Computer Science Project On Diabetes Awareness and Detection

Academic Year : 2021-22
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(Affliated to CBSE Curriculum)

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Acknowledgement

In the accomplishment of this project successfully, many people have bestowed upon me their blessings and their heart pledged support. The sincere guidance of my highly respected Computer Science teacher, **Mr. Santanu Chakraborty** and the day and night toil by my fellow teammates have made this beautiful project spread its wings in the best possible manner. I would also like to add my regards towards all those people who have co-operated with me and my companions to make this project a success.

[Anurag Chattopadhyay]

Thank you!

Certificate of Completion

THIS IS TO CERTIFY THAT

ANVRAG CHATTOPADHYAY

A BONAFIDE STUDENT OF DELHI PUBLIC SCHOOL, DURGAPUR HAS SUCCESSFULLY COMPLETED HER/HIS COMPUTER SCIENCE PROJECT IN THE ACADEMIC YEAR 2021-22 AS PER CBSE GUIDELINES FOR AISSCE PRACTICAL EXAMINATION 2022.

Internal Examiner

External examiner

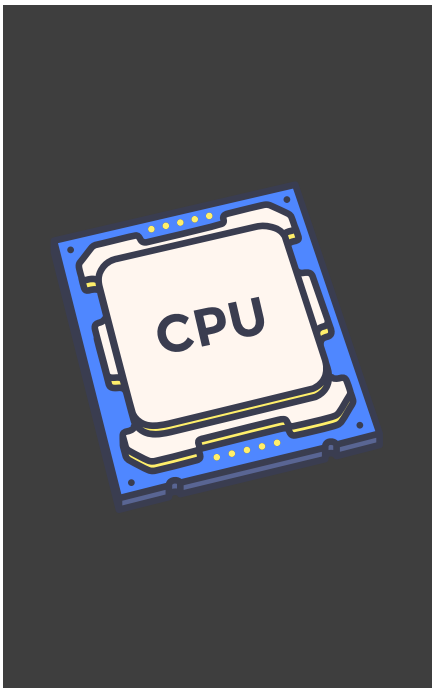
PREFACE

"Computer" is such a word which has brought about a revolution in the society, which has made the "once impossible" a reality. It is a tool, which, if used in proper terms can aid mankind and help it achieve a status of "better than the best". It is that very tool that can help each and every human being to see the invisible, feel the intangible, and achieve the impossible.

The purpose of developing Diabetes Detection Software is to spread a global awareness among citizens and thereby to prevent, the ever increasing graph of diabetic patients all over the world, to increase further. It is a software, which, collects data from the user regarding his/her habits and bodily features and by using it's own artificial intelligence, it not only predicts chances of the user being diabetic, but also is capable of playing videos on diabetes and displaying popular medicines for the same.

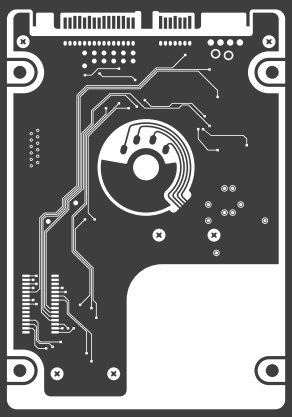
Software Used

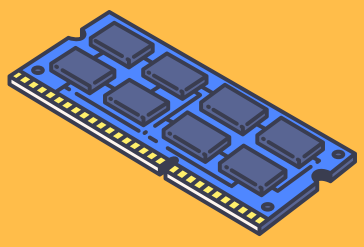
- Python (Version 3.8.9)
- PyCharm Community
- Selenium WebDriver

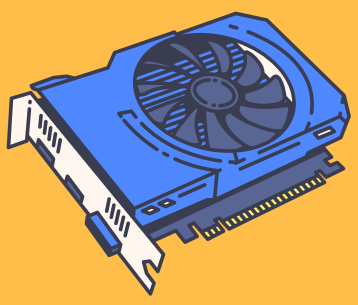


Minimum Hardware Required:

4 GB RAM
500 KB HDD/SDD
Pentium Processor
Working Speakers







Future Scope

To dream is to aspire, to struggle is to make a future, and to work for a greater cause is to make a brighter future. There goes a time tested proverb- "Together we can change the world." This project stands for unity, it stands for both tomorrow and today and above all, it stands for humanity. This has the power to develop itself, to manifest its potential to the fullest and thereby produce such a software which will be able to warn users of a disease, he/she may be susceptible to.

