OLOGUNAGBA BRIGHT TOLUWALOPE

18/ENG04/062

ELECTRICAL AND ELECTRONICS ENGINEERING

A WEB-BASED HEALTHCARE MANAGEMENT SYSTEM

The Software Development Cycle:

- Conceptualization / Planning
- Specification
- Design
- Implementation
- Testing
- Release/ Deliver

CONCEPTUALIZATION / PLANNING

* Identify the current problem:

  COVID-19

  Coronavirus is a large family of virus that is known to cause illness ranging from the common cold to more severe illness. COVID-19 is a coronavirus.

  Some symptoms of the virus include respiratory symptoms, fever, cough, shortness of breath and difficulties in breathing. In more severe cases, infection cause pneumonia, severe acute respiratory syndrome, kidney failure and even death.

  However, the virus can be transmitted from person to person, usually after close contact with the infected patient.

* Alms and goals

The main concept is to design a software program named ‘’CONWEB’’ that can be used to detect, display, rate, store and transmit data.

SPECIFICATION

This is the stage where the application is broken down into modules.

Hardware requirement for the development which include the CPU or processor speed, minimum system memory, minimum free storage space

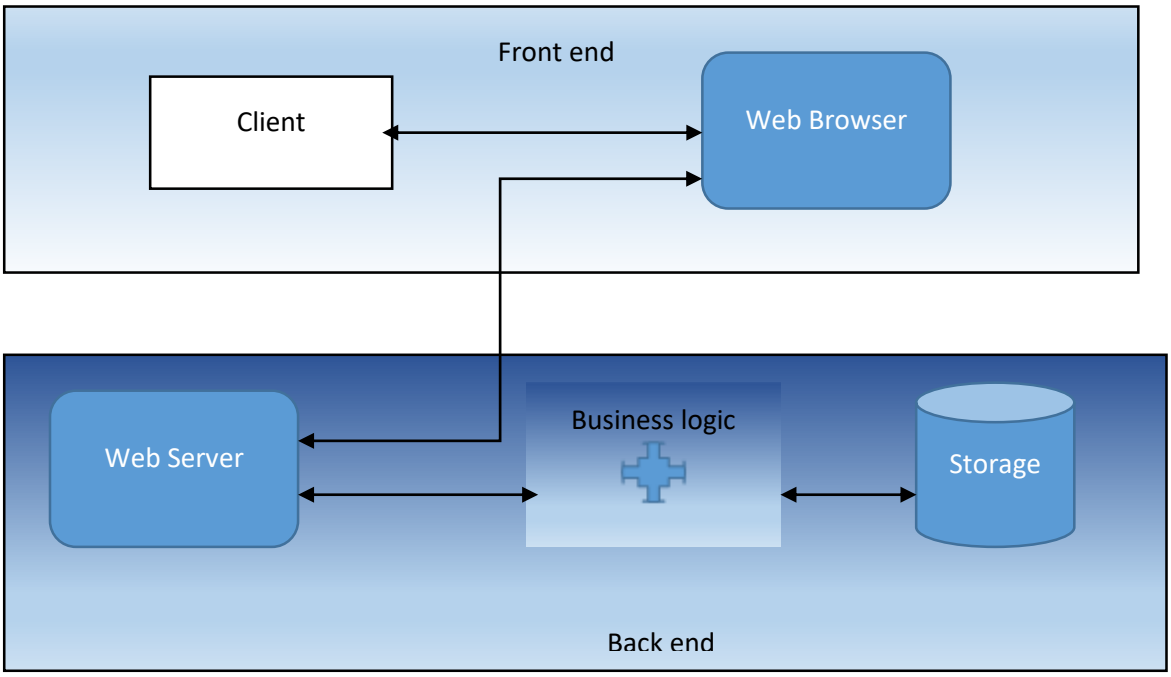
CPU specification; intel and AMD processor are needed

Also, the software requirement which include the interface (Java, JavaScript) Web content technology which include ASP, PHP, python and also the Open source software and internet Operating System.

COMWEB allows medical practitioners to detect if a person is infected with the virus or not, it allows for the display of the patient's result, display the rate of the infection and enables them to store and transmit the data obtained by the practitioners and also allow the data to be accessed via the web by the use of the open source software.

DESIGN

The design of the web application is done using web application architecture which describes the interactions between applications, databases, and middleware systems on the web, it ensures that multiple applications work simultaneously. This is shown in the figure below:



IMPLEMENTATION

For this stage PHP MySQL is used to implement the data. The MySQL table will be used to store data of the patient i.e. the rate of infection and if the person is infected or not. To display the table data, it is best to use HTML, which upon filling in some data on the page invokes PHP scripts which will update the MySQL table.

