AISSCE: 2020-2021

PROJECT REPORT ON

ARTIFICIAL INTELLIGENCE COGNITIVE REALITY IN PYTHON

CLASS : XII

STREAM : SCIENCE

SUBJECT : COMPUTER SCIENCE

SUB CODE : 083

PROJECT GUIDE: **Ms. SAYANI HAZRA PAL**

PGT(CS)

CERTIFICATE

This is to certify that **SUNAMI DASGUPTA** Roll no.- has successfully completed the project work entitled **ARTIFICIAL INTELLIGENCE COGNITIVE REALITY IN PYTHON** in the subject Computer Science (083) laid down in the regulations of CBSE for the purpose of Practical Examination in class XII to be held on _____.

Mrs. MADHUMITA SINGH	**Ms. SAYANI HAZRA PAL**	**External Examiner**
(Principal)	**(Internal Examiner)**	

ACKNOWLEDGEMENT

Apart from the efforts of me, the success of any project depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this project.

I express a deep sense of gratitude to almighty God for giving me strength for the successful completion of the project.

I express my heartfelt gratitude to my parents for their constant encouragement while carrying out this project.

I express my deep sense of gratitude to the luminary Mrs. MADHUMITA SINGH, Principal, who has been continuously motivating and extending their helping hand to us.

My sincere thanks to Ms. SAYANI HAZRA PAL. A guide, Mentor, who critically reviewed my project and helped in solving each and every problem, occurred during the implementation of the project.

I gratefully acknowledge the contribution of the individuals who contributed to bringing this project up to this level, who continues to look after me despite my flaws,

The guidance and support received from all the members who contributed and who are contributing to this project were vital for the success of the project. I am grateful for their constant support and help.

SUNAMI DASGUPTA

Class: - XII-Science

INDEX

Introduction

Artificial intelligence (AI) is wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. AI is an interdisciplinary science with multiple approaches, but advancements in **Machine Learning** and **Deep Learning** are creating a paradigm shift in virtually every sector of the tech industry.

This Virtual AI is close to human intelligence, It takes its own decision if the input is unfamiliar. It runs on the Artificial Neural Network (ANN). Neural Network Algorithms are based on radial basis function which can be used for strategic reasons.

For example, it can drive car automatically, only using three inputs (Front camera data, Ultrasonic radar data, and lane detecting cascade). But for this few lines of code wasn't enough I had to train the model for 72 hours to know each and every instances, so that it can take decision according to the recorded data in the cascade file.

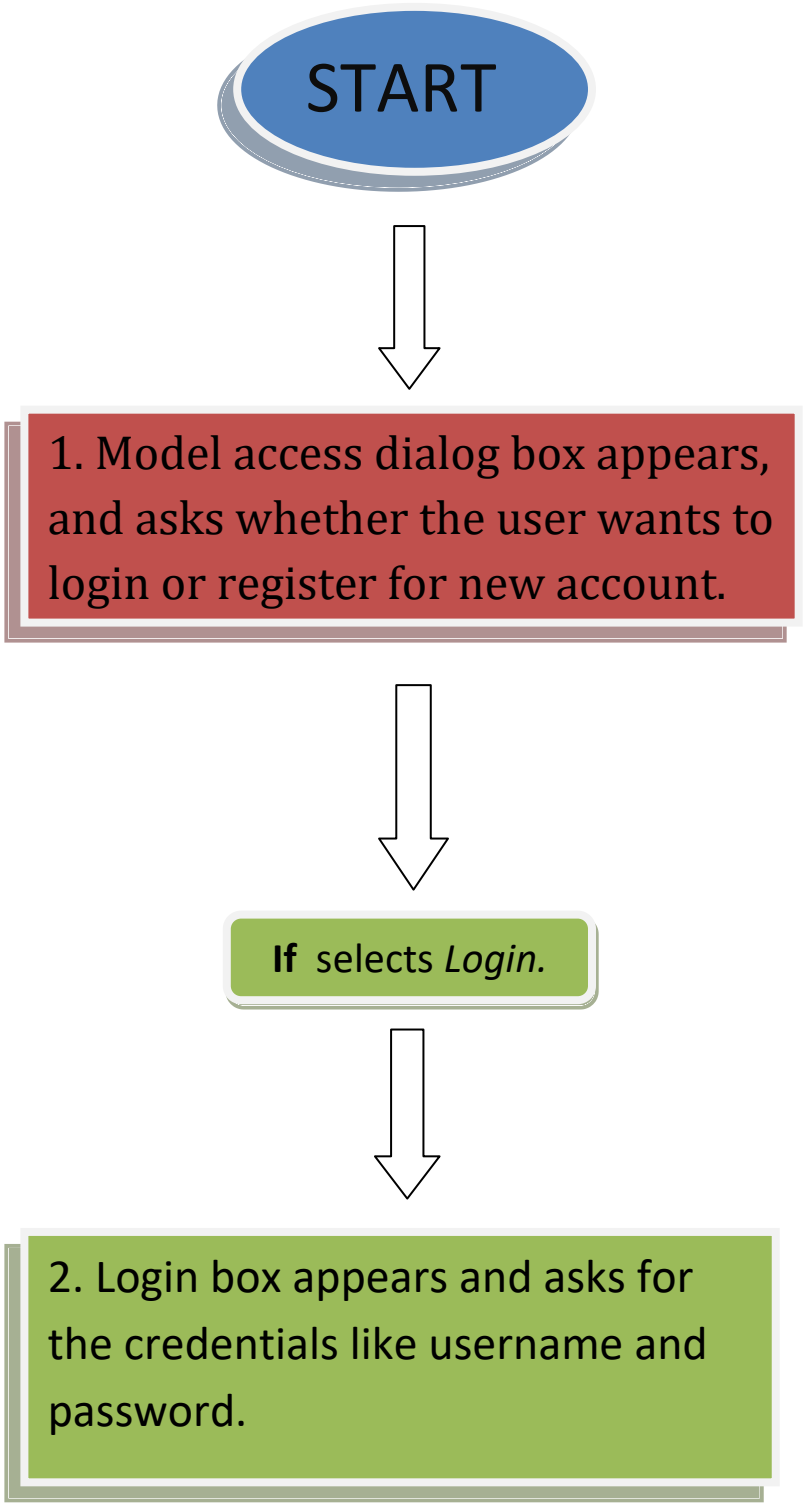
Self-driving is among the extreme capabilities that this AI model can do. It is actually a **Desktop Assistant** which is much more fast and efficient than Alexa or Google Assistant, because it has already downloaded some of the instances and how to act on those instances in its cascade file. It can send e-mails, download movies, download YouTube videos, open websites, play music; search files, weather forecast, and can talk with you like a human.

This model fully voice enabled, so you don't have use keyboard. It also provides you with a graphical user interface. It is Google cloud enabled so it recognizes many languages and also provides you a GUI translator.

System Design

FLOW CHART FOR LAB

User Login (Using MySQL, Python And File Handling):-



3. Program checks the credentials from the Binary files and MySQL database.

If Credentials matches

The model starts to run and the Program greets you!

Else

The dialog box disappears.

Else if Selects *Register*

4. Registration form appears and asks to fill out the credentials like fullname, username, set password, confirm password, gender, and passcode.

5. Program then checks if the passwords are matched and passode is correct

If Password matched.

Program creates a Binary file with the user's credentials like password, username, gender etc. And insert the user in the MySQL database for log register.

Shows "Account registration successful".

Directs user to the login box.

Go to Box.2

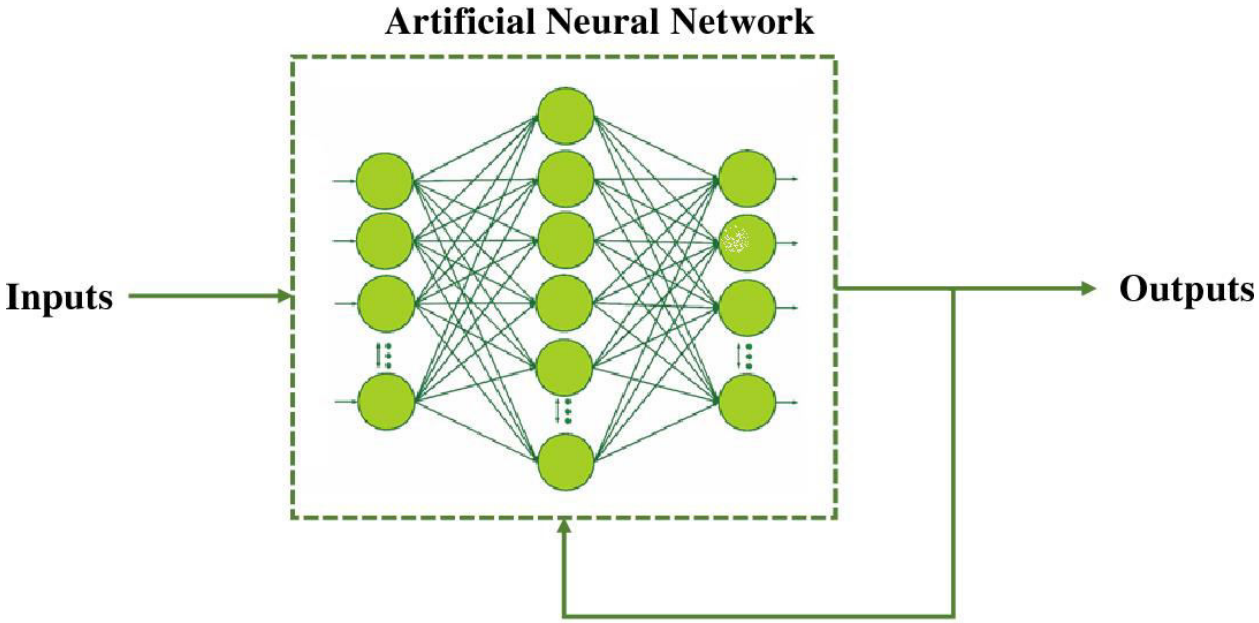
Else

Shows "Account registration unsuccessful"

