S.B.O.A SCHOOL AND JUNIOR COLLEGE
Annanagar Western Extension, Chennai-600101

PROJECT REPORT

2020-2021

Name :

Standard :

Register no. :

Title of the Project :

BONAFIDE CERTIFICATE

Certified to be the bonafide project work done by …… of Std …… of SBOA School and Junior College, Chennai -600101 during the year 2020-2021.

Date: Teacher-in-charge

Submitted for the AISSC Examination held in the year 2020-2021 at SBOA School and Junior college, Chennai-600101.

Internal Examiner External Examiner

COMPUTER SCIENCE PROJECT

VOICE ASSISTANT

BY

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ACKNOWLEDGEMENT

On the very onset of this project, I would like to extend my deepest gratitude towards our principal Mr. Manoharan for having provided me the opportunity to complete my schooling in this reputed institution.

I wish to express my heartfelt gratitude to our esteemed Computer Science teacher Mrs. K. Bhavani and our lab teacher Mrs. R. Revathi whose guidance and support throughout this project was essential for me to complete this project successfully.

Finally I would like to thank my parents and friends for their valuable suggestions and moral support during various stages of this project.

SYNOPSIS

This project is based on A virtual assistant, (NEVA) also called an AI assistant or digital assistant, which is an application program that understands natural language voice commands and completes tasks for the user. The query for the assistant can be manipulated as per the user's need.

Speech recognition is the process of converting audio into text. This is commonly used in voice assistants like Alexa, Siri, etc. Python provides an API called Speech Recognition to allow us to convert audio into text for further processing. In this project, we will be using the virtual assistant to complete certain tasks.

Our virtual assistant will able to do the followings things-

Weather forecasting, Launching Games, searching for a location, setting remainders, Opening Websites, etc.

It tells you about almost everything you ask !

WORKING ENVIRONMENT

Hardware Requirements:

1. Monitor
2. Keyboard
3. Mouse
4. Speakers

Software Requirements:

OPERATING SYSTEM:	Windows 7 & higher
PROCESSOR:	Intel(R) Core(TM) i5-2450M CPU @2.50GHz
INSTALLLED MEMORY RAM:	4.00 GB
SYSTEM TYPE:	64-bit operating system
COMPILER:	IDLE (Python 3.8 32-bit)

DATA DICTIONARY

Import:

Import is a keyword to make code in one module available in another.

The modules used in this project are given below:

OS:
The OS module in Python provides functions for interacting with the operating system.

Time:
This module is used to handle time-related tasks.

pyttsx3:
This module is used for text-to-speech conversion library in Python.

Datetime:
Datetime module supplies classes to work with date and time.

Playsound:
The playsound module is a cross platform module that can play audio files.

Speech_recognition:
This enhances the Library for performing speech recognition, with support for several engines and APIs, online and offline.

gtts:
gTTS (*Google Text-to-Speech*), a Python library and CLI tool to interface with Google translates text-to-speech API.

Random:
Python defines a set of functions that are used to generate or manipulate random numbers through the **random module.**

Webbrowser:

Webbrowser module provides a high-level interface which allows displaying Web-based documents to users.

PyOWM:
PyOWM is a client Python wrapper library for OpenWeatherMap web APIs.

Sys:
The sys module in Python provides various functions and variables that are used to manipulate different parts of the Python runtime environment.

Sleep:
The sleep() function suspends (waits) execution of the current thread for a given number of seconds.

Subprocess:
This module allows you to spawn new processes, connect to their input/output/error pipes, and obtain their return codes/

pygame:
pygame is a Python wrapper for the Simple DirectMediaLayer.

