Natural Disaster Relief The NDR

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Abstract or Summary

- Research Question: What are the various steps and methods needed to protect people from Natural Disasters?

Motive: The NDR is an app concept idea that's goal is to save lives. Natural disasters take place every year, killing and destroying countless lives. A simple app that could give specific evacuation locations, simple elementary school rules, a simple form of support, anything could help save lives. By following simple rules, by being guided by a calm and caring app, people could protect their life and their mental health. As humanity advances, solutions must be uncovered, and the NDR is just one more step in the right direction.

Research Methods & Data Collection: Instead of relying on web searches, I talked to people. I talked to seniors in high-school who took courses about natural disasters and the effects of weathering. I also used my investigative questions to find reliable sources such as .gov and .edu sites. For the data collection part of my science project, I developed a survey. This survey asked meaningful questions that helped me understand the potential improvements I could make towards my app concept idea. After the responses from the survey were collected, I compiled the data into graphs by using Python, the coding language.

Research Question/Hypothesis

- Research Question: What are the various steps and methods needed to protect people from Natural Disasters?
- Hypothesis: Natural Disasters can be handled more effectively.

Importance: Natural disasters have terrorized people for countless years. Despite the loss of property, life, and mental & physical health, no significant action has been taken. Many studies have been conducted, and information has been gathered, but none of the information is being implemented. The hope of the NDR is to address the global issue of natural disaster relief and prevention. The Natural Disaster Relief app will protect and guide people in the event of any natural disaster. This global solution will revolutionize how we handle these predominant problems with simple but effective technology.

Background Information for Research

Planning and Background Knowledge: At the very beginning of my science project, I envisioned to acquire knowledge about this topic through reliable sources. By using .gov and .edu sources, I started to gather information about the mere definition and effect of natural disasters. This new information built upon the knowledge that I previously knew about this topic. I knew the definition and bare effects of natural disasters, but I did not have any knowledge about the miniscule but important details. After my research, I learned about the horrific effects that natural disasters display on one's mental health. After I gave myself the most detailed understanding of this topic, I began brainstorming possible solutions.

Environmental Issues, Protocols, and Sources: I used the research question to come up with the accessible app idea, the NDR. This app concept idea provided a splendid solution which would combat natural disasters. The environmental issue of natural disasters influenced my research question and whole project. Sources such as Direct Relief have shown me the catastrophic damage that natural disasters can do to humans. Natural Disaster Mitigation and Relief is my most detailed primary data source that provides vital information about natural disasters. This government source gives details about everything ranging from simple prevention steps along with detailed information about shelter locations. There are tables in this source which contain primary data sets that provide a more comprehensive view about this topic. This source is one of the most important sources that influenced my project idea while giving me loads of priceless knowledge.

Research Methods - Data Sources

Source Data Collection - Plan: In the initial stages of researching and formulating my project idea, I created a plan for data collection. In my project, I held two major data collection sessions. First, I collected data in the form of sources. These sources helped me have concrete evidence about certain facts and theories. They also helped me educate myself to better understand the effects and prevention methods of natural disasters. My app concept idea incorporated all of the major aspects of natural disaster prevention. When I used the CSS and HTML techniques in the app concept idea development, I still used my knowledge from the sources. My plan to get these sources was to web-search my investigative question in the form of a 'deep search', collect several sources, and finally filter these sources to collect the most credible and relevant ones.

Survey Data Collection - Plan: After I created the CSS design of the Natural Disaster Relief app, I wanted to collect honest opinions about my project. I created a survey in which I asked crucial questions. The responses were then compiled using graphs. For this data collection, my plan was to send the google form survey to 10 total male and females (5 male, 5 female), wait until all responses arrived, export the raw data in the form of an excel spreadsheet, and efficiently create two graphs (for two questions) by analyzing the raw spreadsheet data with the programming language Python. I fully followed this plan, and successfully collected and compiled the data.