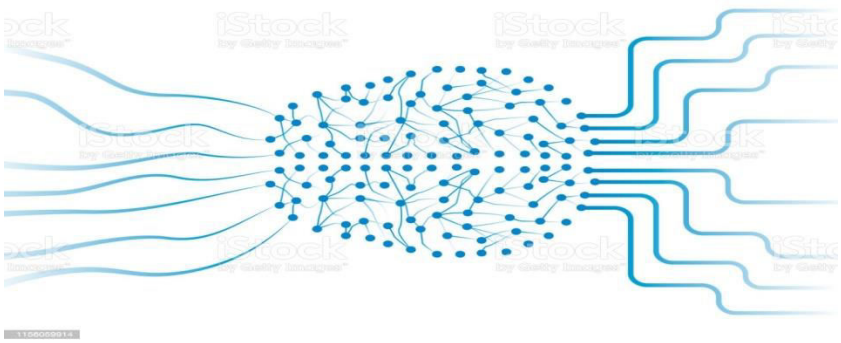
AI Model (using python and ANN):-

- Takes input as voice command.
- Process input data as human brain.
- Gives the desire Output.

Artificial Neural Network:-



Human Brain:-



System Requirements:-

Hardware Requirements:-

- **Processor : x86 64-bit CPU (Intel / AMD architecture)**
- **RAM : 4GB**
- **Disk Space : 16 GB**
- **CPU : Model Above Intel core duo**
- **Headset**

Software Requirements:-

- **OS : Above WindowsXP**
- **Python 3**
- **TensorFlow**
- **Udacity**
- **OpenCV**
- **MySQL**
- **GitHub**

Source Code:-

```
import mysql.connector as c
from tkinter import *
import os
import pprint
import speech_recognition as sr
from googletrans import Translator
from googletrans import LANGUAGES
from pytube import YouTube
def jessica():
    screen.destroy()
    screen6.destroy()
    import pyttsx3
    import datetime
    import wikipedia
    import webbrowser
    import os
    import random
    import wolframalpha
    import requests

    file1=open("AI_account_qwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnm"+username3,"r")
    verify1=file1.read().splitlines()

    try:
        client=wolframalpha.Client('TTRGT4-28G42RHYUG')
        query2="wheater forecast of kolkata,india"
        res = client.query(query2)
        output=next(res.results).text
    except Exception as e:
        print("")


    engine = pyttsx3.init('sapi5')
    voices = engine.getProperty('voices')
    engine.setProperty('voice',voices[1].id)
    engine.setProperty('rate',150)
    engine.setProperty('volume',0.7)
    a = 6

    def speak(audio):
        engine.say(audio)
        engine.runAndWait()
    def translator():
        from tkinter.ttk import Combobox
        from tkinter import messagebox
        from textblob import TextBlob
```

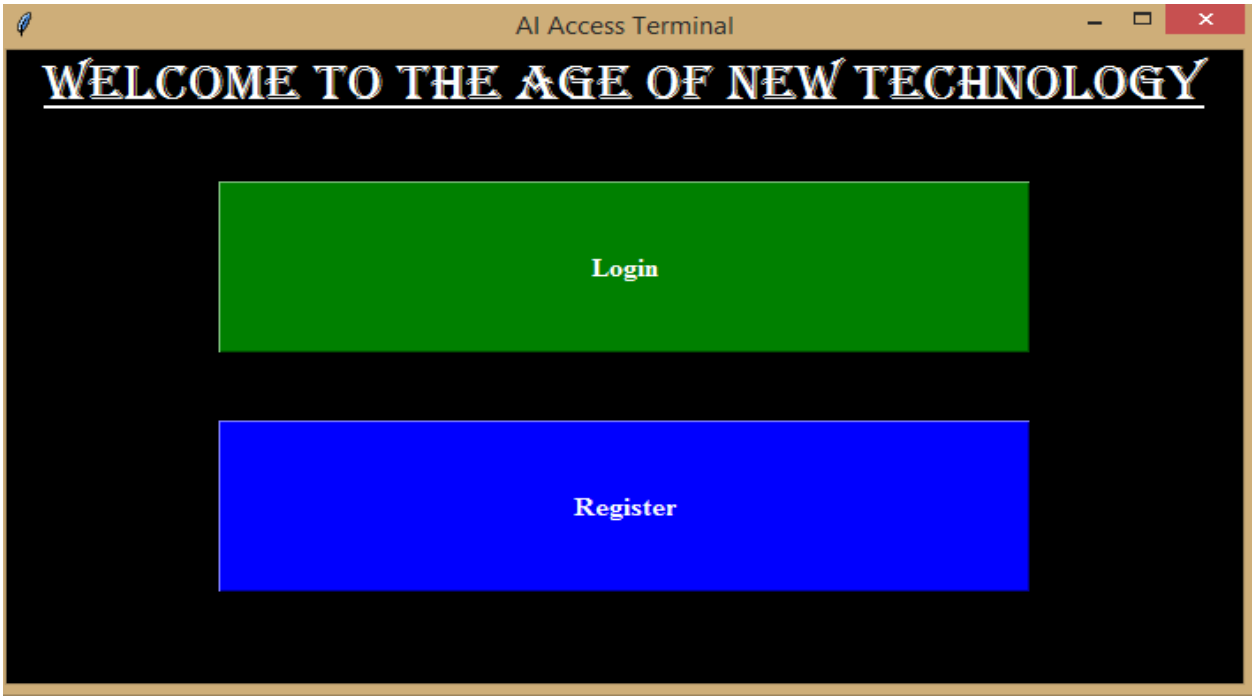
```
if "male" in verify1:
    gender2="male"
else:
    gender2="female"
gender=gender2.lower()
if gender=='male':
    aswd='sir'

    def wishme():
            hour = int(datetime.datetime.now().hour)
            if hour>=0 and hour<12:
                speak("good morning " + aswd)
            elif hour>=12 and hour<16:
                speak("good afternoon " + aswd)
            else:
                speak("good evening " + aswd)
            speak("I am jessica ")
            engine.setProperty('rate',130)
            speak("")
            engine.setProperty('rate',170)
            try:
                print(output)
                speak("the temperature of the day will be "+output)
            except Exception as e:
                speak("")
            speak("Tell me how can i help you today")


    wishme()

    def takecommand():
        r=sr.Recognizer()
        with sr.Microphone() as source:
            print("Listening....")
            r.pause_threshold=0.6
            r.energy_threshold=250
            audio = r.listen(source)
        try:
            print("Recognising......")
            text= r.recognize_google(audio)
            print(text)
            return text.lower()
        except:
            print("Say that again please.....")
            return "    "

    while a==6:
```