SOURCE CODE

```
import os
import time
import pyttsx3
import datetime
import playsound
import speech_recognition as sr
from gtts import gTTS
import random
import webbrowser
import pyowm
import sys
from time import sleep
import subprocess
import pygame
c="yes"
while c=="yes":
    #converting text to audio
    def speak(audio_inp):
        c=pyttsx3.init()
        newVoiceRate = 145
        c.setProperty('rate',newVoiceRate)
        voice_id="HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Speech\Voices\Tokens\TTS_MS_EN-
US_DAVID_11.0"

#voice_id="HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Speech\Voices\Tokens\MSTTS_V110_enUS_MarkM"
        c.setProperty('voice',voice_id )
        c.runAndWait()
        c.say(audio_inp)
        print(audio_inp)
        c.runAndWait()

    #converting audio to text
    def audio():
        r=sr.Recognizer()
        r.energy_threshold = 4000
        with sr.Microphone(device_index=1) as source:
            r.adjust_for_ambient_noise(source,duration=0.5)
            print("\ntry saying something")
            aud=r.listen(source)
            var=""
        try:
            var=r.recognize_google(aud)
        except sr.UnknownValueError:
            var="could not understand audio, would you try saying that again?"
            text=audio()
        except sr.RequestError:
            var=" Looks like, there is some problem with Google Speech Recognition"

        return var


    speak(" hi how can i help you?")

    text=audio()
    print(text)


    #responding
    if text in ["hi","hai"]:
        speak("hello, how are you doing today")
        c=str(input("Do you want to continue?"))
```

```
    if "name" in text:
        speak("my name is neva")
        c=str(input("Do you want to continue?"))
    if "compliment" in text:
        c=["You have the best laugh","you light up the room","you look really great today","You're like sunshine on a
rainy day"]
        speak(random.choice(c))
        c=str(input("Do you want to continue?"))

    #web search
    if "search" in text:
        speak("what do you want to search?")
        sd=audio()
        url="https://google.com/search?q="+sd
        webbrowser.get().open(url)
        speak("this is what i found for " + sd)
        c=str(input("Do you want to continue?"))
    #remainder
    if "remind me" in text:

        speak(" How frequent do you want me to give you a reminder?")
        rem_chc=audio()
        print(rem_chc)
        speak("I will remind you in " + rem_chc)

        acc=audio()

        if "ok" in acc:
            if "minutes" in rem_chc:
                mint=0
                for i in rem_chc:
                    if i.isdigit():
                        mint=int(i)
                rem_freq=mint/60

            if "hours" in rem_chc:
                hr=0
                for i in rem_chc:
                    if i.isdigit():
                        hr=int(i)
                rem_freq=hr/60

        else:
            speak("Please restart me in order to choose another number. I am still not that complicated")
            sys.exit()

        print("starting")

        while rem_freq > 0:
            sleep(60*60*rem_freq)
            speak("Hey! its time to take the much needed break, now!")
            speak("do you want to play a game?")
            ans=str(input("Enter your choice:\t"))
            if "yes" or"yeah" in ans:
                    pygame.init()
                    pygame.font.init()
                    font = pygame.font.SysFont('Sans Serif',70)
                    win = pygame.display.set_mode((550,550))
                    pygame.display.set_caption('Tic-Tac-Toe')

                    board = [[0, 0, 0], [0, 0, 0], [0, 0, 0]]
                    first = pygame.draw.rect(win, (255, 255, 255),  (25,25,150,150))
                    second = pygame.draw.rect(win, (255,255,255), (200,25,150,150))
                    third = pygame.draw.rect(win, (255,255,255), (375,25,150,150))
```

```
fourth = pygame.draw.rect(win, (255,255,255), (25,200,150,150))
fifth = pygame.draw.rect(win, (255,255,255), (200,200,150,150))
sixth = pygame.draw.rect(win, (255,255,255), (375,200,150,150))
seventh = pygame.draw.rect(win, (255,255,255), (25,375,150,150))
eighth = pygame.draw.rect(win, (255,255,255), (200,375,150,150))
ninth = pygame.draw.rect(win, (255,255,255), (375,375,150,150))
draw_object = 'circle'

first_open = True
second_open = True
third_open = True
fourth_open = True
fifth_open = True
sixth_open = True
seventh_open = True
eighth_open = True
ninth_open = True

def win_check(num):
    for row in board:
        for tile in row:
            if tile == num:
                continue
            else:
                break
        else:
            return True

    for column in range(3):
        for row in board:
            if row[column] == num:
                continue
            else:
                break
        else:
            return True


    for tile in range(3):
        if board[tile][tile] == num:
            continue
        else:
            break
    else:
        return True


    for tile in range(3):
        if board[tile][2-tile] == num:
            continue
        else:
            break
    else:
        return True

def win_msg(sign):
    t=font.render(sign,True,(255,120,11))
    win.blit(t,(150,250))

run = True
won = False
while run:
    pygame.time.delay(100)
```

```
        for event in pygame.event.get():
            if event.type == pygame.QUIT:
                run = False
            if event.type == pygame.KEYDOWN:
                if event.key == pygame.K_SPACE:
                    first_open = True
                    second_open = True
                    third_open = True
                    fourth_open = True
                    fifth_open = True
                    sixth_open = True
                    seventh_open = True
                    eighth_open = True
                    ninth_open = True
                    run = True
                    won = False
                    board = [[0, 0, 0], [0, 0, 0], [0, 0, 0]]
                    win.fill((0,0,0))
                    first = pygame.draw.rect(win, (255,255,255), (25,25,150,150))
                    second = pygame.draw.rect(win, (255,255,255), (200,25,150,150))
                    third = pygame.draw.rect(win, (255,255,255), (375,25,150,150))
                    fourth = pygame.draw.rect(win, (255,255,255), (25,200,150,150))
                    fifth = pygame.draw.rect(win, (255,255,255), (200,200,150,150))
                    sixth = pygame.draw.rect(win, (255,255,255), (375,200,150,150))
                    seventh = pygame.draw.rect(win, (255,255,255), (25,375,150,150))
                    eighth = pygame.draw.rect(win, (255,255,255), (200,375,150,150))
                    ninth = pygame.draw.rect(win, (255,255,255), (375,375,150,150))
            if event.type == pygame.MOUSEBUTTONUP:
                pos = pygame.mouse.get_pos()
                if won != True:
                    if first.collidepoint(pos) and first_open:
                        if draw_object == 'circle':
                            pygame.draw.circle(win,(89,0,141), (100,100),50)
                            draw_object = 'rect'
                            board[0][0] = 1
                        else:
                            pygame.draw.rect(win,(5,226,219), (50,50,100, 100))
                            draw_object = 'circle'
                            board[0][0] = 2
                        first_open = False

                    if second.collidepoint(pos) and second_open:
                        if draw_object == 'circle':
                            pygame.draw.circle(win,(89,0,141), (275,100),50)
                            draw_object = 'rect'
                            board[0][1] = 1
                        else:
                            pygame.draw.rect(win,(5,226,219), (225,50,100, 100))
                            draw_object = 'circle'
                            board[0][1] = 2
                        second_open = False

                    if third.collidepoint(pos) and third_open:
                        if draw_object == 'circle':
                            pygame.draw.circle(win,(89,0,141), (450,100),50)
                            draw_object = 'rect'
                            board[0][2] = 1
                        else:
                            pygame.draw.rect(win,(5,226,219), (400,50,100, 100))
                            draw_object = 'circle'
                            board[0][2] = 2
                        third_open = False
```

```
            if fourth.collidepoint(pos) and fourth_open:
                if draw_object == 'circle':
                    pygame.draw.circle(win,(89,0,141), (100,275),50)
                    draw_object = 'rect'
                    board[1][0] = 1
                else:
                    pygame.draw.rect(win,(5,226,219), (50,225,100, 100))
                    draw_object = 'circle'
                    board[1][0] = 2
                fourth_open = False

            if fifth.collidepoint(pos) and fifth_open:
                if draw_object == 'circle':
                    pygame.draw.circle(win,(89,0,141), (275,275),50)
                    draw_object = 'rect'
                    board[1][1] = 1
                else:
                    pygame.draw.rect(win,(5,226,219), (225,225,100, 100))
                    draw_object = 'circle'
                    board[1][1] = 2
                fifth_open = False

            if sixth.collidepoint(pos) and sixth_open:
                if draw_object == 'circle':
                    pygame.draw.circle(win,(89,0,141), (450,275),50)
                    draw_object = 'rect'
                    board[1][2] = 1
                else:
                    pygame.draw.rect(win,(5,226,219), (400,225,100, 100))
                    draw_object = 'circle'
                    board[1][2] = 2
                sixth_open = False

            if seventh.collidepoint(pos) and seventh_open:
                if draw_object == 'circle':
                    pygame.draw.circle(win,(89,0,141), (100,450),50)
                    draw_object = 'rect'
                    board[2][0] = 1
                else:
                    pygame.draw.rect(win,(5,226,219), (50,400,100, 100))
                    draw_object = 'circle'
                    board[2][0] = 2
                seventh_open = False

            if eighth.collidepoint(pos) and eighth_open:
                if draw_object == 'circle':
                    pygame.draw.circle(win,(89,0,141), (275,450),50)
                    draw_object = 'rect'
                    board[2][1] = 1
                else:
                    pygame.draw.rect(win,(5,226,219), (225,400,100, 100))
                    draw_object = 'circle'
                    board[2][1] = 2
                eighth_open = False

            if ninth.collidepoint(pos) and ninth_open:
                if draw_object == 'circle':
                    pygame.draw.circle(win,(89,0,141), (450,450),50)
                    draw_object = 'rect'
                    board[2][2] = 1
                else:
                    pygame.draw.rect(win,(5,226,219), (400,400,100, 100))
                    draw_object = 'circle'
```