GLOBE Protocols: I used the GLOBE protocol which said to "Analyze & Interpret Data" when I was interpreting my graphs (towards the end). I also used the GLOBE protocol, "Plan & Conduct Investigation." when I thoroughly planned all the types of data collection from surveys to sources.

Data Filters: I 'filtered' my data to only use the most credible and relevant sources. These sources would be trustworthy and reliable to use. They would also provide the 'answer' to my questions clear and concisely.

Research Methods - Data Use

Data Selection/Filter Process: Majority of my science project was a learning process. Before beginning the concept idea development, I wanted to better understand this topic. Once I selected these sources by following the plan in the previous slide (use research question to web-search, select credible sources) I started to incorporate them in my science project. For my own research, I used Natural Disaster Mitigation and Relief. In my actual app concept idea design, I had evacuation locations. The Natural Disaster Relief app will provide simple instructions (eg. duck and cover) along with important evacuation locations at the tip of one's fingers. For my demonstration, I used Cityofirvine. This evacuation map along with the others of many cities held my app concept idea together.

Survey and Source data: In my project, I collected data in the form of sources along with data from surveys. I collected my own data along with data done by other people, which are called sources. For my sources, I had a very clear and concise plan. I collected data on a 2-3 day basis. Firstly, I would use my research question to do a series of web-searches, 'filter' the data by looking at the .gov and .edu sites, and choose between the most relevant sources out of the credible .gov and .edu sources. For the survey data, I also had a plan. My plan was to have an unbiased group of equal male and females take the two question survey, collect the responses, and use Python to compile the data into graphs.

Compiling the Survey Data: Once all ten responses were collected, I exported the data into an excel spreadsheet. I then imported the spreadsheet to my Python IDE. I used my knowledge about the coding language, Python to 'read' the data in the spreadsheet. Once I finished writing the code for analyzing and creating a graph from the raw spreadsheet data, I ran the script. The script returned a file that contained the compiled data in the form of a graph. I copied these graphs from the file, and then pasted them into this slideshow to be analyzed by humans! Moreover, I analyzed the data to improve my project. All of these data collection processes were happening all in my computer! There were no physical locations, only digital location such as the Python IDE (PyCharm) and the internet (eg. google and duckduckgo).

The Presentation Process

I have put together an app design/template of the NDR. An important app like the NDR can't be thrown together in a couple of weeks, it requires proper attention. This template is a progressing step that will allow the NDR to be made efficiently while having a meaningful impact. I have conducted a survey based on the app, collected the data from the survey in the form of charts and graphs. This data along with the app description and template will truly show why a small idea like "Helping people in natural disasters" should be implemented for the better. The demonstration and data collection slides are listed below:

Before analyzing the data and graphs, I want you to understand my project in detail! Explore this app design of how the Natural Disaster Relief app will look like, and what methods will be used to protect people from natural disasters.

- App design (8-14)
- Survey based on app (15-16)
- Compiled data from survey (17-18)
- Data analysis/final remarks (19-20)

Natural Disaster Relief

-- Natural disaster selection --

Click Here to view Options*

IF IN A MEDICAL
EMERGENCY PLEASE DIAL
911*

Instructions for the following slides

This slideshow serves as a template for the actual app. The template will be using

California as its example. Therefore, California's geographical locations and the natural

disasters native to California will be used for demonstration purposes only. The user

for the demonstration is in California and the Natural disaster they are expeiencing is

an earthquake.

Earthquake, Irvine, California: Read steps

Inside a Home/Shelter:

1. Stay calm and find a sturdy table to rest under.
2. Sit under the table in a "criss-cross" leg formation.
3. Hold on to the legs of the table.

Outside a Home/Shelter:

1. Find a Public bench or table, then follow "Inside a home/Shelter" information

1. If there are no benches, go to an open field/area with no trees, buildings or other obstructions.

1. Sit down and stay calm.

Click Here: Continued Information

Stay calm to stay safe

IMPORTANT: Earthquakes are short and sudden.