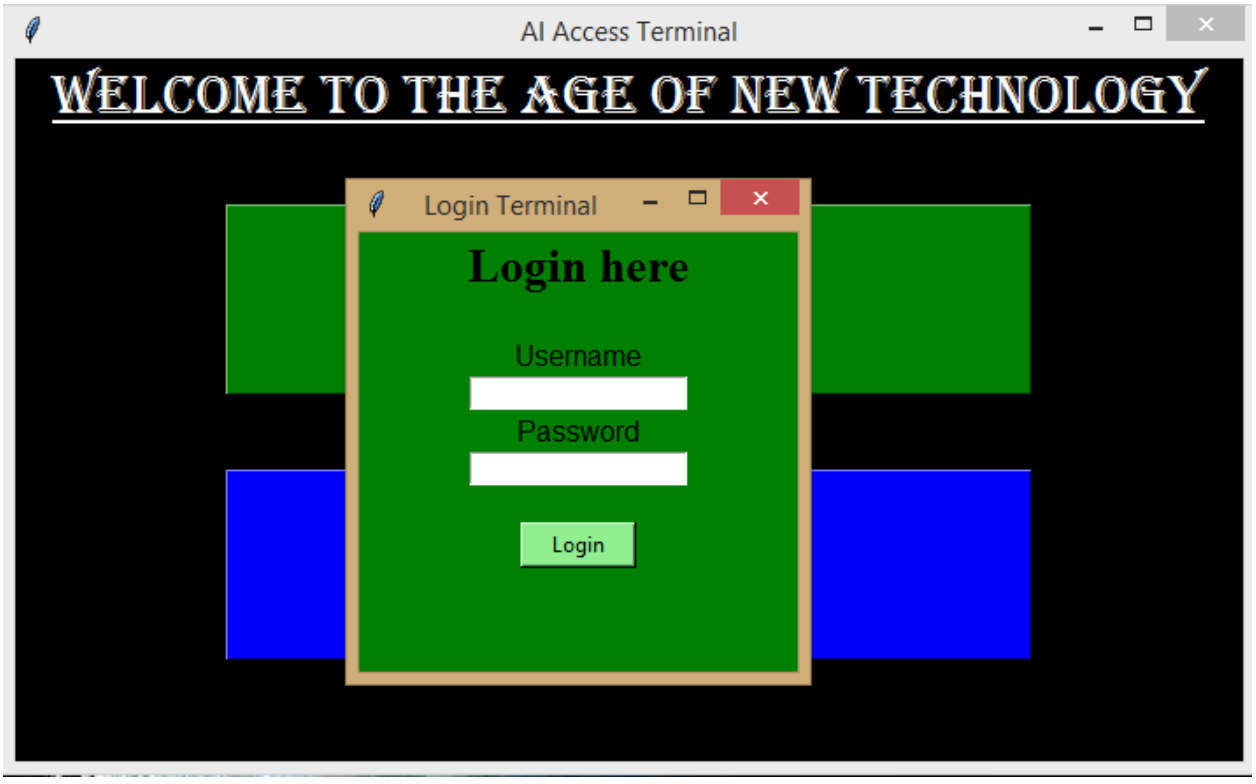
```
while a==6:
    query=takecommand()
    if query=="    ":
        print()

    elif "open youtube" in query:
        webbrowser.open("www.youtube.com")
    elif "open google" in query:
        webbrowser.open("www.google.com")
    elif "axis bank" in query:
        webbrowser.open("https://www.axisbank.com")
    elif "icici" in query:
        webbrowser.open("WWW.ICICIBANK.COM")
    elif "bank of baroda" in query:
        webbrowser.open("http://www.bobibanking.in")
    elif "sbi" in query:
        webbrowser.open("WWW.ONLINESBI.COM ")
    elif "instagram" in query:
        webbrowser.open("www.instagram.com/")
    elif "facebook" in query:
        speak("Openning facebook")
        webbrowser.open("www.facebook.com/")
    elif " date" in query:
        sk2=datetime.datetime.now()
        sk1=str(sk2)
        sk=str(sk1[0:10])
        speak("the date is")
        speak(sk)
    elif "the time" in query:
        sk2=datetime.datetime.now()
        k=sk2.strftime("%H:%M:%S")
        k0=k.replace(":","")
        k1=k0[0:2]+"hours"
        k2=k0[2:4]+"minutes"
        k3=k0[4:]+"seconds"
        k5=k1+k2+"and"+k3
        print(k)
        speak("the time is")
        speak(k5)

    elif "news" in query:
        def NewsFromBBC():
            main_url = " https://newsapi.org/v1/articles?source=bbc-news&sortBy=top&apiKey=5687b7b46e604878966b9a
            open_bbc_page = requests.get(main_url).json()
            article = open_bbc_page["articles"]
            results = []
```

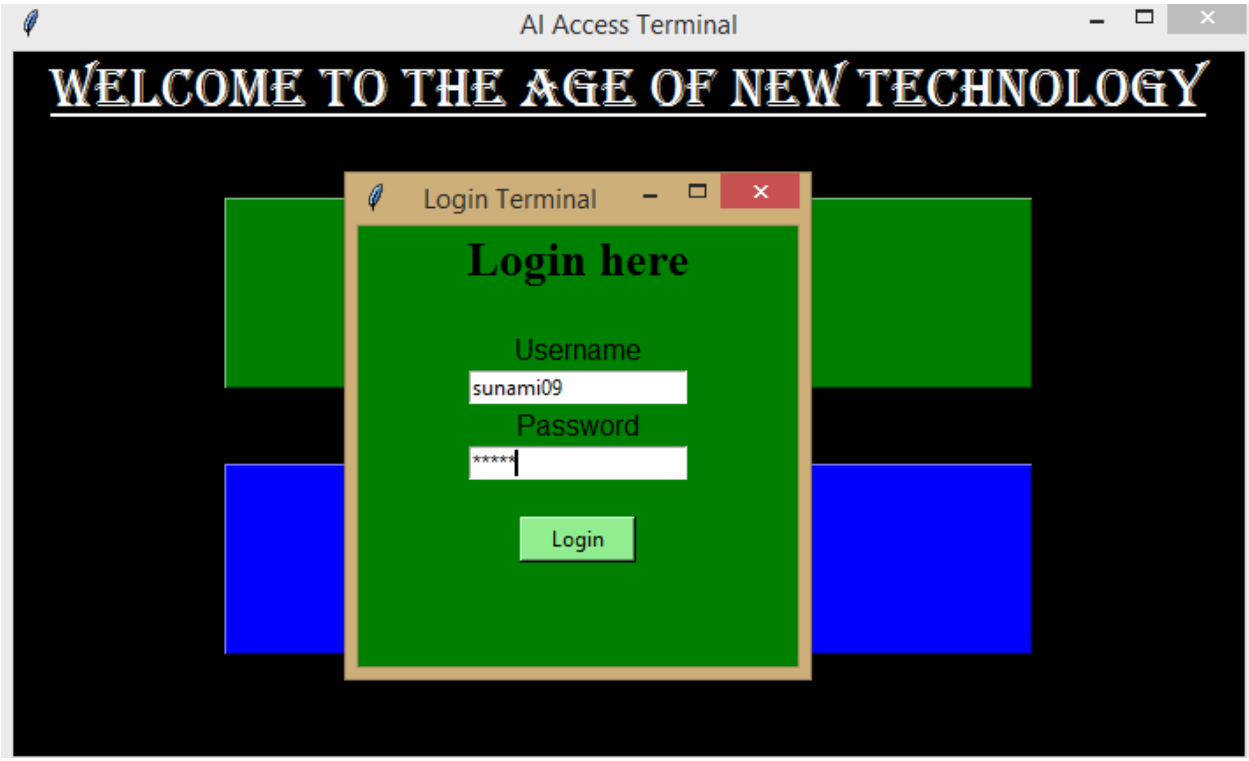
```
    password=StringVar()
    username=StringVar()
    fullname=StringVar()
    screen2=Tk()
    screen2.geometry("350x450")
    screen2.config(bg="aqua")
    screen2.title("Registration Terminal")
    Label(screen2,text="Please Give The Details To Register",fg="blue",bg="aqua",font=("times new roman",15,"bold")).pack
    Label(screen2,text="",bg="aqua").pack()
    Label(screen2,text="Fullname",bg="aqua").pack()
    fullname=Entry(screen2,textvariable=fullname)
    fullname.pack()
    Label(screen2,text="Username",bg="aqua").pack()
    username=Entry(screen2,textvariable=username)
    username.pack()
    Label(screen2,text="Set Password",bg="aqua").pack()
    password=Entry(screen2,textvariable=password,show="*")
    password.pack()
    Label(screen2,text="Match Password",bg="aqua").pack()
    type_password=Entry(screen2,textvariable=type_password,show="*")
    type_password.pack()
    Label(screen2,text="Gender",bg="aqua").pack()
    gender=Entry(screen2,textvariable=gender)
    gender.pack()
    Label(screen2,text="Passcode",bg="aqua").pack()
    passcode=Entry(screen2,textvariable=passcode,show="#")
    passcode.pack()
    Label(screen2,text="",bg="aqua").pack()
    Button(screen2,text="Register",bg="blue",fg="white",height="2",width="10",command=register_user).pack()
def mainscreen():
    global screen
    screen=Tk()
    screen.geometry("700x400")
    screen.title("AI Access Terminal")
    screen.config(bg="black")
    Label(text="Welcome To The Age Of New Technology",bg="black",fg="white",font=("Algerian",24,"underline")).pack()
    Label(text="",bg="black").pack()
    Label(text="",bg="black").pack()
    Button(text="Login",height="5",width="50",bg="green",fg="white",font=("times new roman",12,"bold"),command=login).pacl
    Label(text="",bg="black").pack()
    Label(text="",bg="black").pack()
    Button(text="Register",height="5",width="50",bg="blue",fg="white",font=("times new roman",12,"bold"),command = registe

    screen.mainloop()
mainscreen()
```

