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18/ENG064/064

MECHANICAL ENGINEERING

ENG 224 ASSIGNMENT

1. Conceptualization:

This is a web-based application that tests, detects, stores,compares statistics and transmits information on Covid-19.It also helps in checking the degree of which it spread at given area and how it can be managed
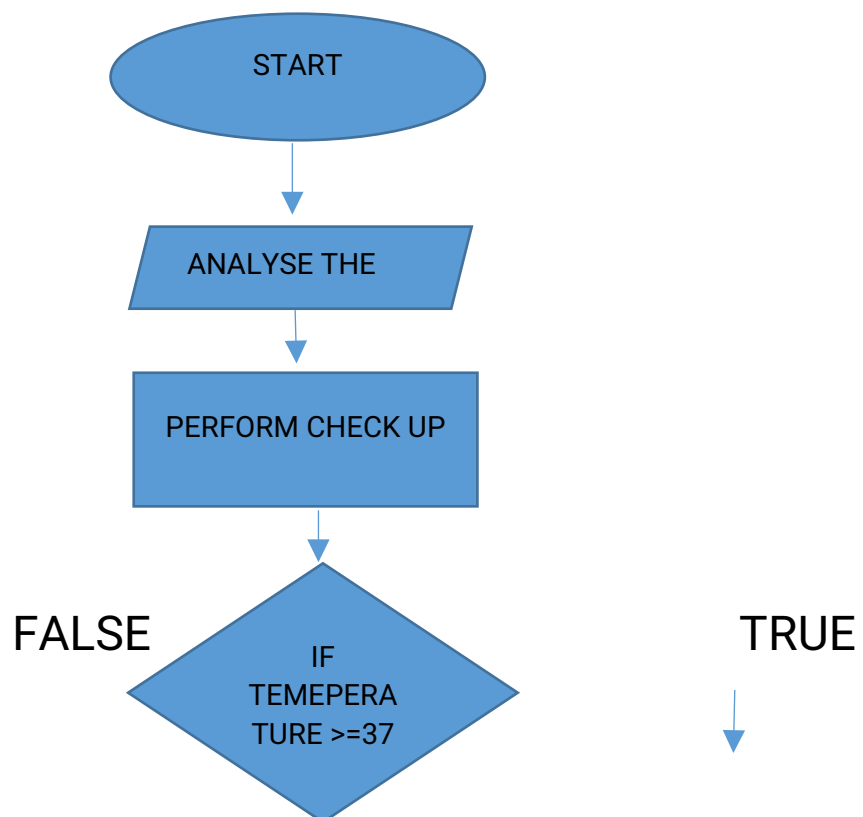
2. Specification:

The modus of the program are:

i.   Testing

ii.   Detection

iii.   Display rate of infection

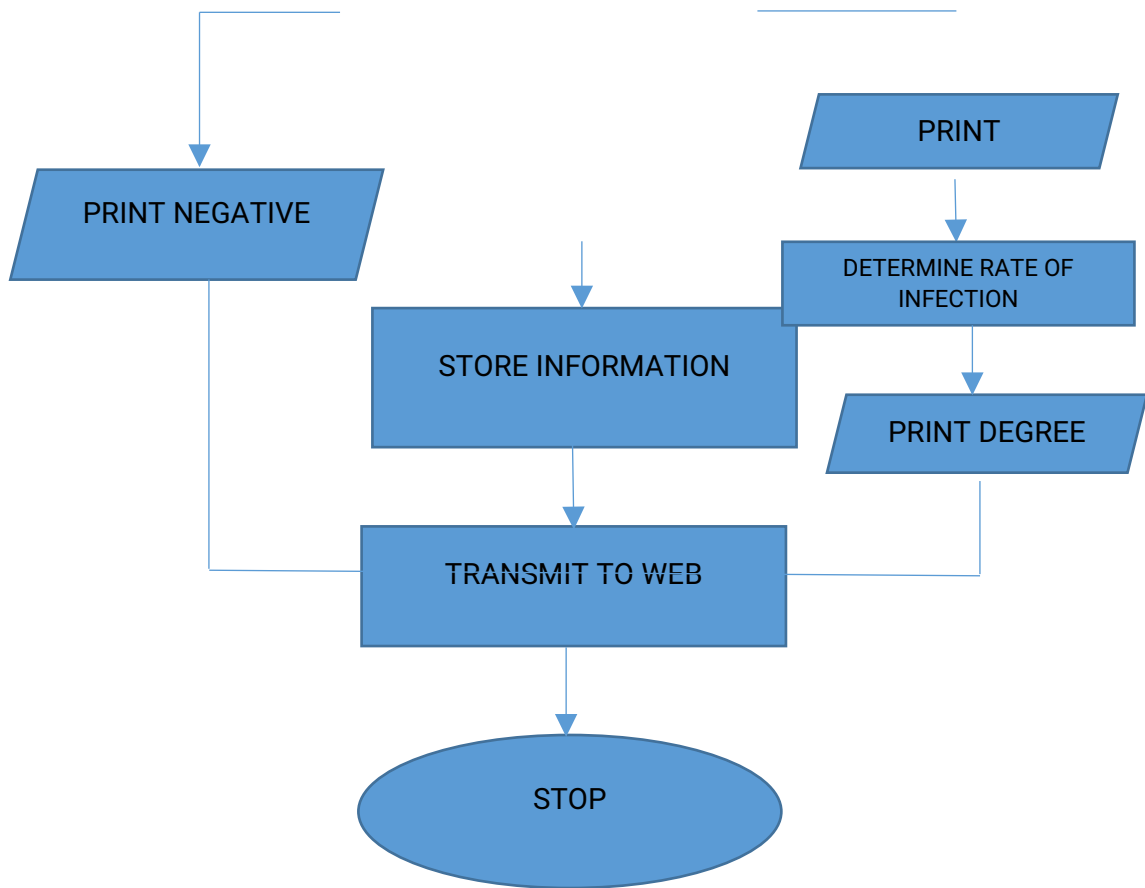iv.   Store data received

v.   Transmit data received

3. **Design**:

i.   Algorithm:

1 Start

2 Register patient

3 Perform check up

4 If temperature >=37

5 Print Positive

Display Rate of infection

Else

Print Negative

6. Store data on server

7. Transmit to web

8. Stop

Flow Chart:

```
                    START

                ANALYSE THE

              PERFORM CHECK UP

FALSE                                          TRUE
                IF
              TEMEPERA
              TURE >=37
```

```
                                    PRINT
        PRINT NEGATIVE                                    DETERMINE RATE OF
                                                             INFECTION

                                STORE INFORMATION
                                                              PRINT DEGREE

                                TRANSMIT TO WEB


                                     STOP
```

4. The program is written in a high level language including the necessary features

5. A dry run is carried out to know the state of the program and bugs are removed.

6. The program is released to all health organisations worldwide. It is updated based on new discoveries about Covid-19.

2. The program has both hardware and software features;

HARDWARE FEATURES

DETECTION

REAL TEMP:is a temperature monitoring program design for computers.It can measure the temperature of individual with processor to great accuracy.

HW MONITOR: is a complete monitoring program for the computer.It detects all sensors of hardware component and tells us the temperature.

DISPLAY

MONITOR:It is the most type of hardware known,it displays information about to processed and received.

GRAPHICS CARD:is responsible for rendering an image to a monitor,it does this by converting data into a signal your monitor can understand.

RATE

PULSE SENSOR:is a simple sensor used in hospital.It has three pods namely Ground,Vcc and the input signal.Pulse sensor finds the rate of heart beat within Fraction of seconds.

STORING

SOLID STATE DRIVE: uses flash memory to store data and is sometimes used in devices such as laptop and desktop computer, instead of hard disk drive.