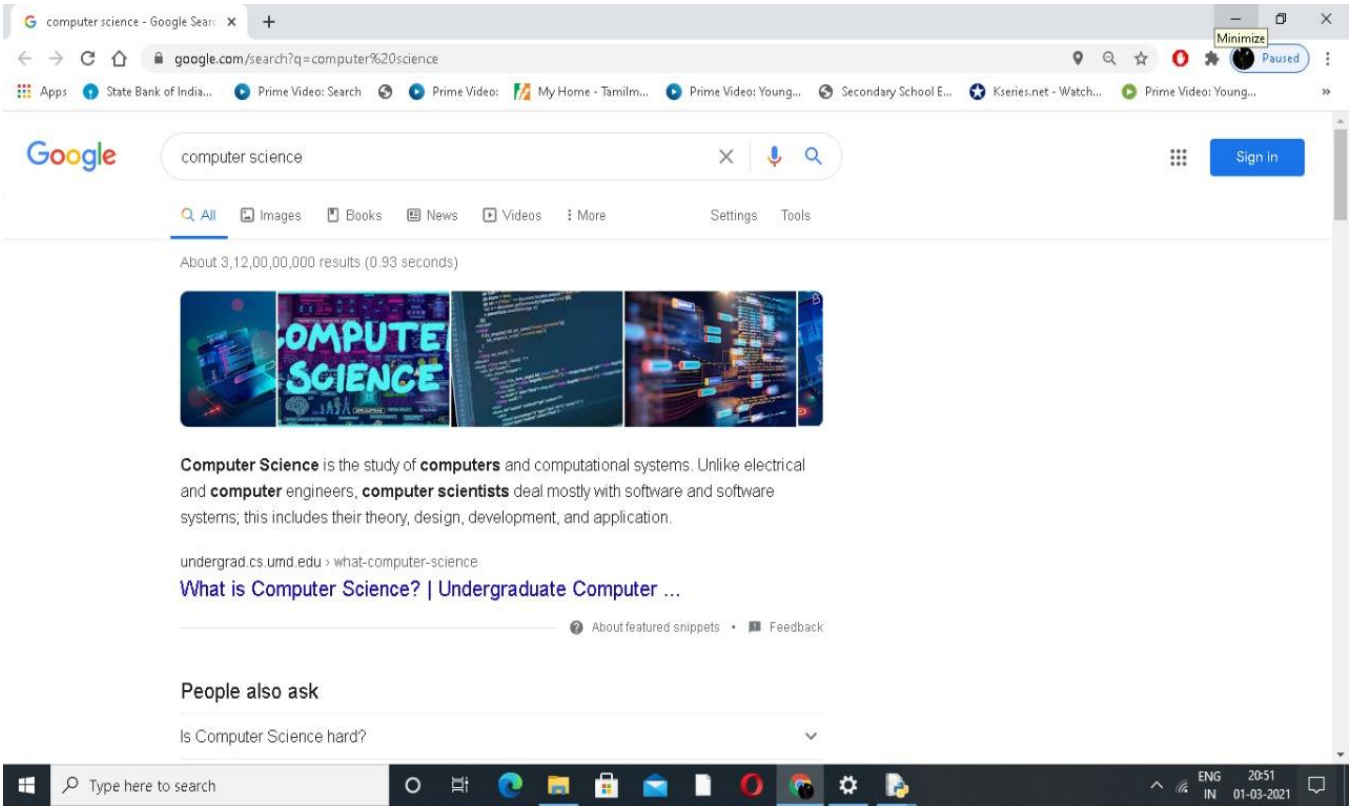
```
                                board[2][2] = 2
                                ninth_open = False

                        if win_check(1):
                            won = True
                            win_msg("YOU WON!")
                        if win_check(2):
                            won = True
                            win_msg("YOU WON!")
                        pygame.display.update()
                    pygame.quit()
                    c=str(input("Do you want to continue?"))



#playing youtube videos
if "video" in text:
    speak("what video do you want to watch?")
    vid=audio()

    yt_url="https://www.youtube.com/results?search_query="+vid
    webbrowser.open(yt_url)
    speak("here's what i found for"+vid+"videos")
    c=str(input("Do you want to continue?"))
#finding a location in google maps
if "location" in text:
    speak("what location do you want to find")
    lct=audio()
    webbrowser.open('https://www.google.co.in/maps/place/'+lct)
    c=str(input("Do you want to continue?"))
#weather forecast
if "weather" in text:
    o=pyowm.OWM("4f64378314b5aae75020286aadb3bc65")
    city="Chennai"
    l=o.weather_manager().weather_at_place(city)
    w=l.weather
    t=w.temperature(unit='celsius')
    l=[]
    for k,v in t.items():
        if v!=None:
            tm=""
            tm=str(v)
            d=tm+" "+"degree celsius"
            l.append(d)
    det=["Temperature is ","Maximum temperature is ","Minimum temperature is ","Feels like "]
    fd=[]
    for i in range(4):
        fd.append(det[i]+l[i])
    for j in fd:
        speak(j)
    c=str(input("Do you want to continue?"))
#making a note
def note(text):
    d=datetime.datetime.now()
    fn=str(d).replace("."," ").replace(":"," ")+" note.txt"
    with open(fn,"w") as f:
        f.write(text)

    subprocess.Popen(["notepad.exe",fn])

if "note" in text:
    speak("what do you want me to make a note of?")
```

```
        wt=audio()
        note(wt)
        c=str(input("Do you want to continue?"))
else:
    exit()
```

