COVID-19 WEB BASED STATISTICS APPLICATION

Designed *by*

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Introduction

The coronavirus COVID-19 pandemic is the defining global health crisis of our time and the greatest challenge we have faced since World War Two. Since its emergence in Asia late last year, the virus has spread to every continent except Antarctica. Cases are rising daily in Africa, the Americas, and Europe. The pandemic is moving like a wave—one that may yet crash on those least able to cope. But COVID-19 is much more than a health crisis. By stressing every one of the countries it touches, it has the potential to create devastating social, economic and political crises that will leave deep scars. (United Nations Development Programme).

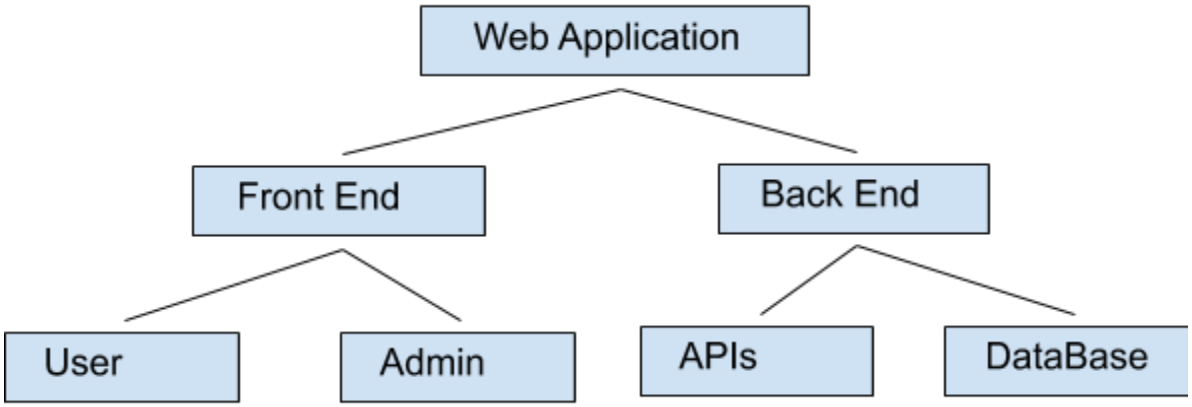
It is as such that we choose to design the web-based application that can detect, display, rate (degree of infection), store, transmit data obtained wirelessly and access the data via the web together with other features. All this to help create awareness of how fast the virus is spreading so as to help health workers know how much work needs to be put in and also to help get information to the public of how damaging the virus can be and how to avoid it.

Planning and Requirement Analysis

The development of the web based system is a feasible project that which concluded will create great aid to the health workers community and the world's population at large it will consist of several phases and parts which will later be discussed concisely in the following stages of the report. The system will be able to retract information and updates on the number of COVID-19 cases, their locations and display it on the main interface (i.e browsers). For the fulfillment of this project a full stack web app developer can be employed for the development and this helps save cost or a front end and a backend web developer can be employed for faster development and system efficiency. All these said, the cost of online data storage and deployment after production should also be considered.

Designing the Product Architecture

Using the top-bottom design, we will approach from the main web application which is subdivided into the frontend and the backend. The front end where we have the User(Customer's display) and the Admin where information can be edited and updated by the health company. The backend consists of the APIs(Application Programmable Interfaces) which helps source for updates and information on COVID-19 and the database where all information and data are stored. Below is the Top-Down design diagram:



All tis systems seen above will be integrated to work together thereby forming the COVID-19 Web Based Statistics Application. Below is an Algorithm and a Flowchart to support its working processes.