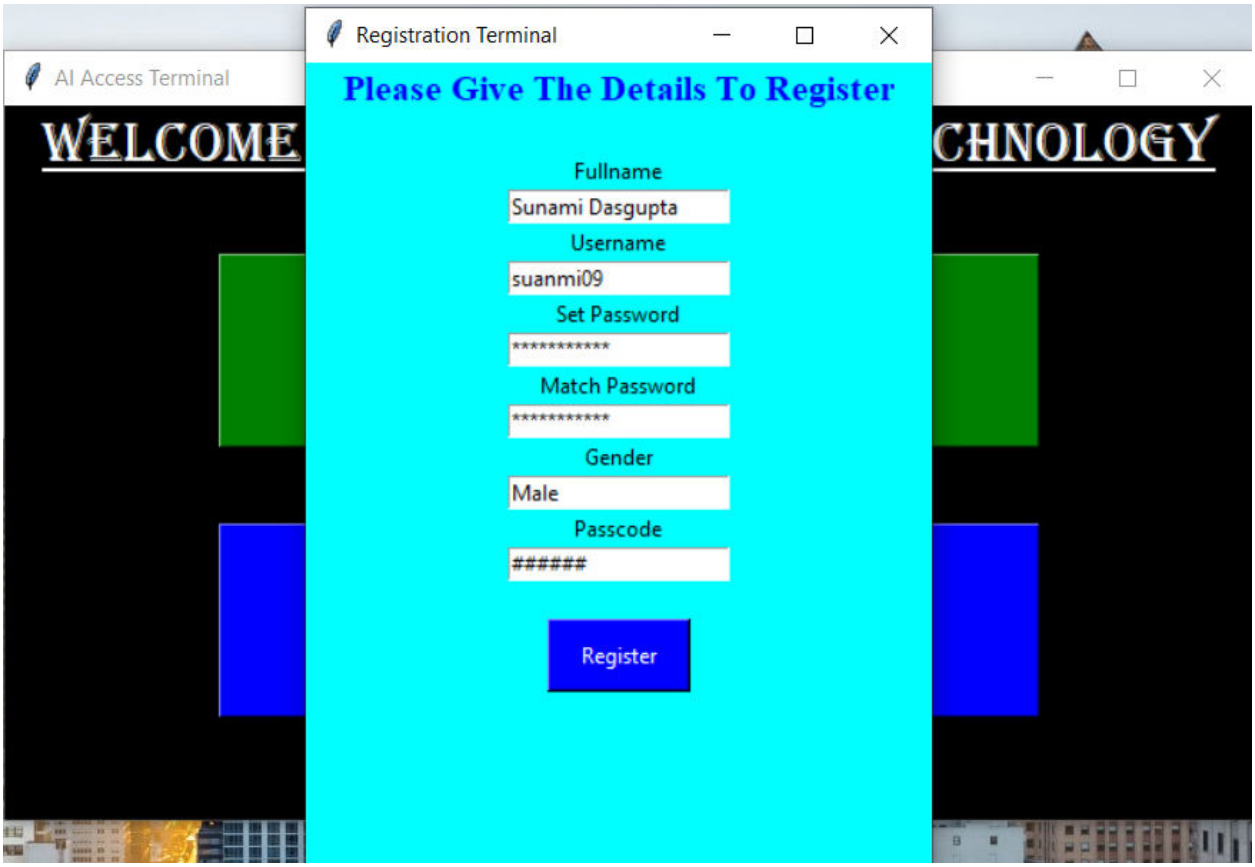
Output:-

Login and registration pages:-



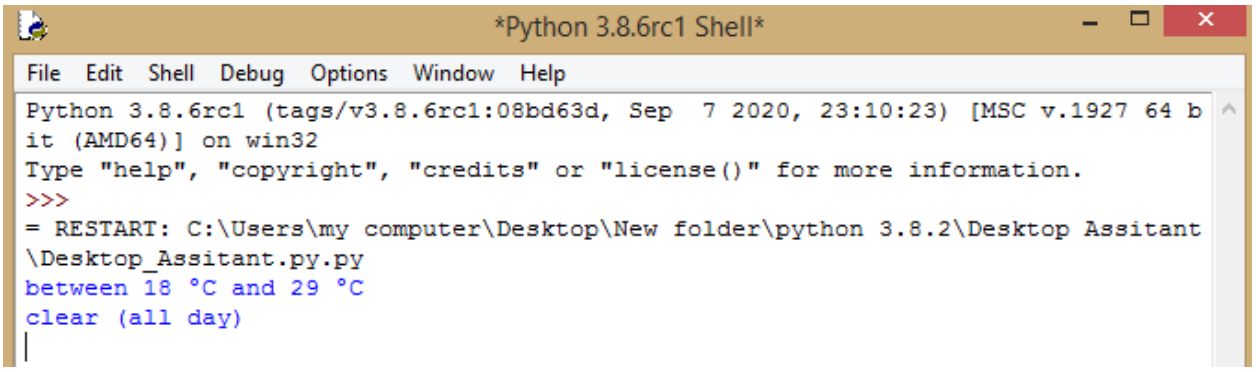



AI Access Terminal
WELCOME TO THE AGE OF NEW TECHNOLOGY
Login Terminal
Login here
Username
sunami09
Password
*****
Login

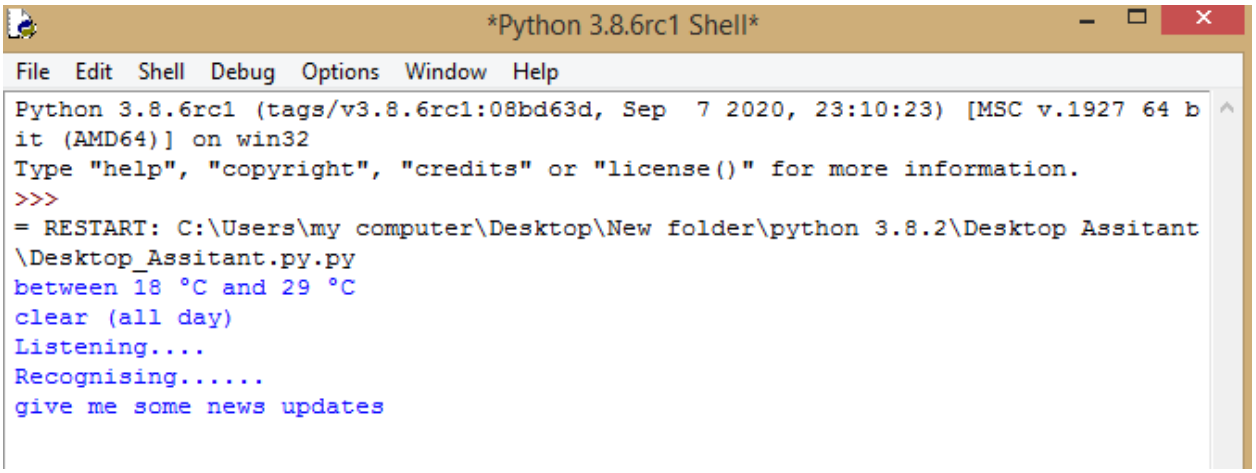

Registration Terminal
Please Give The Details To Register
Fullname
Sunami Dasgupta
Username
suanmi09
Set Password
****
Match Password
****
Gender
Male
Passcode
######
Register
AI Access Terminal
WELCOME
CHNOLOGY

AI Model:-

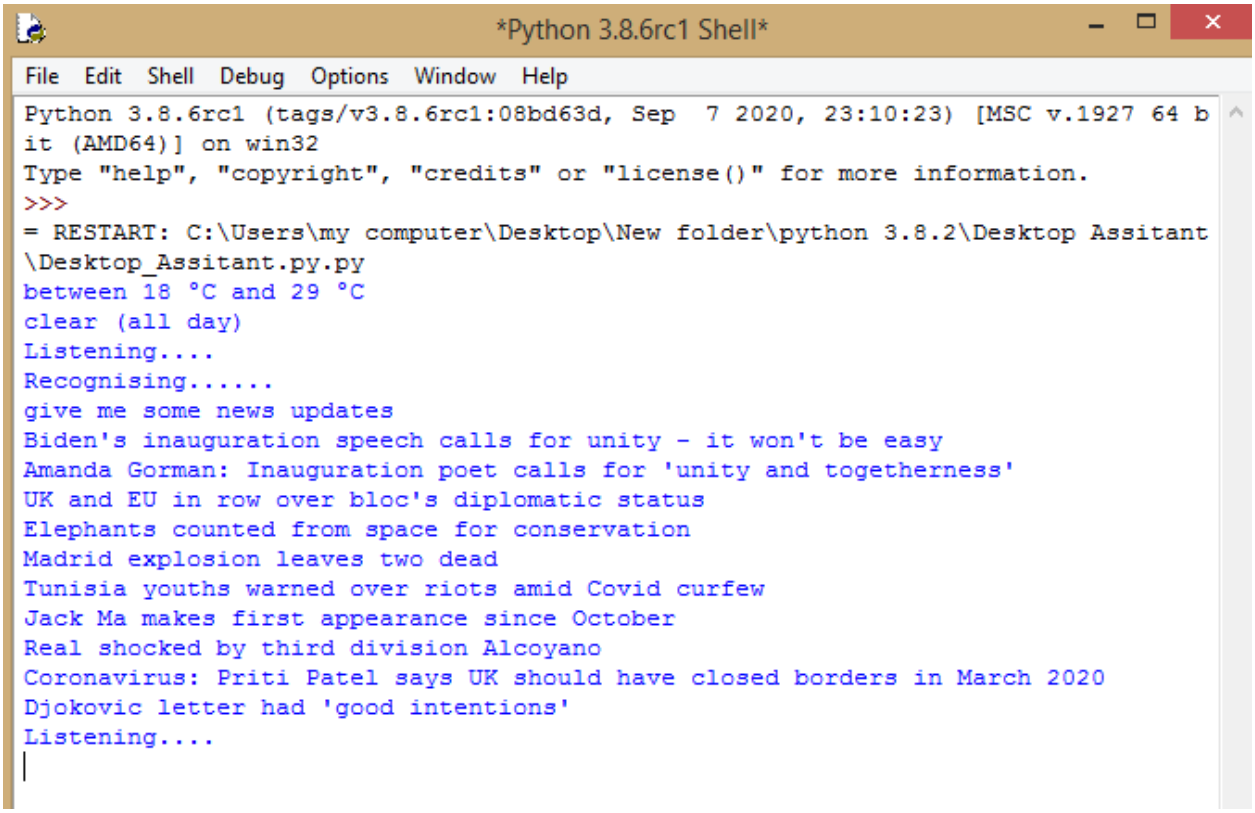
- First it greets the user as sir/ma'am(depending on the gender provided by the CSV file)