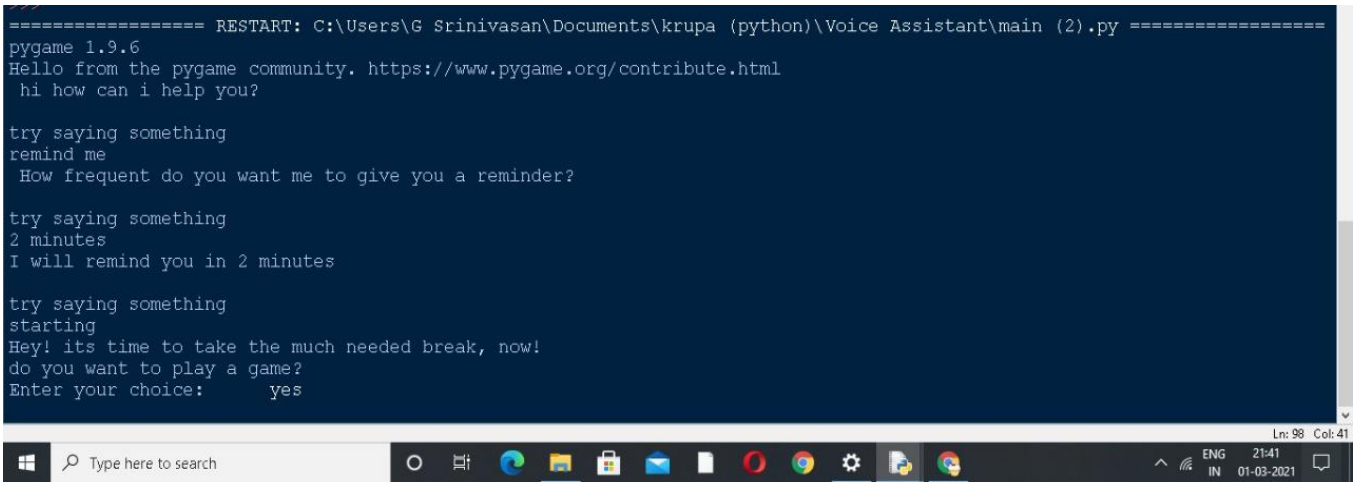
SAMPLE INPUT AND OUTPUT

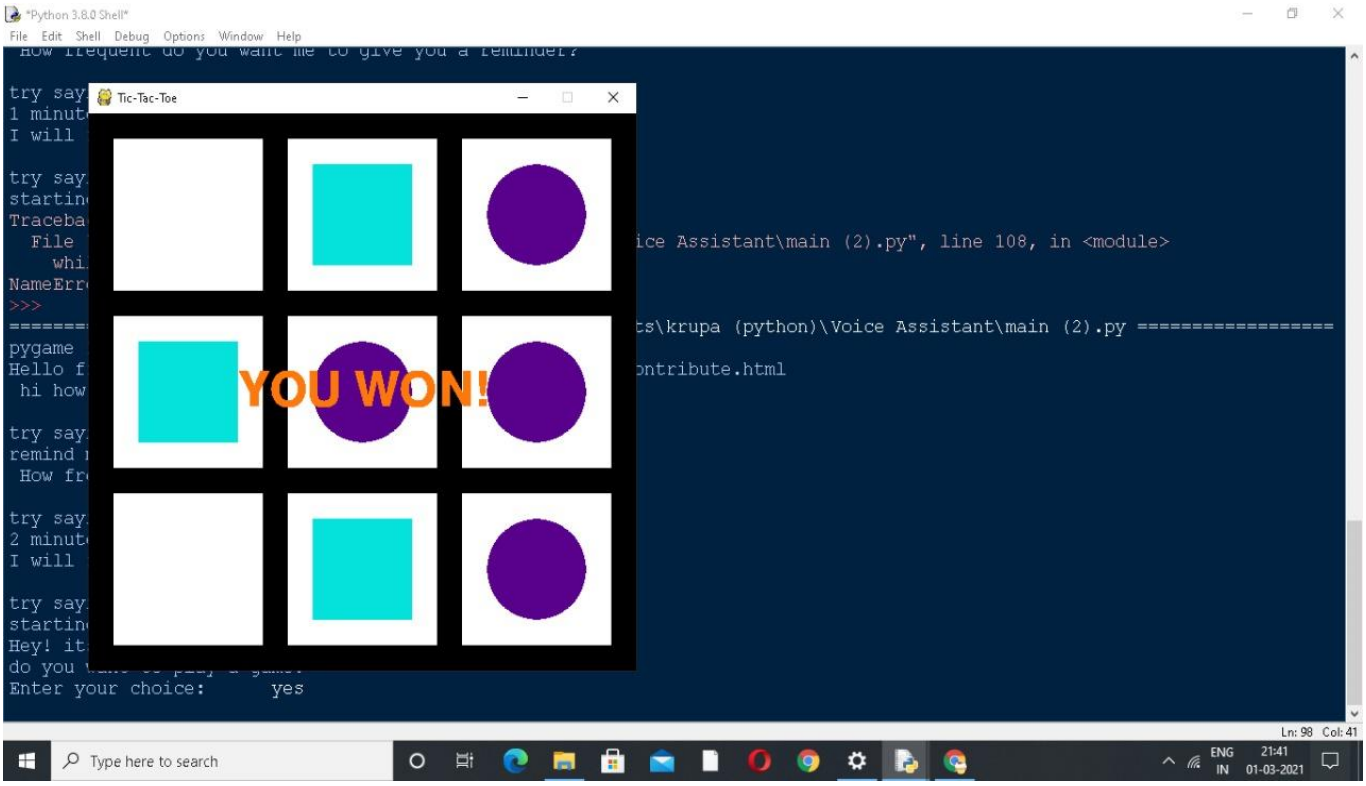
WEB SEARCH:

```
Hello from the pygame community. https://www.pygame.org/contribute.html
 hi how can i help you?

try saying something
I want to search something
what do you want to search?

try saying something
this is what i found for computer science
Do you want to continue?yes
```

