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COURSE TITLE: STRUCTURED COMPUTER PROGRAMING

**WEB BASED APPLICATION TO DETECT AND DETER THE
SPREAD OF THE CORONAVIRUS**

INTRODUCTION

A pandemic describes an infectious disease where we see significant and ongoing person-to-person spread in multiple countries around the world at the same time. The last time a pandemic occurred was in 2009 with swine flu, which experts think killed hundreds of thousands of people. Pandemics are more likely if a virus is brand new, able to infect people easily and can spread from person-to-person in an efficient and sustained way. Coronavirus appears to tick all of those boxes.

Global pandemics pose a significant national and global threat. When this happens, it becomes vital for public health and government authorities to track how far and how fast the disease is spreading. With no vaccine or treatment that can prevent it yet, containing its spread is vital.

The web application is designed to detect, display, rate (degree of infection), store, and transmit data obtained wirelessly and access the data via the web along with other features in the mobile phone.

SOFTWARE DEVELOPMENT CYCLE

1. CONCEPTUALIZATION

The development of this web application is to be of great benefit to the health workers and the general public. It would help to curtail the spread of this virus to areas that are not already infected. It would monitor corona-like symptoms by prompting questions for the mobile phone owner on a daily basis. It is also known some carriers of

the disease are asymptomatic, the system will help to identify them by virtue of physical proximity information provided to symptomatic people via Bluetooth and store this information in its database.

Through this people will be able to know which areas are more densely populated with infected individuals in order to avoid those areas and help flatten the curve. Health workers will also be able to track the infection and recovery rate efficiently.

2. SPECIFICATION

The application will require a User friendly interphase so that even the layman would be able to maneuver his way and provide for optimum user experience. Front end development using languages like HTML, CSS and JavaScript would be used to ensure this.

The back end development using languages like Java, PHP or Python will ensure adequate communication between the database and the application. So that the application responsiveness and speed is at optimum levels at all times

