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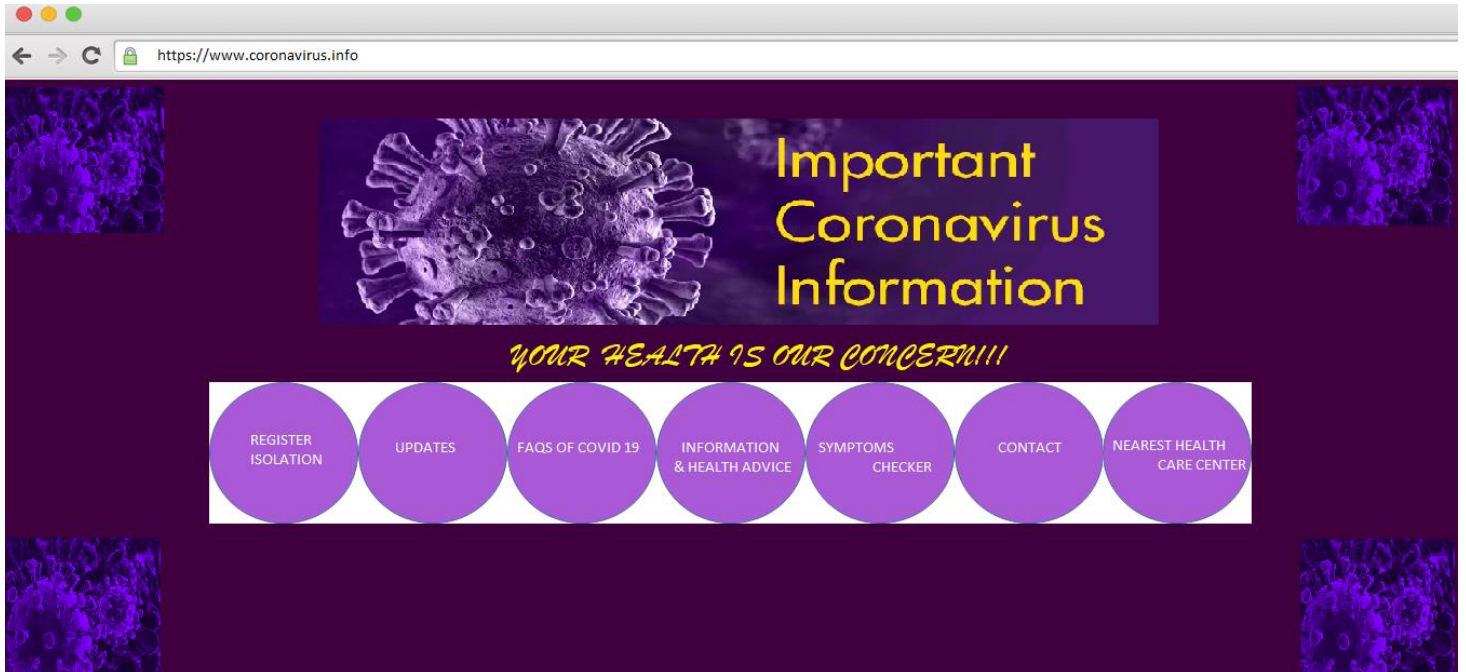
MATRIC NUMBER: 18/ENG02/095

DEPARTMENT: COMPUTER ENGINEERING

COURSE CODE AND TITLE: ENG 224 STRUCTURED PROGRAMMING

WEB APPLICATION DESIGN

The name of the web application is Coronavirus.info the application can be accessed by using the web or downloading the app. Its key features are

- - staying up to date with the official information and advice
  - important health advice to help stop the spread and stay healthy
  - get a quick snapshot of the current official status within the country and worldwide
  - (detect)check your symptoms if you are concerned about yourself or someone else
  - find relevant contact information
  - access updated information from the Nigerian Government
  - receive push notifications of urgent information and updates

I created this using software development cycle (SDLC) and I followed the following steps:
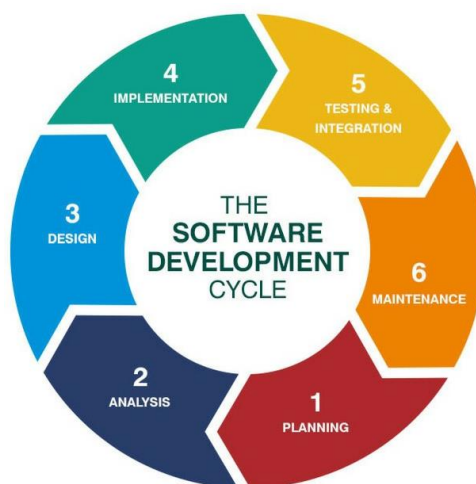
Phase 1: Requirement collection and analysis: Identify the Current Problems