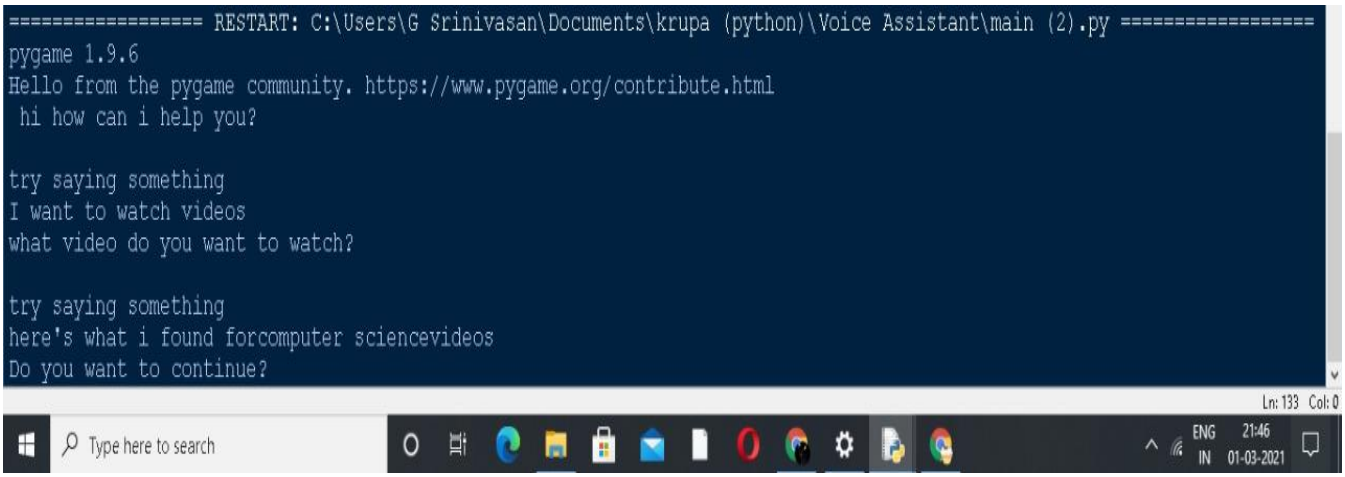


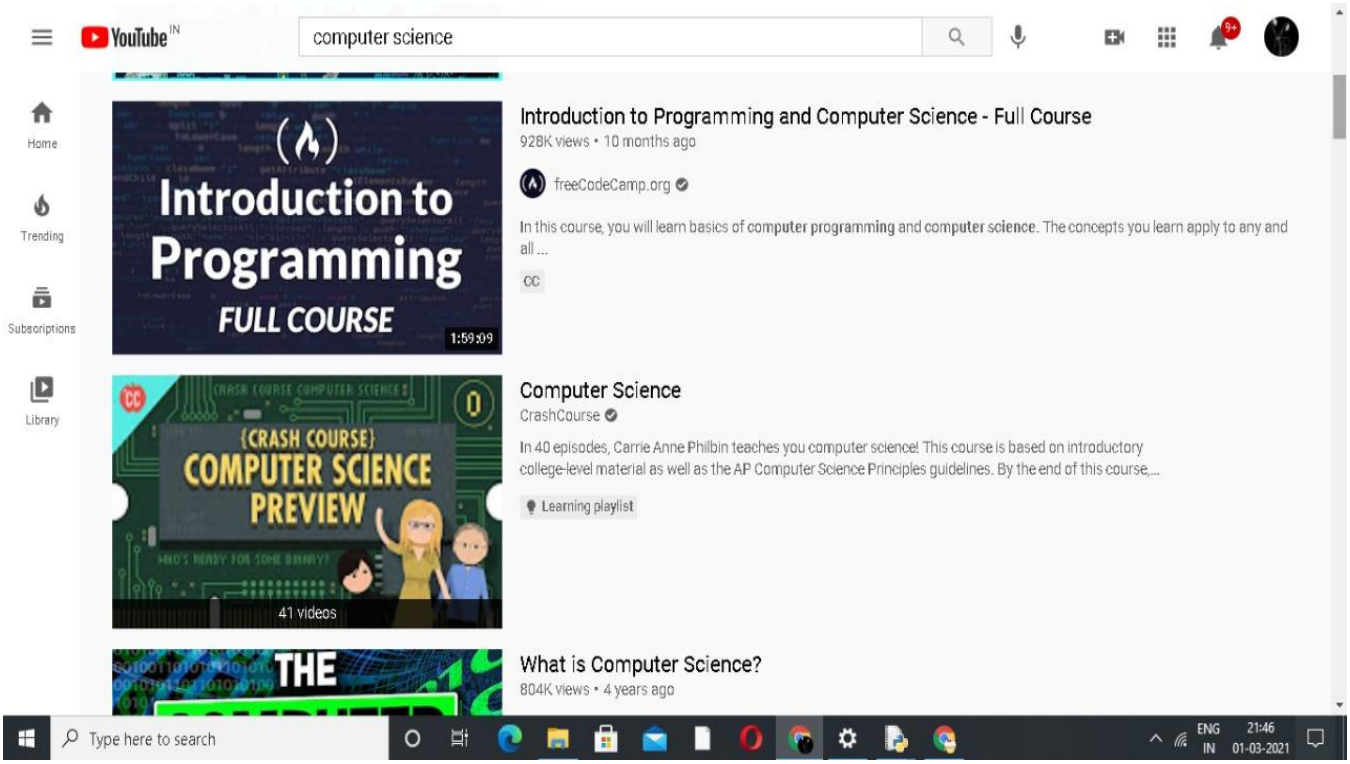
REMAINDER:


>>>
========== RESTART: C:\Users\G Srinivasan\Documents\krupa (python)\Voice Assistant\main (2).py ==========
pygame 1.9.6
Hello from the pygame community. https://www.pygame.org/contribute.html
hi how can i help you?
try saying something
remind me
How frequent do you want me to give you a reminder?
try saying something
2 minutes
I will remind you in 2 minutes
try saying something
starting
Hey! its time to take the much needed break, now!
do you want to play a game?
Enter your choice: yes
Ln: 98 Col: 41
Type here to search
ENG IN 21:41 01-03-2021

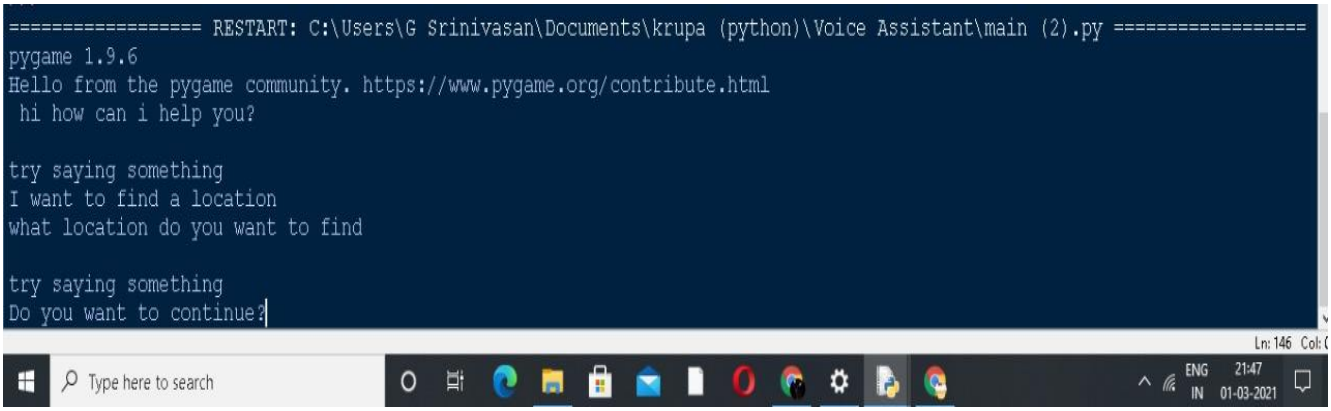

Python 3.8.0 Shell
File Edit Shell Debug Options Window Help
Tic-Tac-Toe
YOU WON!
Traceba
File
ice Assistant\main (2).py", line 108, in <module>
NameErr
>>>
ts\krupa (python)\Voice Assistant\main (2).py ==========
pygame
Hello f
ontribute.html
hi how
Enter your choice: yes
Ln: 98 Col: 41
Type here to search
ENG IN 21:41 01-03-2021

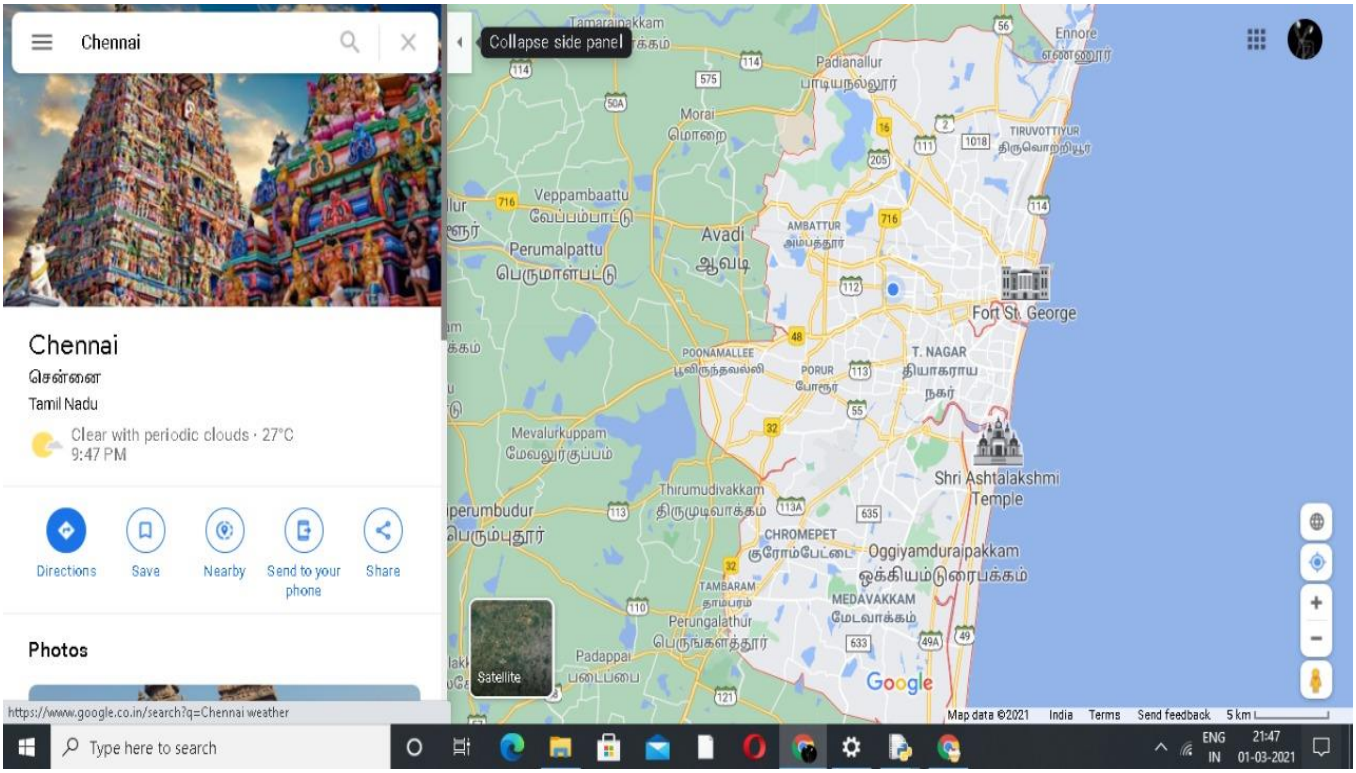
YOUTUBE SEARCH:



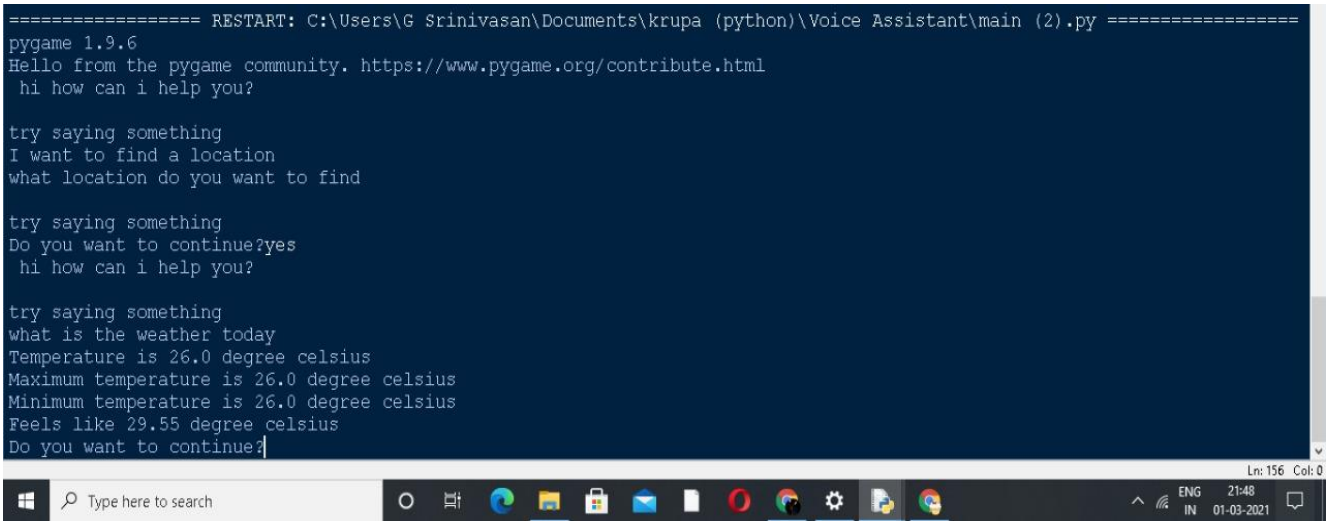


LOCATION SEARCH:

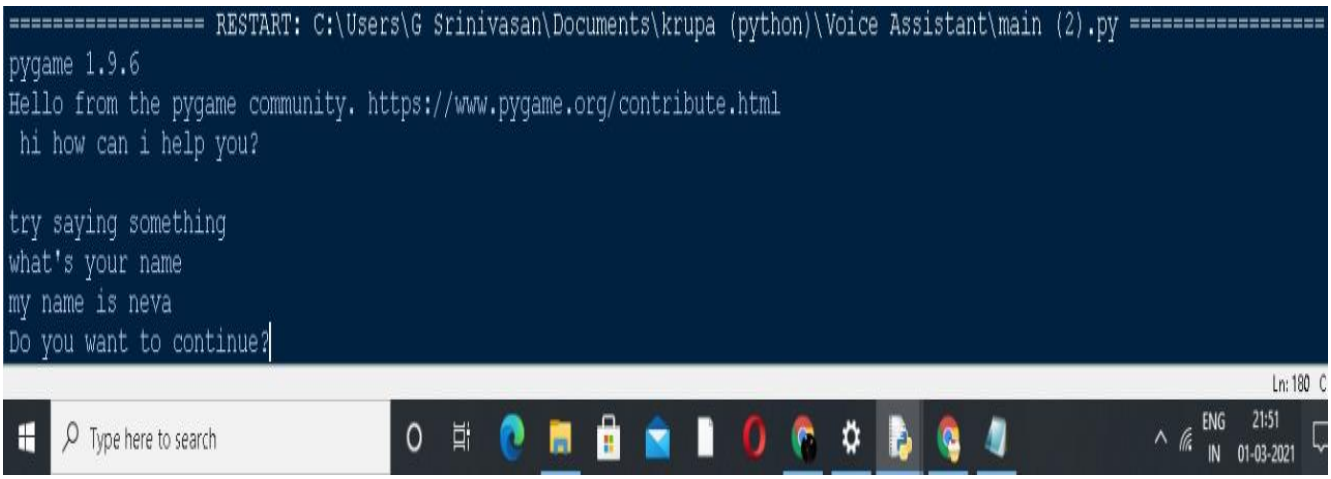




WEATHER FORECAST:

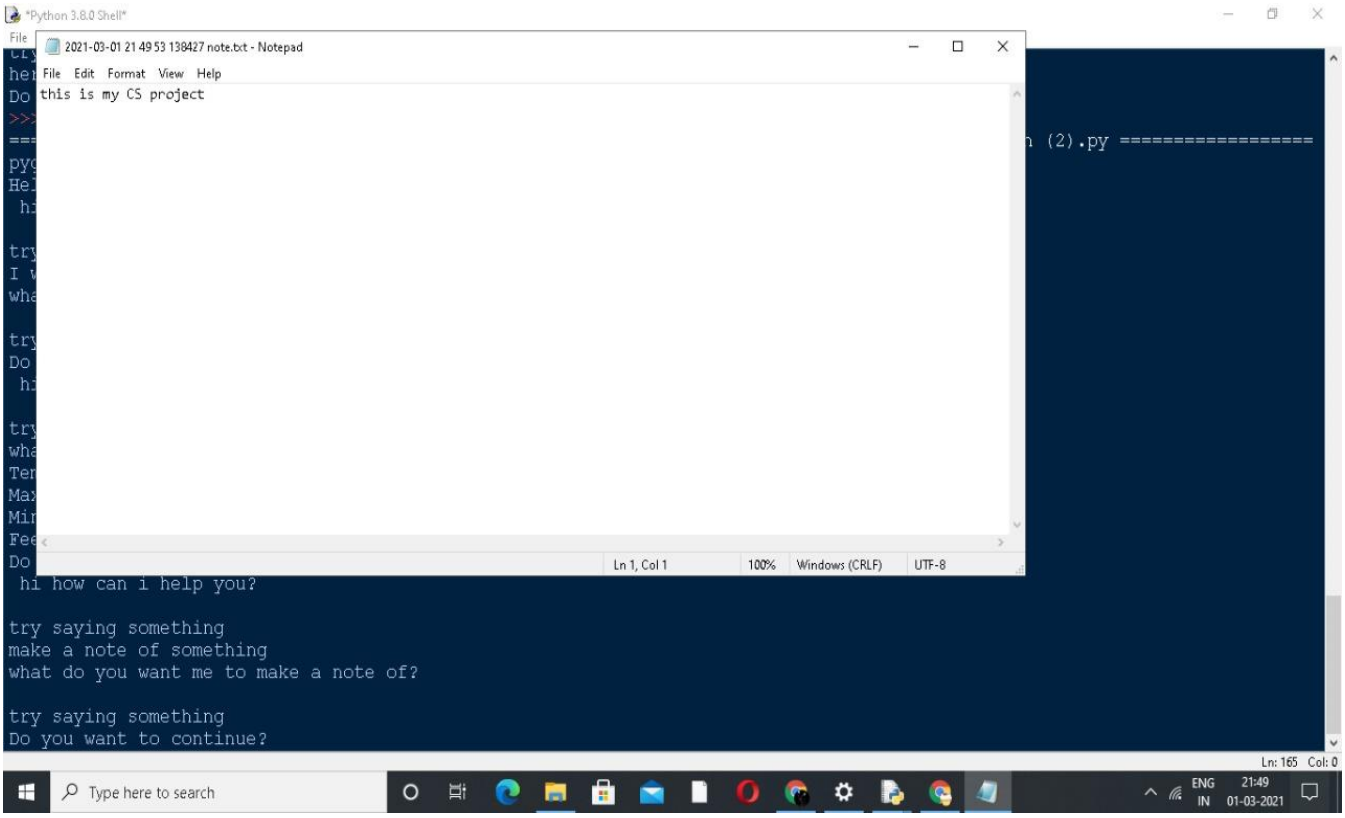


NAME:

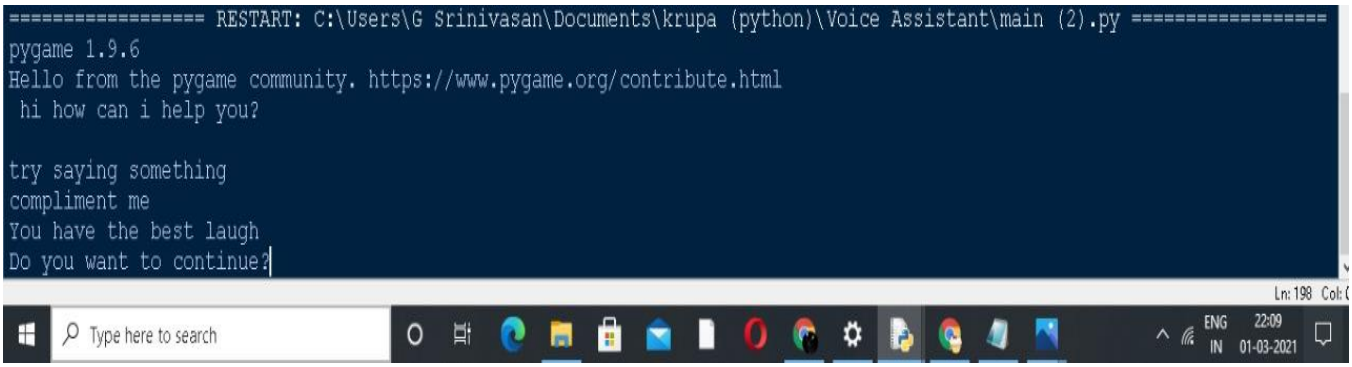


NOTE:

```
 hi how can i help you?

try saying something
make a note of something
what do you want me to make a note of?
```



COMPLIMENT: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pygame 1.9.6
Hello from the pygame community. https://www.pygame.org/contribute.html
hi how can i help you?
try saying something
compliment me
You have the best laugh
Do you want to continue?
Type here to search
ENG
IN
22:09
01-03-2021

BIBLIOGRAPHY

- www.geeksforgeeks.org
- https://techwithtim.net
- https://docs.python.org/3/
- http://realpython.com/