At the present moment I along with my team-mates are working on a Covid-Detecting Mechanism. I believe together if not today but very soon we as a team will be able to make a software which will enable people to live happily with prior precaution to any disease.

python

SOURCE CODE

Main.py

```
import pyttsx3
from Project_Library import *
voice_greetings()

name, age, gender, phn_no = user_data = user_data_verified()
options_used = []

engine = pyttsx3.init()
engine.setProperty("voice", "english")
engine.say("WELCOME TO <HEALTH AWARENESS DEVICE>")
engine.runAndWait()

while True:
    print()
    print("|*|*|*|*|*|*** WELCOME TO <HEALTH AWARENESS DEVICE> ***|*|*|*|*|*|")
    print()
    print("Enter '1' To watch videos in YouTube on diabetes")
    print("Enter '2' To check for bestselling diabetic medicine in TATA 1mg")
    print("Enter '3' To check if you have a tendency to be diabetic or not")
    print("**** Enter 'EXIT' to Exit")
    print()
    a = input("ENTER HERE:<< ")
    print()

    if a == "1":
        if a not in options_used:
            options_used.append(a)
        youtube()

    elif a == "2":
        if a not in options_used:
            print()
            engine.say("Redirecting to website...")
```

Main.py

```
        print("Redirecting to website [TATA 1mg]...")
        engine.runAndWait()
        options_used.append(a)
    onemg()

elif a == "3":
    if a not in options_used:
        options_used.append(a)
    diabetes_check(name, age, gender)

elif a == "EXIT":
    chk = input("Do you really want to Exit? (y/n): ")
    if chk == "y" or chk == "Y":
        engine.say("Thank You for using the <HEALTH AWARENESS DEVICE>!")
        print("Thank You for using the <HEALTH AWARENESS DEVICE>!")
        engine.runAndWait()
        if not options_used:
            options_used = "NONE"
        user_data.append(options_used)
        user_records(user_data)
        print("User data recorded!")
        print()
        break
    else:
        continue

else:
    engine.say("Invalid Input! Re enter...")
    print("Invalid Input! Re enter...")
    engine.runAndWait()
```

Project_Library.py

```
import datetime
import pyttsx3
from selenium import webdriver
import matplotlib.pyplot as plt
import pywhatkit
import pandas as pd
import numpy as np
from sklearn.tree import DecisionTreeClassifier
import csv
engine = pyttsx3.init()
engine.setProperty("voice", "english")
# ----------------------------------------------

def voice_greetings():
    try:
        engine.runAndWait()
        now = datetime.datetime.now()
        dt = now.strftime("%d/%m/%Y %H:%M:%S")
        print()
        print(dt)
        dt = dt.split(" ")
        a = dt[1].split(":")
        b = int(a[0])
        if b < 12:
            engine.say("GOOD MORNING!")
            print("GOOD MORNING!")
        elif 12 <= b < 16:
            engine.say("GOOD AFTERNOON!")
            print("GOOD AFTERNOON!")
        else:
            engine.say("GOOD EVENING!")
            print("GOOD EVENING!")
        engine.runAndWait()
        print()
    except Exception:
        print("!!** Error encountered **!!")
# ----------------------------------------------
```

Project_Library.py

```
def user_data_verified():
    user=input("Enter your FULL NAME: ")
    while True:
        try:
            age = int(input("Enter your AGE: "))
            if age<1:
                print("Age must be GREATER THAN 0 [ZERO]!\
 Check the input and re-enter...")
                print()
            else:
                break
        except Exception:
            print("Enter INTEGER only!")
            print()
    while True:
        gen = str(input("Enter your GENDER\
 [Male=>'M' || Female=>'F' || Others=>'X']: "))
        if gen not in ["M", "F", "X"]:
            print("Invalid option entered!\
 Check directions and re-enter...")
            print()
        else:
            break
        import pyttsx3
    while True:
        ph_no=input("Enter your INDIAN MOBILE NUMBER: +91-")
        if ph_no.isdigit()==False or len(ph_no)!=10:
            print("Invalid mobile number entered! Re enter...")
            print()
        else:
            break
    return [user, age, gen, ph_no]
# ------------------------------------------------------------
```

Project_Library.py

```
def youtube():
    try:
        while True:
            print("**** ENTER 'BACK' to go back to MAIN MENU")
            print("--> Enter search-phrase with the word\
 'diabetes' in it for YouTube videos: ")
            print()
            command=input("ENTER HERE:<< ")
            if command=="BACK":
                break
            elif 'diabetes' in command.lower():
                print()
                engine.say("Playing ")
                print("Playing...")
                print()
                engine.runAndWait()
                pywhatkit.playonyt(command)
            else:
                engine.say("Key-word 'diabetes' missing!")
                print("Key-word 'diabetes' missing!")
                engine.runAndWait()
                print()
    except  Exception:
        print("!!** Error encountered **!!")
# ------------------------------------------------------------
```