The current problem is Corona virus

- Coronavirus disease (COVID-19) is an infectious disease caused by a new virus.
- The disease causes respiratory illness (like the flu) with symptoms such as a cough, fever, and in more severe cases, difficulty breathing.
- Coronavirus disease spreads primarily through contact with an infected person when they cough or sneeze. It also spreads when a person touches a surface or object that has the virus on it, then touches their eyes, nose, or mouth.
- Wash your hands regularly for 20 seconds, with soap and water or alcohol-based hand rub
- Cover your nose and mouth with a disposable tissue or flexed elbow when you cough or sneeze
- Avoid close contact (1 meter or 3 feet) with people who are unwell
- Stay home and self-isolate from others in the household if you feel unwell

Phase 2: Feasibility study: Systems Analysis and Requirements

- **Economic:** The project can be completed within the budget
- **Legal:** it cannot be used or published by anyone else without the consent of the app developer
- **Operation feasibility:** we can create operations expected by the client
- **Technical:** the application is available for all devices. All the operating systems can support the software. It is available on android, IOS and windows
- **Schedule:** the project can be completed within 2 weeks.

Phase 3: Design:

We turn the software specifications into a design plan called the Design Specification. In this stage we have all the features of the app, the pros and cons, and costs and benefits associated with each product, we were now ready to make a choice.

The features of the web app are

- - it stay up to date with the official information and advice from government and health officials
  - it gives important health advice to help stop the spread and stay healthy
  - it gets a quick snapshot of the current official status within the country and worldwide
  - it (detect)check your symptoms if you are concerned about yourself or someone else
  - find relevant contact information
  - it gives access to updated information from the Nigerian Government
  - it receive push notifications of urgent information and updates
- Hardware features
- Requires android / iOS/ windows

Pros	Cons
It provides users information about the pandemic	Not enough online / offline people to respond
It saves lives and prevents risks of the pandemic spreading	

There are different cost in creating a web application costs like:

- How much it costs to build it,
- How much it costs to maintain it,
- How much it costs to create it

Here is a summary of all the costs

Web app requirements such as : How much it costs to build it, How much it costs to maintain it, How much it costs to create it	Use of each requirement cost	COSTS (NAIRA)
Registration and use of a domain name, Hosting on servers	Development is a continuous process. Payment should be made annually to keep it in check.	10,000
BUSINESS ANALYST	Verifies business scope, does analysis, conduct a workshop and management, documentation development, testing, support),Produce best possible solution based on market needs	40,000
PROJECT MANAGER	prevent budget overrun, ensure that a team is doing the right work on a project and has correct tasks,ensure that the team completes all tasks on time, prevent bad releases and set priorities for bug fixes and improvements e.t.c	60,000
LEAD DEVELOPER &MAINTAINER	They work hand in hand. Develops code for the app Upgrades to the latest OS versions, Fixing bugs, Adding new features, Controlling app stability	60,000
DESIGN COST : (UX/UI DESIGN)	Both elements are crucial to a product and work closely together	30,000
LEGAL SERVICES	Copyright and privacy policy usually require some time and legal services that are not cheap.	100,000

CUSTOM DEVELOPMENT Platform : (iOS, windows & android)	Your choice of a platform also influences the cost of app development. The main factor that determines whether you need to make an app for iOS or Android is the audience you would like to reach.	100,000
Web app features : contact, , push notification, nearest health centre, user login, e.t.c	Personal information (text fields, birthday, gender), 1 photo, provide things that make the app useful	40,000
offline mode	Highly depends on the amount of web app data. the app should have back end to collect data	30,000
Geolocation/integration to google maps	Gives the application access to your location using google and other location finder services	50,000
Data encryption	Encryption of the data transferred from a mobile app to its back end should be done by default. We will estimate offline mode data encryption.	30,000
Use of device's hardware (NFC, Bluetooth, barometers, gyroscopes, accelerometers, heart rate sensors)	No back-end development required	20,000

After the costs have been previewed, we decide which design development is used and we use. We use LLD. LLD is used because it provides information for building a product, configuration and distributing, it converts high level solution to detailed solution. And it is used for design and web app developers. I used java in creating this.