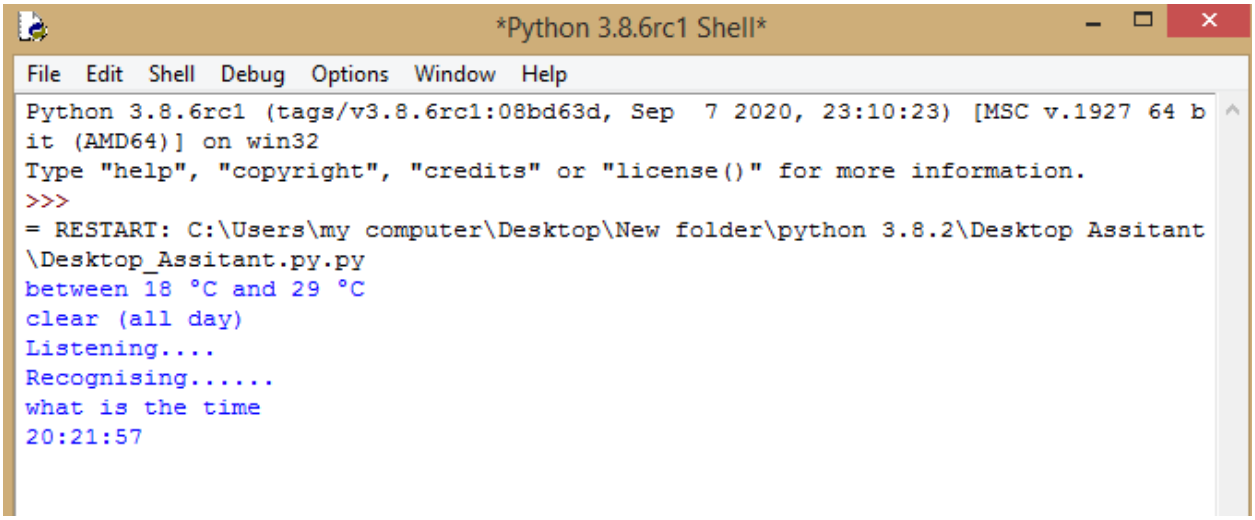
- Then it turns on the microphone to get the command from the user.



- Output of the given command.

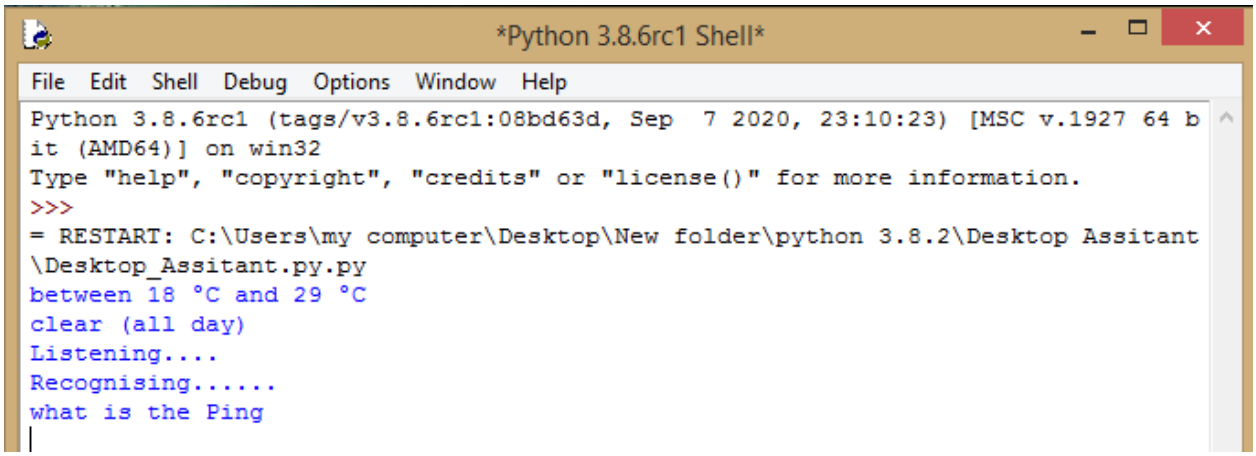


- Tells the time.

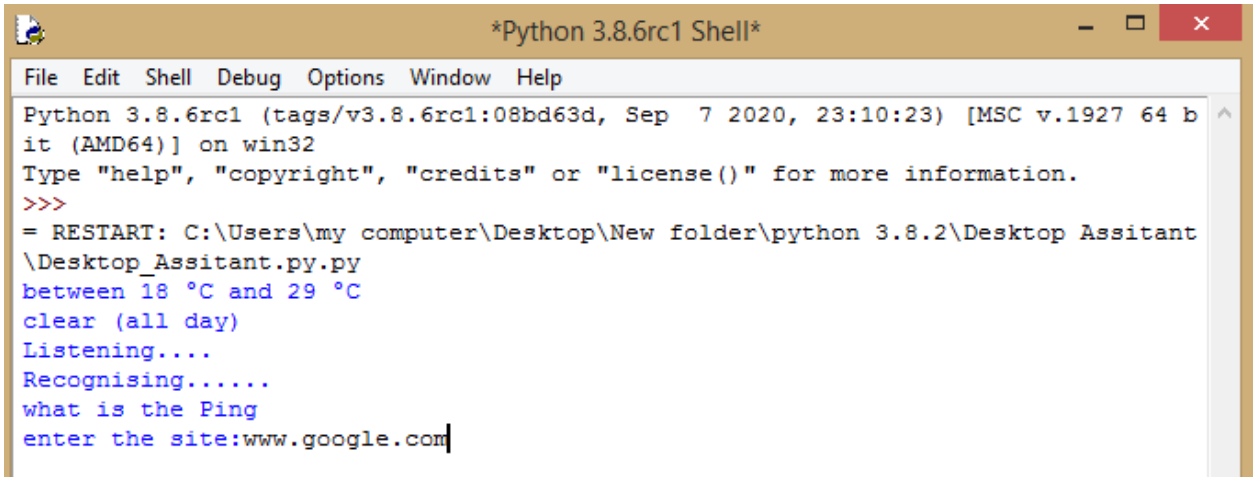


- Plays music as per the given command.

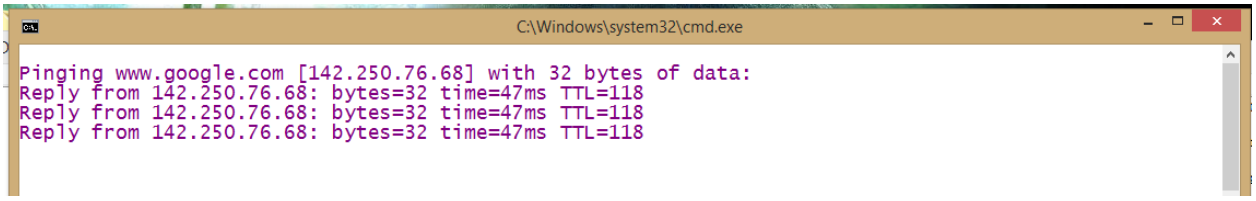
- Asking for the ping.



- Typing the web address.



- Giving out the ping.

