This entity would contain data items such as incident type, description of the incident, location it occurred, and the date and time.
2. Law enforcement: This entity would contain data items related to law enforcement responses, such as officer name and badge number, incident report number if applicable.

Functional Requirements

1. User Account

- Users have the option to create an account by entering their email and choosing a password.
- Users are able to opt in as a government official to add data to the metrics.

2. County Search
    - Users can search a specific county/location for their use.
    - Users can search metrics in health/covid-cases within a county.
    - Users can search metrics in weather within a county.
    - Users can search metrics in wildfires within a county.
    - Users can search metrics in security/crimes within a county
3. Toggle Metrics
    - Users can choose specific information categories, such as health/covid-cases, weather, wildfires, and security/crimes. Within each category, users can toggle individual metrics on or off, depending on their preferences.
4. Mobile Devices
    - The website is able to adjust itself to different devices that users may use to access.
5. Alerts and Notifications
    - Users can register for alerts or notifications for their county.
    - Users will receive an alert when there is a spike in covid-cases.
    - Users will receive an alert when there are severe weather conditions.
    - Users will receive an alert when there is a high risk of wildfires.
    - Users will receive an alert when there is an increase in crimes.
6. Trends

    - Users can view the trend of covid cases in different counties. The counties with the highest number of cases will be listed at the top, followed by the ones with lower numbers.
7. Maps
    - Users can interact with maps to visualize the different counties within California.
8. Additional Resources
    - Users will have access to the government website and links for additional information with all the metrics.
    - Users can access and view temperature, air quality, and warnings for weather.
    - Users can access and view incidents and law enforcement for security/crimes.
    - Users can access and view fire incidents, evacuation orders, or warnings for wildfires.
    - Users can access and view case counts, covid testing locations, and covid vaccination locations.

Non-Functional Requirements

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0 (some may be provided in the class, some may be chosen by the student team but all tools and servers have to be approved by class CTO).
2. Application shall be optimized for standard desktop/laptop browsers e.g., must render correctly on the two latest versions of two major browsers
3. Selected application functions must render well on mobile devices (this is a plus)
4. Data shall be stored in the team's chosen database technology on the team's deployment server.

5. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
6. The language used shall be English.
7. Application shall be very easy to use and intuitive.
8. Google maps and analytics shall be added
9. No email clients shall be allowed. You shall use webmail.
10. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
11. Site security: basic best practices shall be applied (as covered in the class)
12. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
13. The website shall prominently display the following exact text on all pages "SFSU Software Engineering Project CSC 648-848, Spring 2023. For Demonstration Only" at the top of the WWW page. (Important so not to confuse this with a real application).

Competitive Analysis

Feature	Weather.gov	www.worldometers.info/coronavirus/	spotcrime.com	DoomsDay Alert (Our future product)
Centralized source of a variety of information	-	-	-	+
Modern UI	-	+	+	++
Category Searches	+	+	+	+
Information filter	-	+	-	++
Ease of access	-	+	+	++

+ = Feature exists | ++ = Superior | - Does not exist

We designed our product with an intuitive interface that caters to individual user needs by providing easy access to personalized information. We understand that users have different information requirements, and presenting excess data can be counterproductive. For instance, a wildfire respondent may not be interested in COVID-related information. Therefore, our platform offers relevant information to specific users and filters out irrelevant data to improve readability. However, for the general user who seeks comprehensive information, we also provide an option to access all the data. Our product collates information from multiple sources and presents it in a centralized location, making it easier for users to find what they need. Additionally, we will have an updated user interface to create a modern and visually appealing look.

High-level System Architecture and Technologies Used

Framework	React
APIs	Google Maps, Earthquake Data API, COVID-19 Statistics API, Active Forest Fire API
Tools	IDE, Github, Terminal, Mysql Workbench
Systems	Git, MySql
Supported Browsers	Chrome, Safari, Firefox, Edge
Deployment Platform	AWS

Team and Roles

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Checklist

Task	**Status**
Team found a time slot to meet outside of the class	DONE
Github master chosen	DONE
Team decided and agreed together on using the listed SW tools and deployment server	DONE
Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing	DONE

Team lead ensured that all team members read the final M1 and agree/understand it before submission	DONE
Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)	DONE