3. DESIGN

a. Algorithm represented in Pseudocode

1. Start

2. Read username

3. If .admin {

4. Read passord

5. If Password = true{

 Display admin page

 If Admin makes changes {

 Save Changes

 }

Else password = False

 Go back to line 2

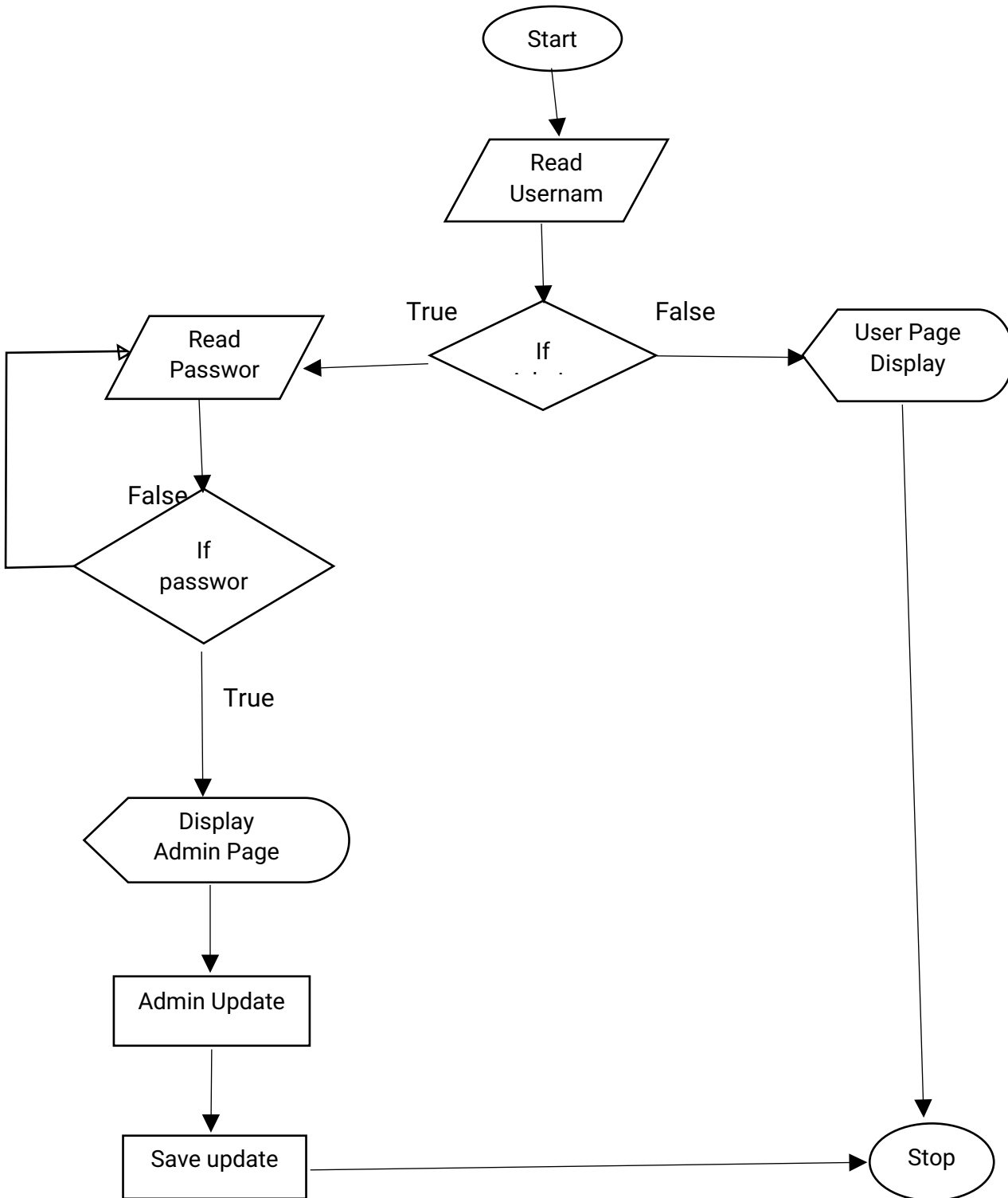
}

}

6. Else Display User page

7. End

b. Flowchart



4. IMPLEMENTATION

The architecture of the program will be addressed in two phases have a front end and back end development.

Front End Development

This manages everything users visually see first in the application. It's responsible for the look and feel of the website. Programming languages such as HTML (Hypertext Markup Language) which is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript to create the interphase and add functionalities.

Back End Development

This refers to the server side of the application and everything that communicates between the database and the browser. It simply the working of the application. This phase development is divided into three parts: the server, the application and the database. Ruby on Rails language would be used to achieve this as it is more cost effective while being able to reach more people.

5. TESTING AND DEBUGGING

Although the application is tested at every stage of its development, after the front end and back end development. The final integrated testing is carried out over the web to fix final bugs before it is deployed to the market to ensure its smooth running and user friendly interface.

6. RELEASE AND UPDATE

This is to ensure the application is in the market using real time interfacing to maintain it a fix bugs as they appear. It also involve getting review form users and updating the application when and where necessary. To deploy and maintain the application a domain and hosting site are needed. The domain such as .com, .io, .co provide the site's location whereas the host site stores the information and codes used to build the website.

HARDWARE AND SOFTWARE FEATURES

Software features should include;

- An administration interface which can only be accessed by specified users through an approved password, an admin can modify and make changes to various part of the application
- An interface that indicates number of recorded cases worldwide.
- A world map that shows countries affected by the disease with their numbers in a well defined legend
- A section to forecast the rise or fall of the spread of the pandemic up to a month ahead of the specified date
- A questionnaire with preset questions on the symptoms to check if the user is infected with the disease
- Via the use of Bluetooth connection amongst various users, asymptomatic users will be notified if they are at a high risk of infection
- User choice in language of the application and the preferred units of temperature etc.

Hardware features of the application essentially involve any device capable of accessing the internet e.g. mobile phones, tablets, laptops etc.

TOP-DOWN DESIGN APPROACH