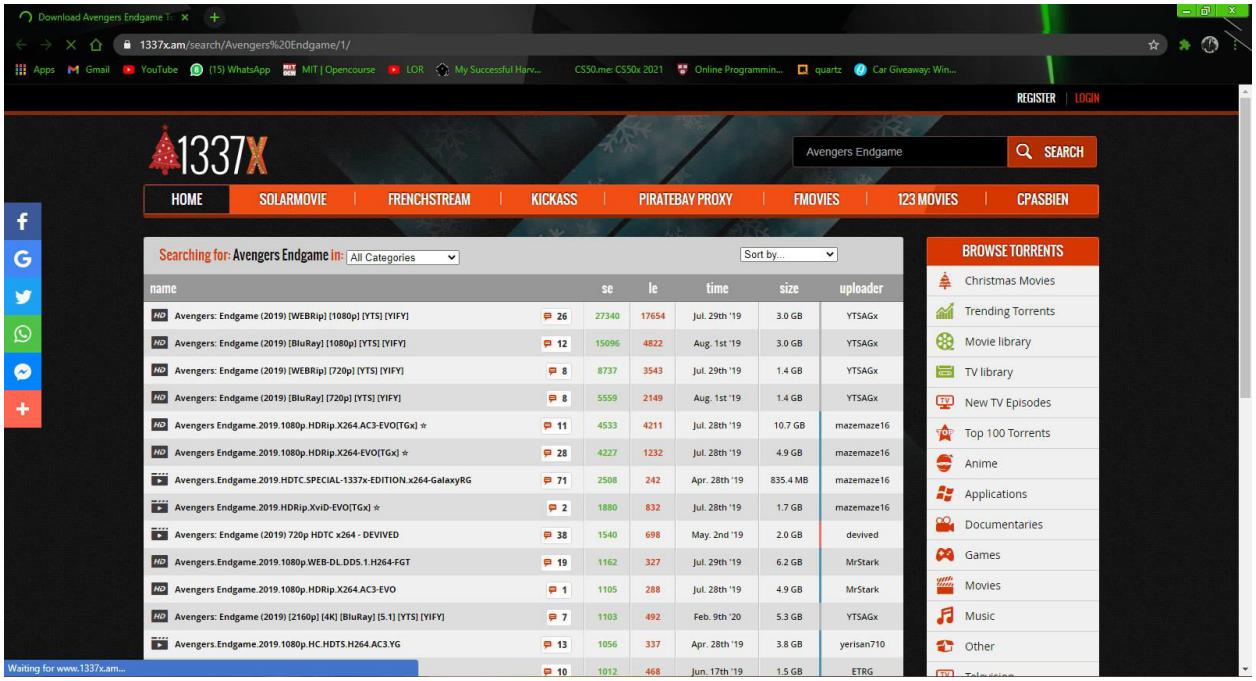


- Downloading a movie.

```
Listening....
Recognising......
I want to download a movie
::>>Avengers Endgame
```

Ln: 55 Col: 20

- Program downloads the movie(using web scrapping).

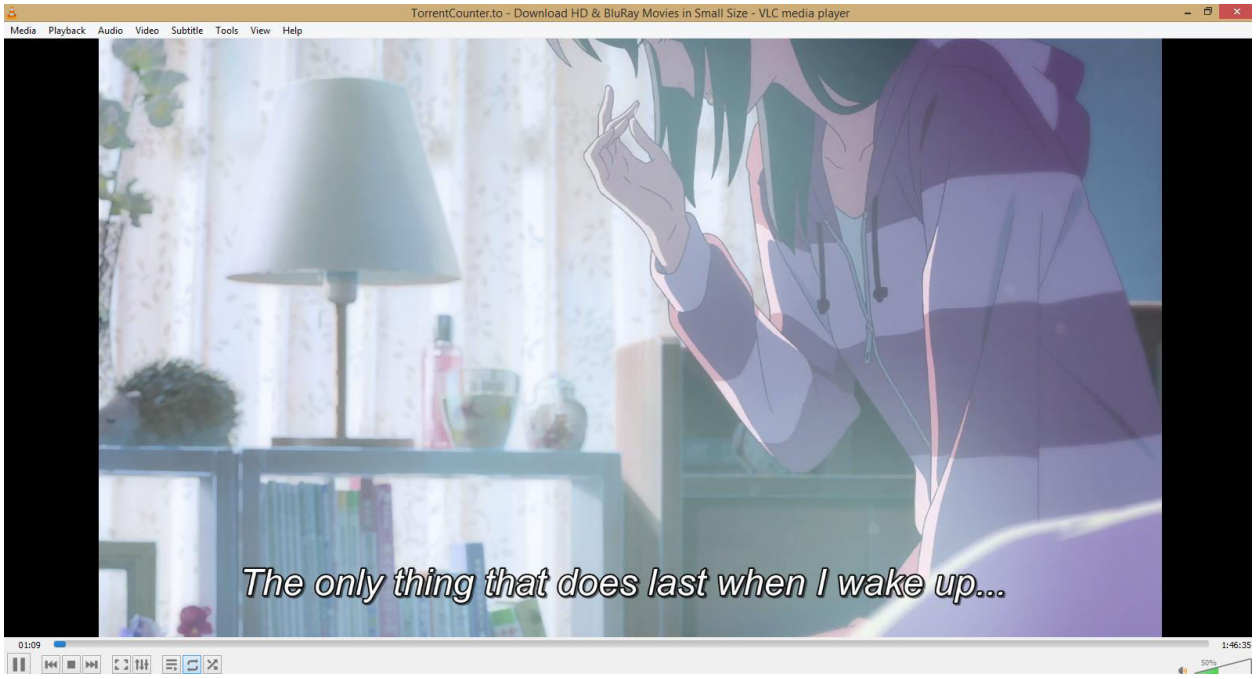


- Playing movies.

```
Listening....
Recognising......
play movies
Name the movie:Your name
```

Ln: 71 Col: 24

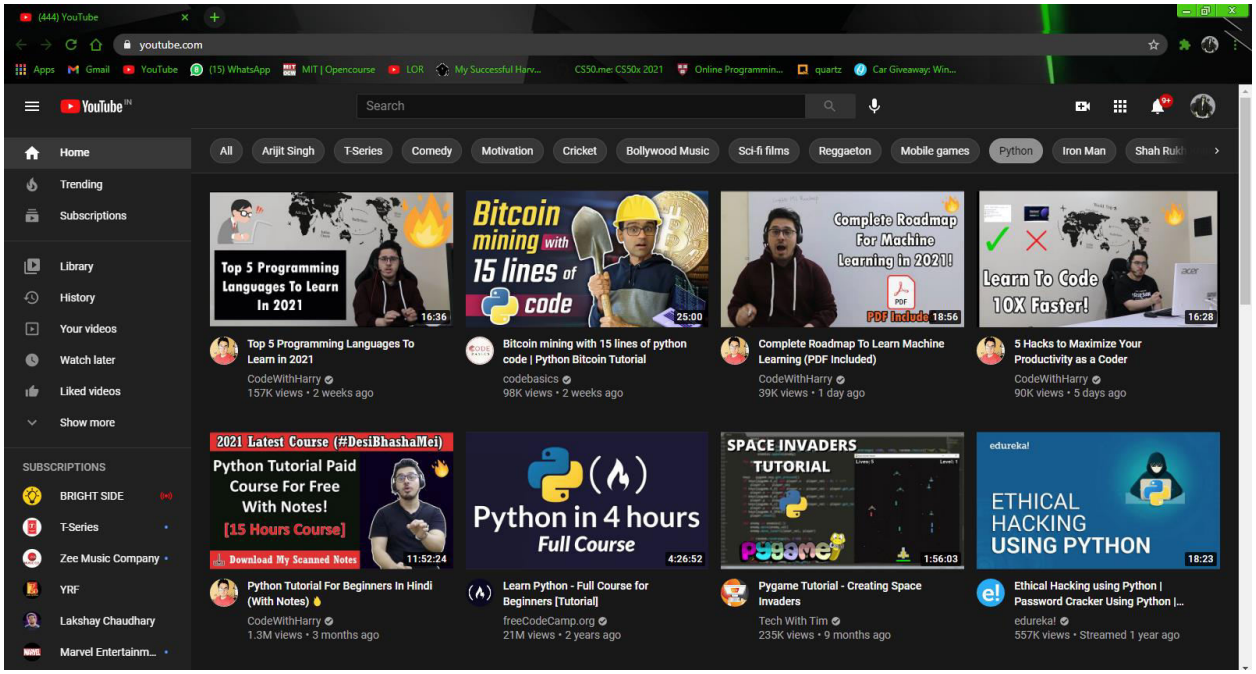
- Program starts playing the given movie.