HARD DISK DRIVE: can be found in almost every desktop computer and laptop.It stores almost all files for operating system.It uses magnetic storage to record data.

TRANSMITTING DATA

ROUTER:a networking device that forwards data packets between computer networks.

LINER DRIVER:a device to increase transmission distance by amplifying the signals.

SOFTWARE DEVICES

Patient Administration System (PAS)

Operating Theatre Management System

Laboratory Information Management System

Booking Management System

Appointment Management System

Hospital Costing System

The process begins with the patient getting to any testing station to test for covid-19

The patient registers into the system (computer systems)

After which the patient is put through a series of tests to confirm if infection has occurred (a function of the clinical equipment).

If positive the system will detect and determine the degree of infection (hardware and software work hand in hand).

There after the results are stored and transmitted through signals to the web (servers).

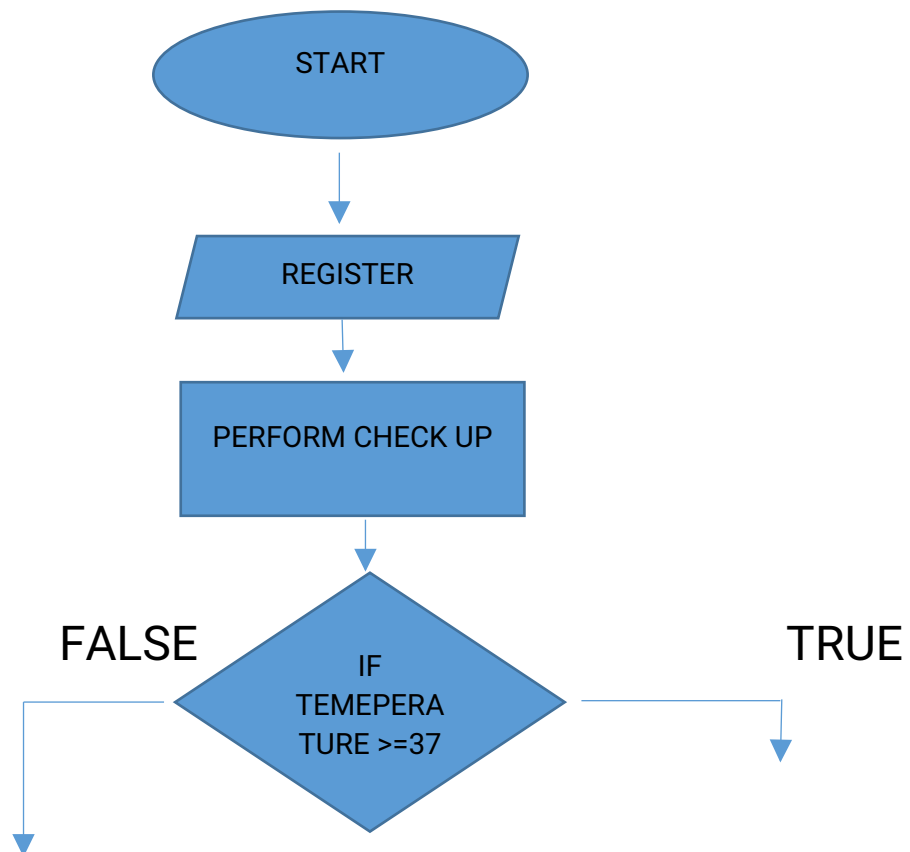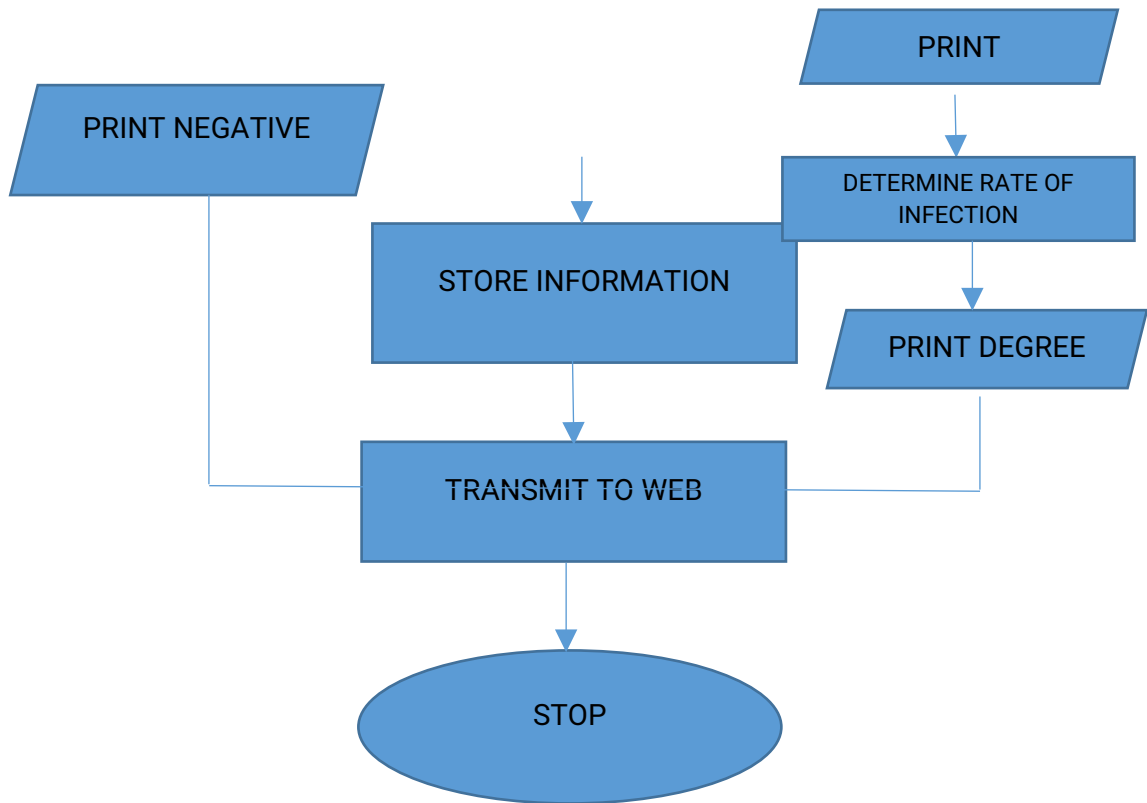The information is made available to medical practioners and experts for analysis.

3.

    ii.   Algorithm:

        6 Start

7 Register patient

8 Perform check up

9 If temperature >=37

10   Print Positive

   Display Rate of infection

   Else

   Print Negative

   6. Store data on server

   7. Transmit to web

   8. Stop

Flow Chart:

```
                    ┌─────────────┐
                    │    START    │
                    └──────┬──────┘
                           │
                    ┌──────▼──────┐
                    │  REGISTER   │
                    └──────┬──────┘
                           │
                    ┌──────▼──────────┐
                    │ PERFORM CHECK UP│
                    └──────┬──────────┘
                           │
                    ◇──────▼──────◇
         FALSE       IF              TRUE
      ◄──────────  TEMEPERA  ──────────►
                   TURE >=37
                    ◇─────────────◇
```

FALSE   IF TEMEPERA TURE >=37   TRUE

PRINT

PRINT NEGATIVE

DETERMINE RATE OF INFECTION

STORE INFORMATION

PRINT DEGREE

TRANSMIT TO WEB

STOP

Covi-19 Detection System

HARDWARE

SOFTWARE

Clinical GUI

Computer

Input &

Data Base

Fever

Equipment Detection

Equipment

Output

Software

Software

& Servers

Devices