1. Do not try to evacuate, instead stay under the table or desk by following the steps on the previous page.
2. You will be fine as long as you are under the table, just take a deep breath and relax your muscles.
3. Gather your family and also direct them to stay under the table. The calmer you are, the safer you are. Breathe in and Breathe out while counting to ten and back to one.
4. Once officials post/give notice that it is safe to go back to normal, then you can leave from under the table.

OUR MAIN PRIORITY IS YOUR SAFETY. YOU ARE IRREPLACEABLE UNLIKE ITEMS IN YOUR HOUSEHOLD. THAT'S WHY YOU SHOULD STAY PUT TO STAY SAFE.

Click Here: Previous Information

Information for the following slides

The next slides will show how the evacuation part of the app will work. The location will still be California, but the type of natural disaster will be the recent silverado fire. During the case of a fire, the "simple instructions" such as "stop-drop-and roll will still be shown, but the app will also be showing areas to evacuate to.

Wild-fire, Irvine, California: Read steps

Steps for fire in your home:

1. If the fire is in your neighborhood or in your home, then drop to the floor.
2. Immediately crawl your way to the nearest exit while trying to limit the amount of inhaling due to the smoke around you.
3. Once safely outside, proceed to the "evacuation Information" page

Steps for fire warning/amber alert(fire is going to be coming to your home)

1. If the fire will be spreading to your neighborhood soon, then prepare for evacuation.
2. Take ONLY the necessities such as phones and water.
3. Use a vehicle to drive you and your family to the evacuation location provided on the "Evacuation Information" page

Evacuation Information

Evacuation Information

Read:

Move to the Gray zones.

The areas that are gray are safe to stay in.

The zones with colors in them are unsafe.

Try to stay at a friends home, relatives home, or a hotel (all of which should be in the gray zone).

Powered by Various Map Services such as Cityofirvine

That was the end of the app template design, now I will be showing you surveys and data

Here is a little bit of information about the upcoming survey and survey data

I decided to do a survey for my science fair project because I knew that I would not have any physical models or experiments since my project is app based. To give my project an extra bonus point or charm, I decided that gathering multiple views from an unbiased group of people would help me add even more functionalities. The surveys would also help show why each survey taker believed my project is useful or not useful.

Survey and Data Information

I conducted a survey with two questions that collected information about the NDR. I gave the user information about what the NDR is, and then I presented them the two questions. A total of 10 people, 5 male and 5 females participated in this [survey](#).

Description given to survey takers: NDR is an app idea that could save lives. NDR is an app that will be located on people's phones. In the state of a natural disaster, instead of people panicking, they could go to the NDR app and enter the type of natural disaster they are in. The app will give the user simple directions such as "duck and cover". The NDR also uses one's location to provide helpful evacuation locations to go to. The NDR recommends locations to evacuate to, rules to follow, all while keeping the user calm and focused. With the NDR, all of the panic and loss that occurs in a Natural disaster could be gone.

Questions given to survey takers:

1. On a scale of 1 - 5, do you support(like) or not support(dislike) the idea?
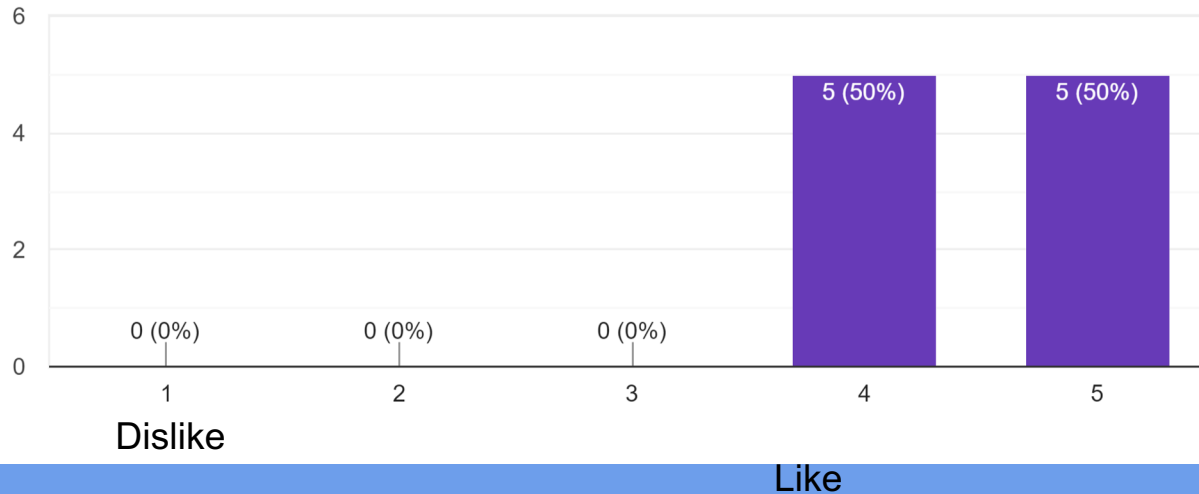2. Give your constructive criticism or appreciation towards the app. (150 Characters or less)

