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SECTION: ALGORITHM

# CONCEPTUALIZATION

A web-based application to test and monitor the incidences and prevalence of Covid-19 outbreak globally. Also, to analyze and display data of the trends of the pandemic.

# SPECIFICATIONS

HARDWARE FEATURES	SOFTWARE FEATURES
Central Hub	Access Control
Portable Devices	Language Translator
Computers	GIS control
Laboratory Testing Machines	Multiple Data Entry Control
	Statistical Analysis Ability
	Graphical User Interface and Dashboard

*Access Control:* This is to enable restricted access to the data entry portal of the application by various health practitioners globally. It would be regulated by a user registration process verified via platforms of the disease control centers in the various countries.

*Language Translator:* As a globally based application, it can be accessible on the various possible languages to discourage language barrier to the usability of the application. So medical practitioners can access the functionalities of the application in a language they understand.

*GIS Control:* This feature is to authenticate and keep track of the location of the tested incidences of the virus so that proper documentation can be kept. So immediately a case is tested and submitted to the database, there is a record of the location of the case.

*Multiple Data Entry Control:* This feature is to eliminate duplicity of case. It would keep track of all the tests ran on a certain individual under a designed database casefile for that patient. To achieve this aim, each case file is going to be associated with the patient's national unique identity number.

*Statistical Analysis Ability:* This feature is to enable the application draw up graphs and analysis in various forms based on the stored data in the applications database. So, it would be able to show total cases, recovery timeline for case, total deaths etc., for as many countries that make use of the application. This would enable statisticians study the trend and know what to expect based on the existing trends.

*Graphical User Interface and Dashboard:* This takes care of the interactive interface for the user. It involves the platform for data entry, test running, result display, data sharing, data analysis display.

*Central Hub:* A remote designation where the database is going to be stored and all the major controls would emanate from.

*Portable devices:* These includes any smart enabled device to carry the application and makemit available to the medical practitioners.

*Computers:* To work hand in hand with the laboratory testing machine, to run the testing process as well as receive feedback.

*Laboratory machines:* To make samples from patients into interpretable forms by the system.

# DESIGN

## *ALGORITHM AND FLOWCHART*

The virus is going to be tested for in two stages, through RNA samples of the patient matching to the RNA sample of the virus and antibody generation in the patient's fluids matching to that generated in response to the virus.

START

$V_R$  = Sample RNA Of Virus

Enter A

//A= RNA Sample of Patient

If  $A = V_R$

Print "Sample is Positive"

Else

Print "Sample is Negative"

While  $A = V_R$

If "Continue to stage 2 Detection"

$R_f$  = Sample of Antibody generated

Enter B

//B= Antibody Sample of the Patient

If  $B = R_f$

Print "Sample is positive with antibody generated."

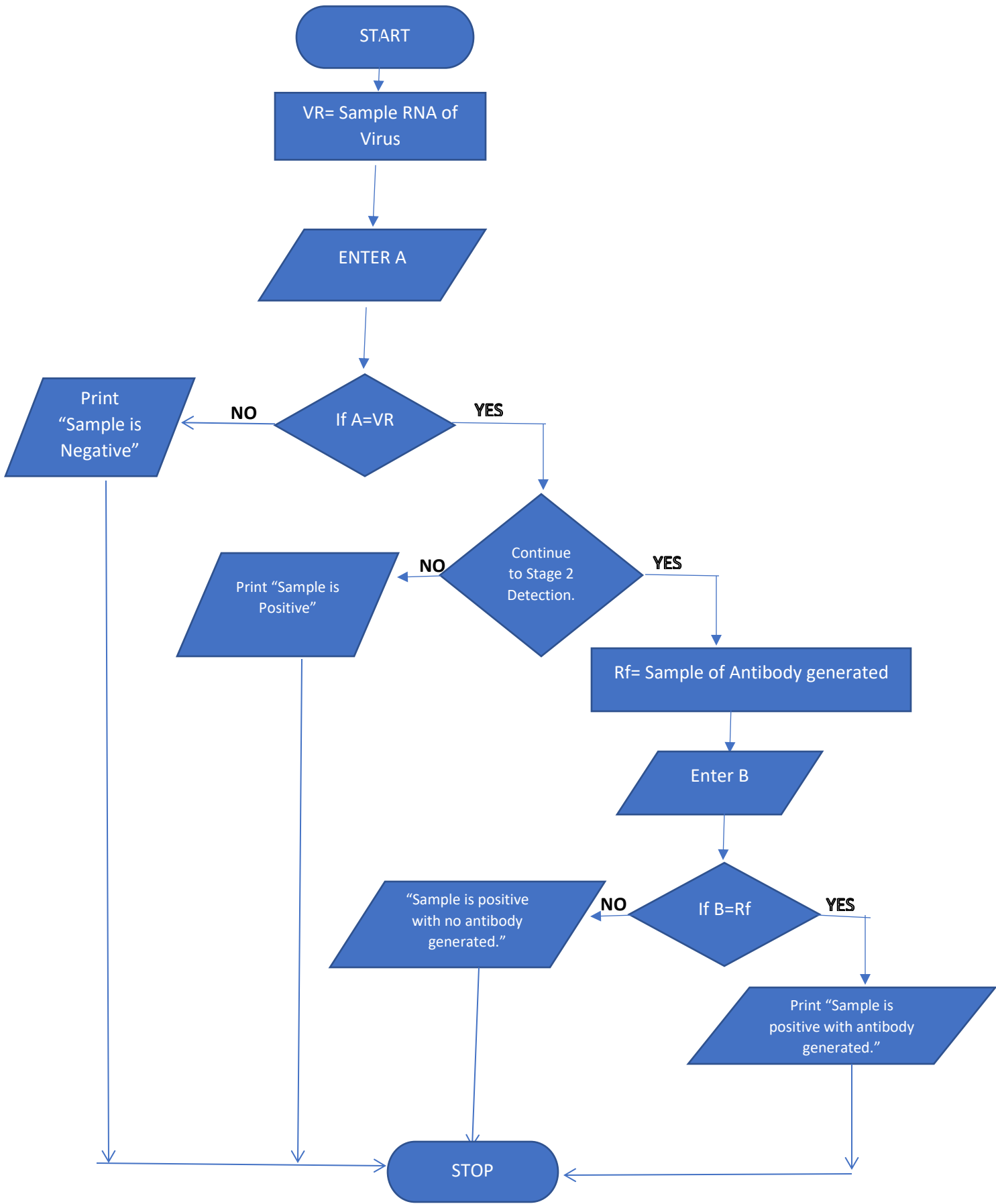
Else

Print "Sample is positive with no antibody generated."

Else

Print "Sample is positive."

STOP



*TOP-DOWN DESIGN APPROACH OF THE APPLICATION*

**MEDICAL APPLICATION FOR COVID-19**