The data viewer function provided graphs of the physiological data, which are body temperature, blood temperature, pulse wave and electrocardiograph measured by vital sensing Systems.

The analysis function estimated parts of the user's health conditions by two indexes. One a pulse wave velocity reflecting arteriosclerosis and a calculated from both pulse wave at the tip of one's finger. The other index reflecting autonomic nervous activity and is estimated based on power spectrum analysis. Through performance tests, we have confirmed that the prototype has ability to make effective use of data for COVID-19

TESTING

This stage of the software life cycle of CONWEB Application, the implementation is put to test to crosscheck for compile and run time error. Also, in this stage the software is tested to ensure proper running system and to check if it works according to the health company specifications. At this stage, any error detected will be taken back to the design and implementation stage to be corrected.

The following testing are ensured

→ Unit testing
→ Integration
→ Performance
→ load

RELEASE

After the testing stage the web Application will be hosted and delivered back to the health company and updated when necessary based on the health company.

HARDWARE AND SOFTWARE FEATURES

Hardware features

- CPU or Processor speed
- Minimum system memory
- Minimum free storage space
- CPU Specification; Intel and AMD Processor

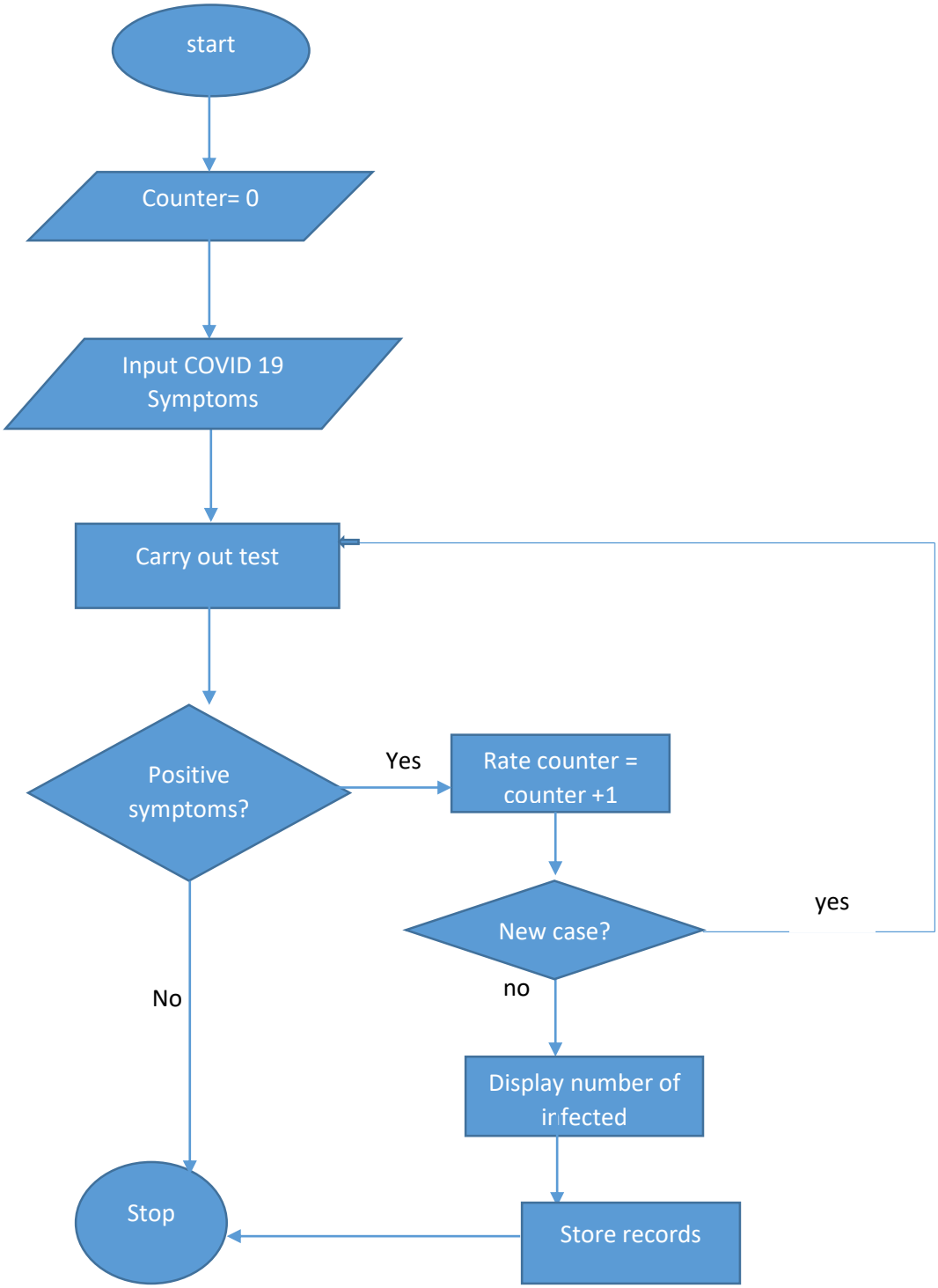
Software features

- Interface: Java, JavaScript
- Web content technology; ASP, PHP, Python
- Open Source Software
- Internet Operating System