Next

Data Visualizations & Data Analysis - 1

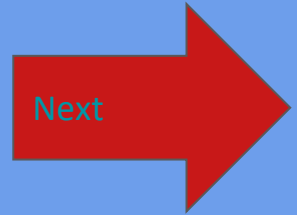On a scale of 1 - 5, do you support(like) or not support(dislike) the idea?
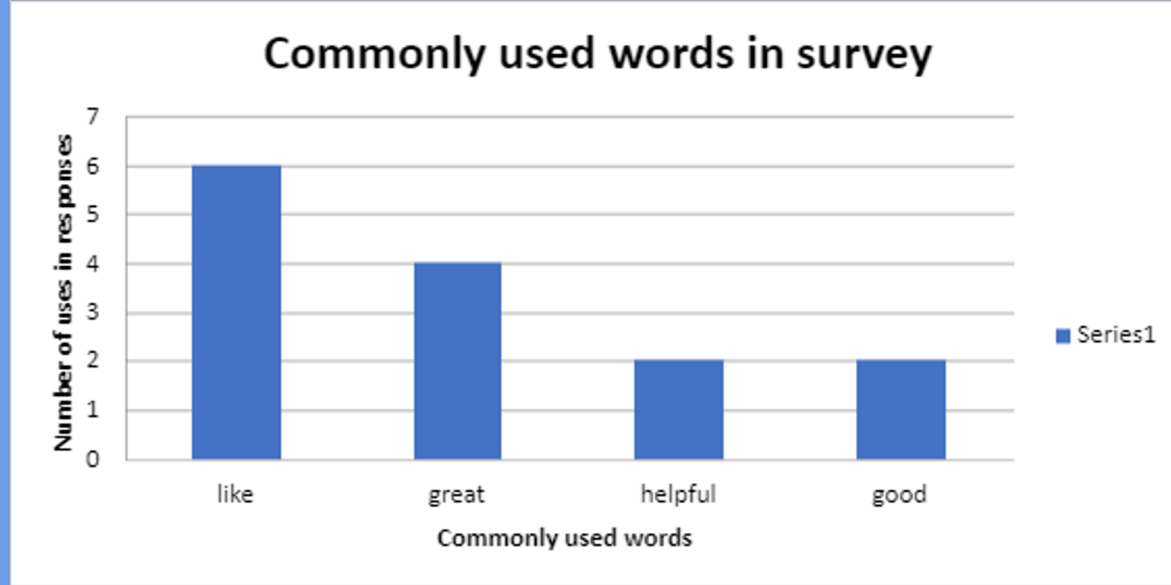
10 responses

Dislike

Like

Data Analysis: The data displayed in the bar graph shows how all of the students like the idea of the NDR. 50% of students love the project while the other 50% like or have a positive response to the project. This data can show how none of the students disliked or did not appreciate the project. With this data, I can conclude that it is a good idea to implement the idea of the NDR as an actual app for people to get.