Project_Library.py

```
def onemg():
    url = 'https://www.1mg.com/categories/diabetes/diabetic-medicines-583'
    driver = webdriver.Chrome()
    driver.get(url)
    p_name = []
    p_price = []
    temp=0
    k=1
    for i in range(1, 4):
        pname = driver.find_element_by_xpath('//*[@id="category-container"]/div[2]\
/div[2]/div[2]/div/div[2]/div[1]/div['+str(i)+']/div/a/div['+str(4-i+k)+']/div[1]').text
        p_name.append(pname)
        pprice = driver.find_element_by_xpath('//*[@id="category-container"]/div[2]\
/div[2]/div[2]/div/div[2]/div[1]/div['+str(i)+']/div/a/div['+str(6-i+k)+']/div/div[2]/span').text
        plist = pprice.split()
        p_price.append(plist[0])
        temp, k = k, temp+k
    p_sname = []
    for i in p_name:
        p_sname.append((i.split())[0])
    for i in range(0, len(p_price)):
        p_price[i] = p_price[i].replace('₹', '')
        p_price[i] = float(p_price[i])
    d = {"product_name": p_sname,"product_price": p_price}
    df = pd.DataFrame(d)
    print(df)
    x = np.array(p_sname)
    y = np.array(p_price)
    plt.bar(x, y)
    plt.show()
    df.to_csv('deals.csv')
# ----------------------------------------------------------------------------------------------------
```

Project_Library.py

diabetes.csv

```
npreg,glu,bp,skin,bmi,age,prediction
6,148,72,35,33.5,50,yes
1,85,66,29,36,54,yes
1,89,80,23,32.4,62,no
3,78,50,32,22.5,25,no
2,197,70,45,22.3,45,yes
5,166,72,25,26.5,43,yes
4,118,84,24,25.6,41,yes
1,103,30,210,24.5,25,no
3,135,88,26,21.5,26,no
9,119,80,28,22.5,28,yes
1,97,69,35,19.5,35,no
5,109,75,36,20,36,yes
3,88,78,34,27.6,34,no
3,122,84,32,23.8,31,no
4,97,85,31,21.9,39,yes
9,102,82,27,36.5,56,yes
2,90,80,26,24.6,51,no
4,111,79,25,20.4,53,yes
3,180,73,39,20.9,57,yes
2,106,71,34,23.8,58,no
3,171,74,31,24.5,60,yes
```

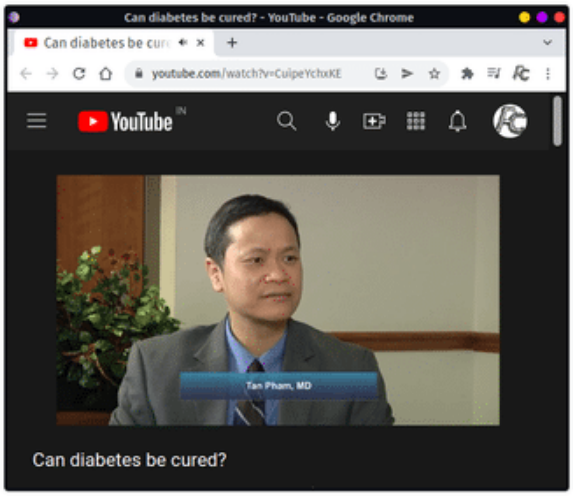
```python
def diabetes_check(name, age, gender):
    while True:
        try:
            m_data = pd.read_csv("diabetes.csv")
            inp = m_data.drop(columns=['prediction'])
            output = m_data['prediction']
            model = DecisionTreeClassifier()
            model.fit(inp.values, output)
            if gender != "F":
                np =0
            else:
                np = int(input("Please enter your NUMBER OF PREGNANCIES: "))
            g = int(input("Please enter your GLUCOSE LEVEL: "))
            bp = int(input("Please enter your BLOOD PRESSURE (DIASTOLIC): "))
            sf = int(input("Please enter your SKIN FOLD: "))
            bmi = float(input("Please enter your BMI [Don't know your BMI? Enter '-1']: "))
            if bmi == -1:
                mass=float(input("Enter your numeric weight (in kilograms): "))
                height=float(input("Enter you numeric height (in metres): "))
                bmi=((mass)/(height)**2)
            predict = model.predict([[np, g, bp, sf, bmi, age]])
            if predict[0] == "yes":
                print("Hello", name+",", "you seem to be\
 PRONE to diabetes! Consult your GP at earliest.")
                print()
            else:
                print("Hello", name+",", "you are WELL OFF\
 at present! But do not forget to take care of your health.")
                print()
            chk=input("Want to re-use the diabetes predictor? (y/n): ")
            if chk=="Y" or chk=="y":
                print()
                continue
            else:
                break
        except ValueError:
            print("Invalid input! Enter numerical value only...")
            print()
# ------------------------------------------------------------------------------
```