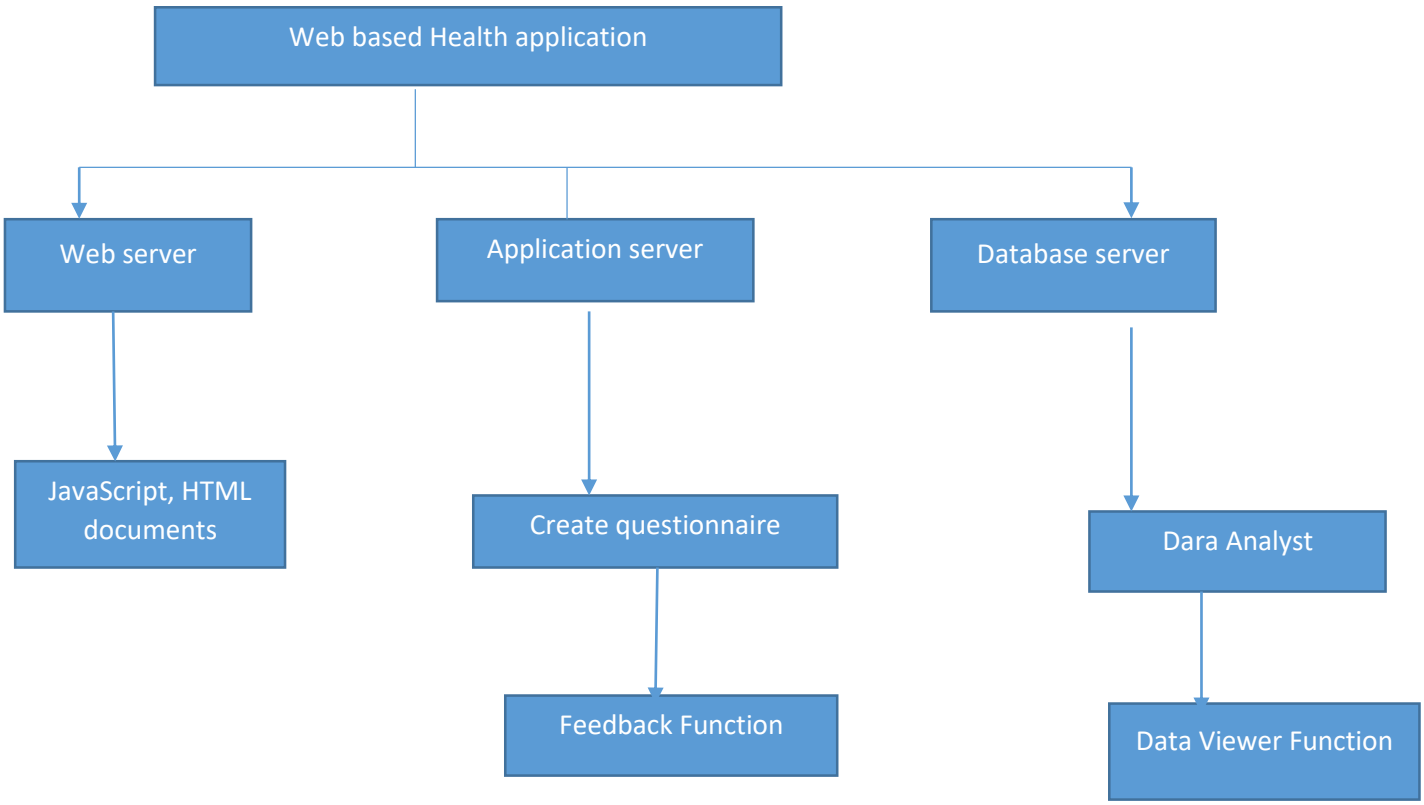
ALGORITHM

1. Start
2. Counter == 0
3. Input Covid 19 symptoms
4. Carry out test
5. IF positive symptoms == yes GOTO 6 step ELSE GOTO 10
6. Rate counter = counter + 1
7. IF new case == yes GOTO 4 ELSE GOTO 8
8. Display numbers of infected
9. Store number of cases
10. Stop

FLOWCHART


start
Counter= 0
Input COVID 19 Symptoms
Carry out test
Positive symptoms?
Yes
Rate counter = counter +1
New case?
yes
no
No
Display number of infected
Store records
Stop

TOP- DOWN DESIGN APPROACH



BOTTOM-UP