Phase 4: Coding:

```
/dashboard
  app.js
  main.js
  src": "images/corona virus information.png",

  /collections
  /models
  /views
  /templates

/corona virus information
  app.js
  main.js

  /collections
  /models
  /views
```

```
 /templates
"lang": "en-US",
"start_url": "/index.html",
"display": "standalone",
"background_color": "purple",
"theme_color": "purple"
```

Phase 5: Testing:
Testing the following icons are functioning properly:

- Nearest health centre
- FAQS OF COVID 19
- Contact
- Information and health centre
- Update
- Register isolation
- Symptoms checker

Phase 6: Installation/Deployment:
Quality assurance professionals/Stakeholders test this and confirm it's ready for release

Phase 7: Maintenance:

- Bug fixing - bugs are reported because of some scenarios which are not tested at all
- Upgrade - Upgrading the application to the newer versions of the Software
- Enhancement - Adding some new features into the existing software

Using the waterfall model
After I used the waterfall model. It is a widely accepted SDLC model. In this approach, the whole process of the software development was divided into various phases. The model was documentation-intensive, with earlier phases documenting what need be performed in the subsequent phases.

2. Discussing the hardware and software features
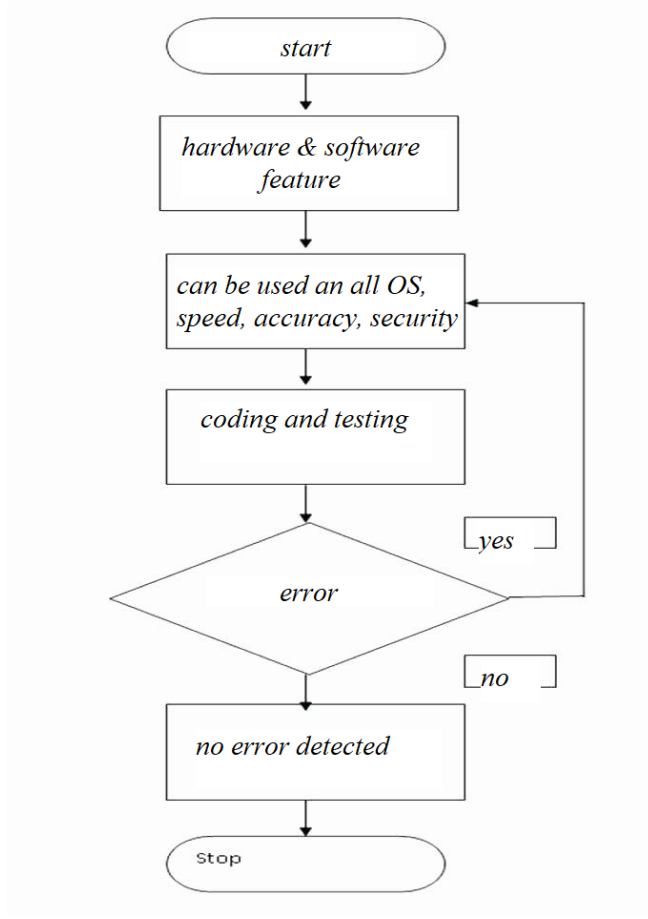
Software features
The features of this web app are

- Simplicity.
- Speed.
- Flexibility.
- Security.
- Accuracy.
- Bright and bold colour schemes.
- Push notifications.
- User feedback

Hardware features
- Can be used on all OS (iOS, windows, android)
- **web space** : **memory** : 98,774K **GB on RAM** : 8GB **CPU:** 1 **Data:** 56.00KB

Support your answer with a flowchart and an algorithm

Step 1: Start

Step 2: Read/input hardware /software feature

Step 3: Read/ input speed, accuracy, security, used on all OS.

Step 4: Read/ input coding and testing

Step 5: Detect error

Step 6: if error detected go back to step 2, if no error detected, Print.

Step 7: END

Top down approach for the application

```
                              ┌──────────┐
                              │ web app  │
                              └──────────┘
        ┌──────────┬──────────┼──────────┬──────────────┐

     business    project   lead developer  legal      custom
     analyst     manager   & maintainer    team       development

   does analysis ensure task              take care of  designing for both platorm
                 is complete              legal work    (ios, windows, android)
                        ┌──────┴──────┐

                      design        content

                  ┌─────┴─────┐  ┌─────┴─────┐                    contact

               external   internal  perception  features         nearest health centre
                                     content
                                                                  updates e.t.c
```