Data Visualizations & Data Analysis - 2

Commonly used words in survey

Next

Data Analysis: In the short response data, there were many commonly used words such as 'I' and 'the', but I tried to use adjectives, nouns, and words that were not conjunctions. These words all described the survey taker's views on my project. 6 people "like" my project, 4 people thought my project was a "great" idea, 2 people thought my project was helpful, and 2 people thought the project was "good" or a "good" idea. The word like was used the most times in people's responses, showing me how this project should be implemented. There were no negative comments, only constructive criticism which I will review on the next slide.

Interpretation of Data - Relating Data & Question

Top comment of Appreciation

"I like the sound of it and think it would be really helpful and would stop people from panicking."

Summary of data: I decided that this comment was the "Top comment of Appreciation" because it showed the mission of the project. Other comments said that this project is "great", but this comment shows why I came up with this app concept. I did not want people to panic in a natural disaster, I wanted people to have a reliable tool that gave them the confidence they needed to keep themselves healthy and safe.

Top comment of Constructive Criticism

"you should try to make it so the app doesn't need WiFi or hotspot because if the user isn't using WiFi because of travel, they wouldn't use the app"

Summary of data: I loved this piece of constructive criticism due to its real concern. I saw many other great pieces of constructive criticism, making it hard to choose the best one. The app will run on wifi and data. Data makes sure that people can use the app even when traveling. The app also works like 911, allowing people to use some important parts of the app with neither wifi and data.

Interpretation: These comments show how the Natural Disaster Relief App is a realistic app that can revolutionize how humans handle natural disasters. The data has assured me that the Natural Disaster Relief app answers my research question. The Natural Disaster Relief App is the solution that can provide simplistic methods and resources to protect people from natural disasters! The comments of appreciation and constructive criticism along with the graphs all support the Natural Disaster Relief App.

Interpretation of Data - Next Steps

Conclusions: All of the research and data have proved to be a wonderful experience. The knowledge I gained from this experience is irreplaceable. The data collection and analysis have showed me that the Natural Disaster Relief App is a splendid and revolutionary idea. The positive feedback in the survey along with the critical constructive criticism helped me understand the strong points of the app while correcting the previous weak points. The data helped me strengthen the Natural Disaster Relief App. By doing extensive research and constructing the app design, I can conclude that my hypothesis is supported by the results of the data. The data fully supports the Natural Disaster Relief App and its implementation.

Improvements & Plans: The survey helped me make preliminary changes and improvements to the CSS and structuring of the Natural Disaster Relief App design. Other than the changes through the survey, I have plans for the construction of the app as a real-world application. I am currently putting together all my resources, to start the app development. This app is not a joke, so I will be taking a few months at the least to create the global use application that will hopefully be used extensively. My hope is that this app becomes a widely used tool such as an emergency number, for people who are in natural disasters. This app should revolutionize the world in a positive manner by protecting people's property, their mental & physical health, and most importantly, their lives. The Natural Disaster Relief App will truly save lives.

References/Bibliography

- [Globe Website](#) - Rules and Guidelines
- [Direct Relief](#) - Information about the effects of natural disasters
- [Natural Disaster Mitigation and Relief](#) - Has a very detailed description of the precautions, effects, and evacuation procedures for people in natural disasters.
- [Cityofirvine](#) - Shows evacuation locations for residents of Irvine. I used this for demonstration purposes, the NDR app will have your specific locations' map (eg. Atlanta).
- [Occupational Safety and Health Administration](#) - Shows the precautions that one needs to take in the event of a natural disaster.
- [Mayo Clinic](#) - This source shows how traumatic event such as Natural Disasters can lead to devastating mental health disorders like PTSD. This source clearly explains what PTSD is, how people acquire it, and how to prevent it.
- [NASA Disaster Response](#) - This source from NASA shows prevention and causes of natural disasters such as Hurricane Zeta.
- [National Center for PTSD](#) - This source shows risks of being exposed to natural disasters. It specifically shows how injuries can lead to trauma that can scar one's mental health in the form of PTSD or other mental disorders.

Thank you for learning about natural disasters and how the Natural Disaster Relief App can save lives!