- Telling to open YouTube.

```
Listening....
Recognising......
open YouTube
Listening....
```

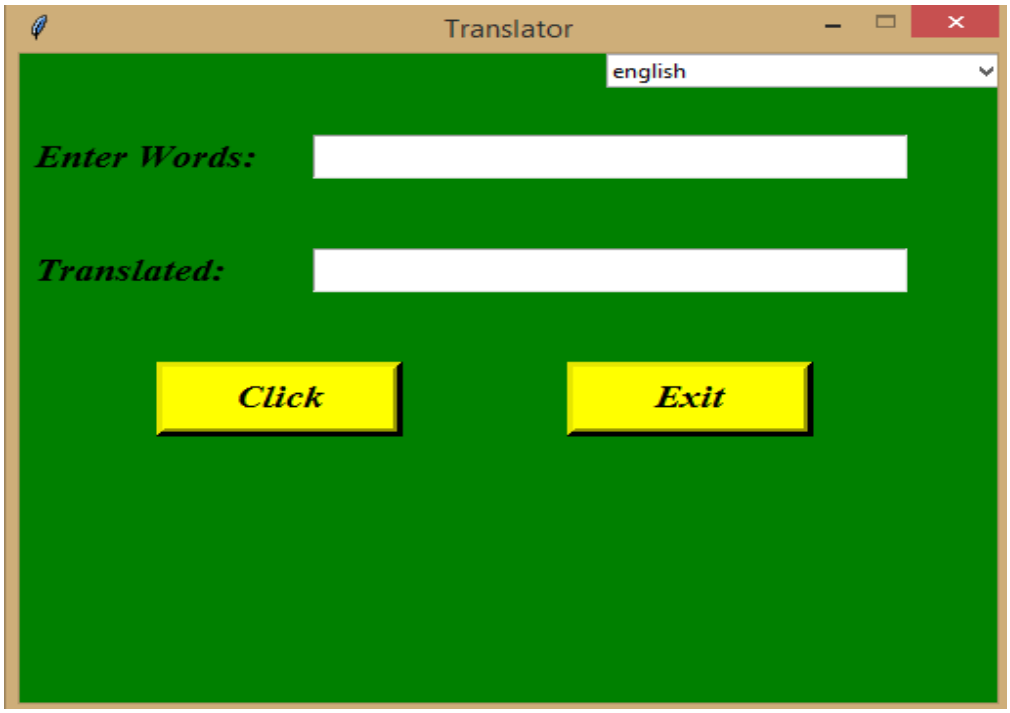
- Program opens YouTube.

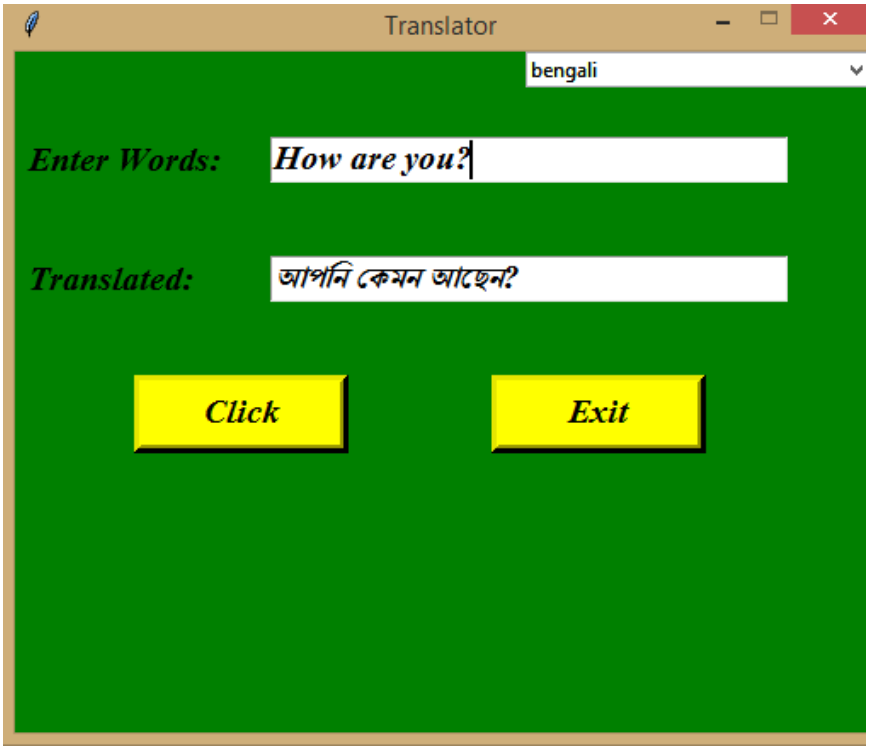


- Telling to Open the Translator(Using the Google Speech_Cloud).

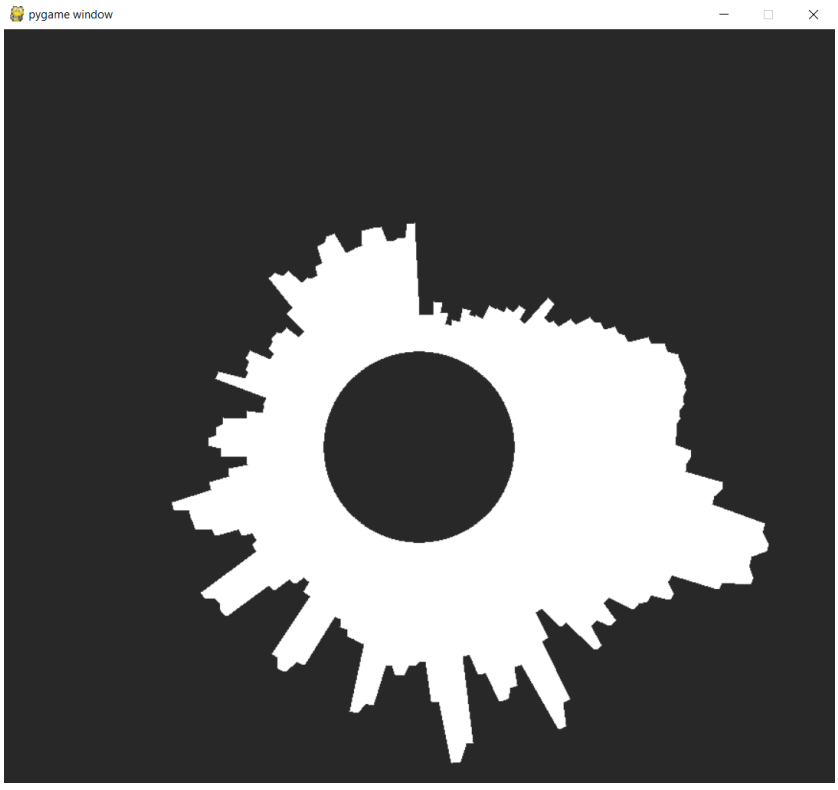
```
Listening....
Recognising......
open the translator
```

- GUI Translator.