Project_Library.py

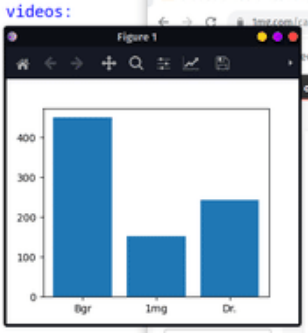
```
def user_records(data:list):
    header=["User Name", "Age", "Gender", "Contact number", "Options used"]
    datafile=r"Customer_Records.csv"
    try:
        with open(datafile, "r", newline=None) as recfile:
            chkrow=recfile.read()
            chkrow=chkrow.split("\n")[1].split(",")
            if header!=chkrow:
                data=[header]+[data]
            else:
                data=[data]
            recfile.close()
    except Exception:
        pass
    try:
        with open(datafile, "a", newline="") as recfile:
            f_writer=csv.writer(recfile)
            f_writer.writerows(data)
            recfile.close()
    except Exception:
        pass
```

Output

```
*IDLE Shell 3.9.7*
File Edit Shell Debug Options Window Help
>>>
= RESTART: /home/anchii33/Documents/Class 12 Boards Python Group Project/main.py

14/01/2022 20:36:19
GOOD EVENING!

Enter your FULL NAME: TEST BOT
Enter your AGE: 50
Enter your GENDER [Male=>'M' || Female=>'F' || Others=>'X']: M
Enter your INDIAN MOBILE NUMBER: +91-9999999999

|*|*|*|*|*|*** WELCOME TO <HEALTH AWARENESS DEVICE> ***|*|*|*|*|*|

Enter '1' To watch videos in YouTube on diabetes
Enter '2' To check for bestselling diabetic medicine in TATA 1mg
Enter '3' To check if you have a tendency to be diabetic or not
**** Enter 'EXIT' to Exit

ENTER HERE:<< 1

**** ENTER 'BACK' to go back to MAIN MENU
--> Enter search-phrase with the word 'diabetes' in it for YouTube videos:

ENTER HERE:<< diabetes cure

Playing...
```




```
**** ENTER 'BACK' to go back to MAIN MENU
--> Enter search-phrase with the word 'diabetes' in it for YouTube videos:

ENTER HERE:<< BACK

|*|*|*|*|*|*** WELCOME TO <HEALTH AWARENESS DEVICE> ***|*|*|*|*|*|

Enter '1' To watch videos in YouTube on diabetes
Enter '2' To check for bestselling diabetic medicine in TATA 1mg
Enter '3' To check if you have a tendency to be diabetic or not
**** Enter 'EXIT' to Exit

ENTER HERE:<< 2


Redirecting to website [TATA 1mg]...
  product_name  product_price
0          Bgr          450.0
1          1mg          153.0
2          Dr.          243.0
```



deals.csv

```
1   ,product_name,product_price
2   0,Bgr,450.0
3   1,1mg,153.0
4   2,Dr.,237.0
```

Output

```
|*|*|*|*|*|*** WELCOME TO <HEALTH AWARENESS DEVICE> ***|*|*|*|*|*|

Enter '1' To watch videos in YouTube on diabetes
Enter '2' To check for bestselling diabetic medicine in TATA 1mg
Enter '3' To check if you have a tendency to be diabetic or not
**** Enter 'EXIT' to Exit

ENTER HERE:<< 3

Please enter your GLUCOSE LEVEL: 100
Please enter your BLOOD PRESSURE (DIASTOLIC): 120
Please enter your SKIN FOLD: 53
Please enter your BMI [Don't know your BMI? Enter '-1']: 40
Hello TEST BOT, you seem to be PRONE to diabetes! Consult your GP at earliest.

Want to re-use the diabetes predictor? (y/n): n

|*|*|*|*|*|*** WELCOME TO <HEALTH AWARENESS DEVICE> ***|*|*|*|*|*|

Enter '1' To watch videos in YouTube on diabetes
Enter '2' To check for bestselling diabetic medicine in TATA 1mg
Enter '3' To check if you have a tendency to be diabetic or not
**** Enter 'EXIT' to Exit

ENTER HERE:<< EXIT

Do you really want to Exit? (y/n): y
Thank You for using the <HEALTH AWARENESS DEVICE>!
User data recorded!
```

Customer_Records.csv

```
1
2   User Name,Age,Gender,Contact number,Options used
3   TEST BOT,50,M,9999999999,"['1', '2', '3']"
```


Thank you!