Algorithm represented in a Pseudocode

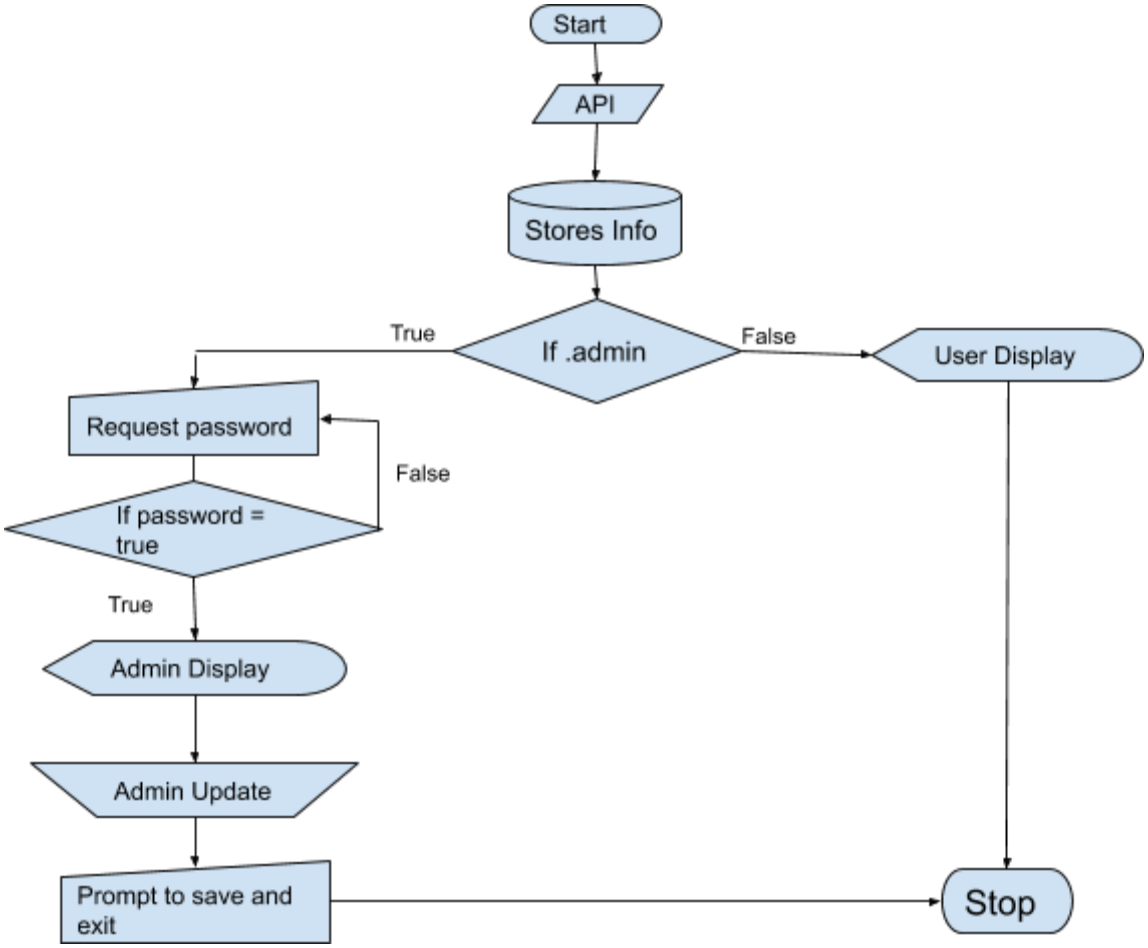
1. **Start**
2. **Source information on COVID-19 using API into the Database**
3. **If .admin {**
4. **Require password**

```
If password = true{
    Display Admin Page
    If Admin makes changes{
        Prompt to save and exit
    }
Else password wrong. Go Back to LINE 4
}
}
```

5. **Esle {**

```
Display User(Customers' Site )
}
```

Control Flowchart of the above Algorithm



Implementation/ Developing the Product

The development of the web application following the design structure will be addressed into two sections the frontend and the backend.

FrontEnd

The front end is been coded in three parts using the HTML(Hypertext Markup Language) which is the language of the web and the skeleton of every webapp, the CSS(Cascading Style Sheet) which gives the web app its beautiful looks and Javascript which helps give the app its

functionality and adds interactivity. For the web application to be able to run efficiently on all browsers, the UTF-8 character encoding is been made use of.

BackEnd

The backend will be coded using Node Js. The Js stands for Javascript. Node Js is a Javascript library that helps programmers connect their sites to the database or rather servers for data storage. Here Google's FireBase has been used for Data Storage also the recently developed google map API which is used by google and many healthcare systems to provide real time information and statistics on COVID-19 around the world has been used.

Testing and Verification

Although at each stage of development the system has been tested, after the front end and the backend of the webapp has been developed, they are all integrated together for final testing which can be done manually on the company's system before uploading to the internet. The testing is a critical part of the development processes because it helps detect bugs which are being fixed and helps provide a perfect system for customer’s use.

Deployment and Maintenance

To deploy and maintain the application a domain and a hosting site are needed. These can all be done using the google cloud platform. The domain such as .com, .io, .co, provides the site’s location whereas the host stores the information and the codes used to build the website. The SSL(Secure Sockets Layer) certificates are also purchased on the host sites, this helps keep the

site secured. After the deployment all that needs to be done is to listen to customer's feedback, maintain and improve the site.

HARDWARE FEATURES; It is a web application, so it's hardware features include any device that can access the internet. Devices such as your mobile phone, tabs, laptops. Etc

SOFTWARE REATURES;

- It would have an interphase that indicates number of recorded cases worldwide
- A chart that shows a relationship between the number of cases and those recovered as well as the deceased in various locations.
- A fill-on form for various questions on the disease.
- A map of the world that pins down cities and countries with various cases.

I was able to achieve these features by using a CSS (Cascading Style Sheet) (a stylesheet language) with HTMl to build the user interphase and decided to go with a plane teal and white colour, made a login in as the first page and the main page with a navigation bar consisting of;

- A map that uses a google location API
- Newsletter.
- Table of cases in various countries (containing; the deceased, recovered cases.etc)

The responses were carried out with javascript. All the main data where managed using MySQL and the back end was solely done with php