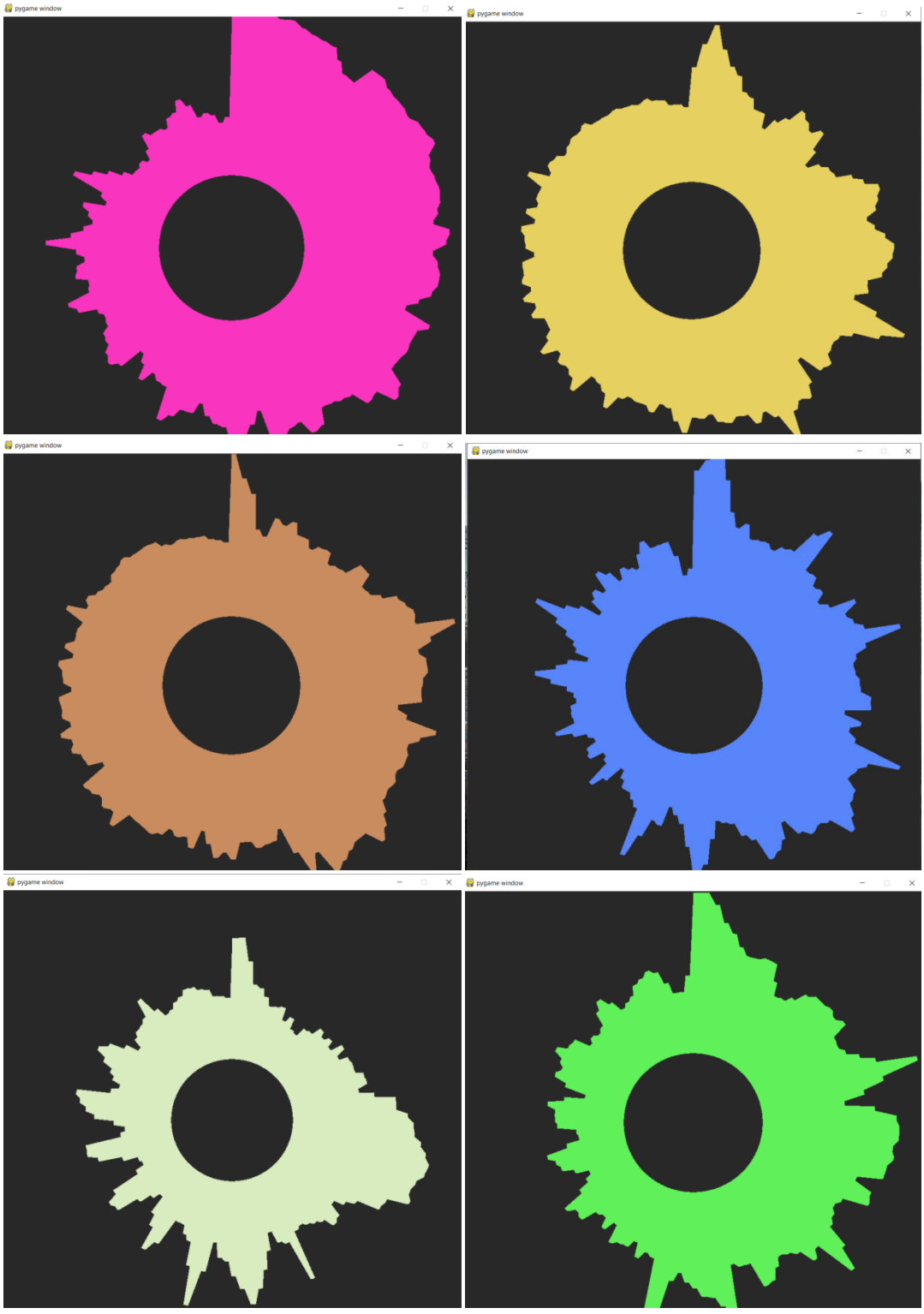




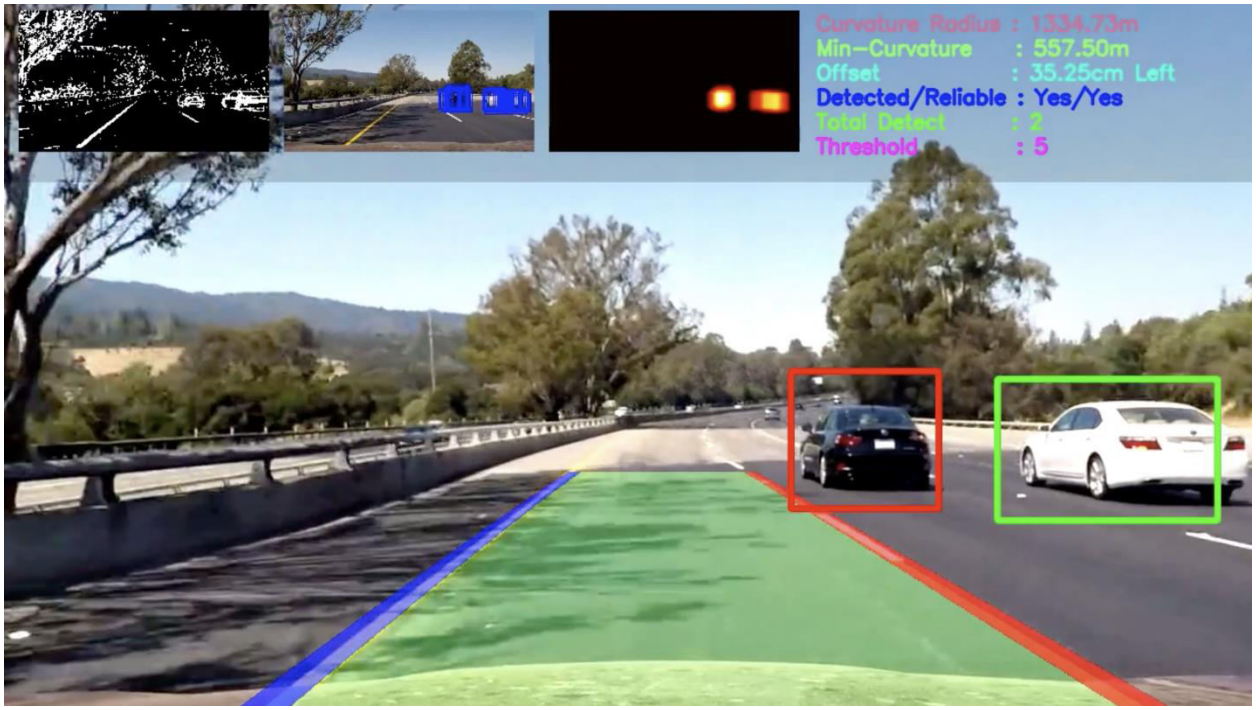
- Audio-Visualizer(Using PyGame and MATPLOT LAB).



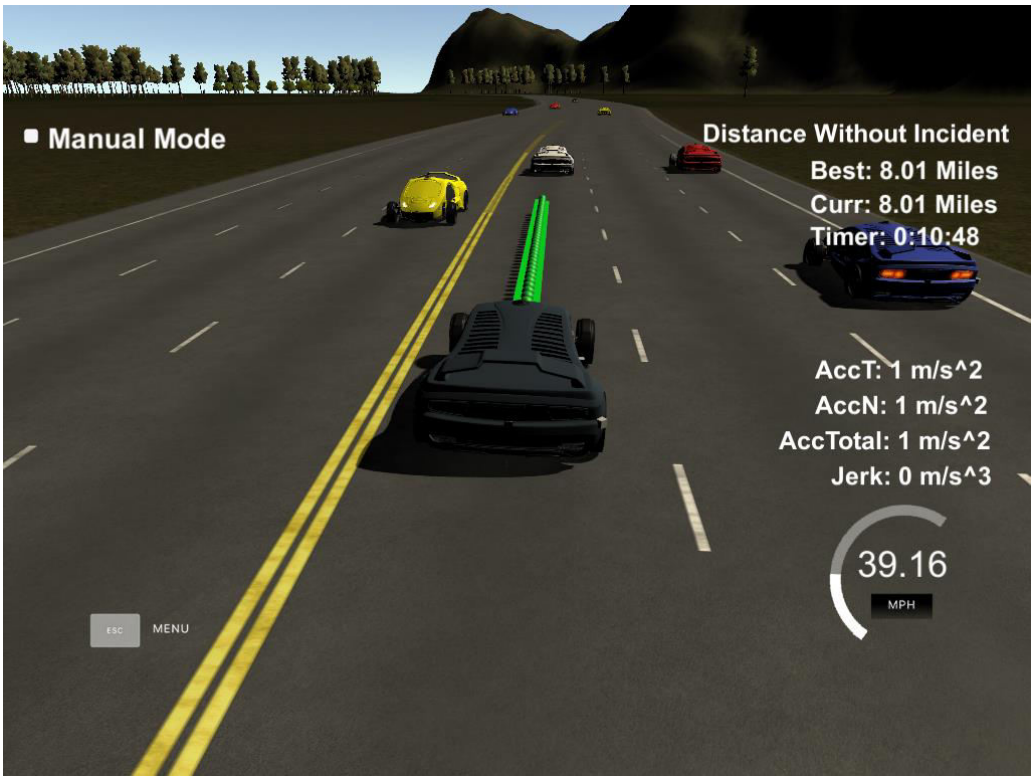
- Changes the color when the Bass drops.(the colors are random)



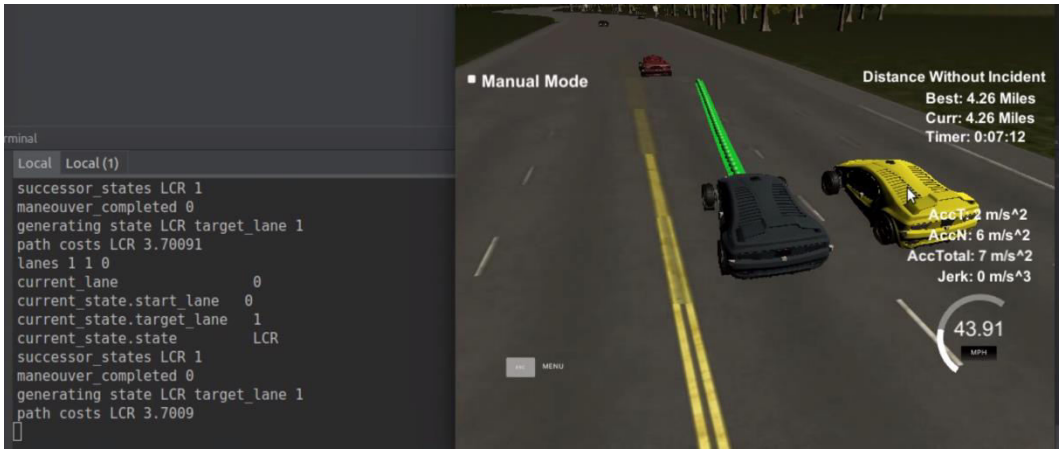
- Self-driving simulator.
    1. <u>Behavioral Cloning.</u>
       Here the model records the data how I drive that is it clones my behavior. Exactly how children learns to do stuff.



    2. Autonomous Mode(Using Udacity and Tenserflow).
       Here it starts to drive the car in a simulative environment provided by the Udacity and unity frame work.



- Program controls the degree of the steering wheel.



LIMITATIONS

- As it has too much dependency it takes up to much time for behavioral cloning.
- Program consists of many open source modules which doesn't support every OS.
- It doesn't have an online platform.
- User needs some programming knowledge to update the software.
- Security is good but code's readability is not good.
- Needs a good processor for Self-Driving.

BIBLIOGRAPHY

The great help from our faculty members and my project guide led to the successful completion of this project. Besides that, I took the help of some books and websites to develop the project:

- Computer science With Python - Class XII By : Sumita Aurora
- Website: https://www.geeksforgeeks.org/
- Website: https://stackoverflow.com/
- Website: https://github.com/
- Website: https://www.udacity.com/school-of-ai
- Website: https://www.tensorflow.org/tutorials
- Website: https://xpro.mit.edu/checkout/

****