Computer Project Report: T.W.O.P.Y

Prepared by:
P.P.PAVEL
XII-C
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OBJECTIVE

- T.W.O.P.Y is a virtual assistant made from Python that automates Desktop experiences along with providing a Hands-Free way to perform tasks.

- This project is ever expanding based on how many features the user wants. T.W.O.P.Y also allows maximum personalization.

- In future Iterations we are working on improving speech recognition with the help of TensorFlow to minimize the errors.

PROBLEM DEFINITION

- Suppose your computer is across the room from where you are seated.
- To do a simple task like a search or a call someone up, you will need to get up and walk all the way to your PC.
- With our Project you just need to speak out very easy commands which will save you the hassle of walking for very minute tasks.

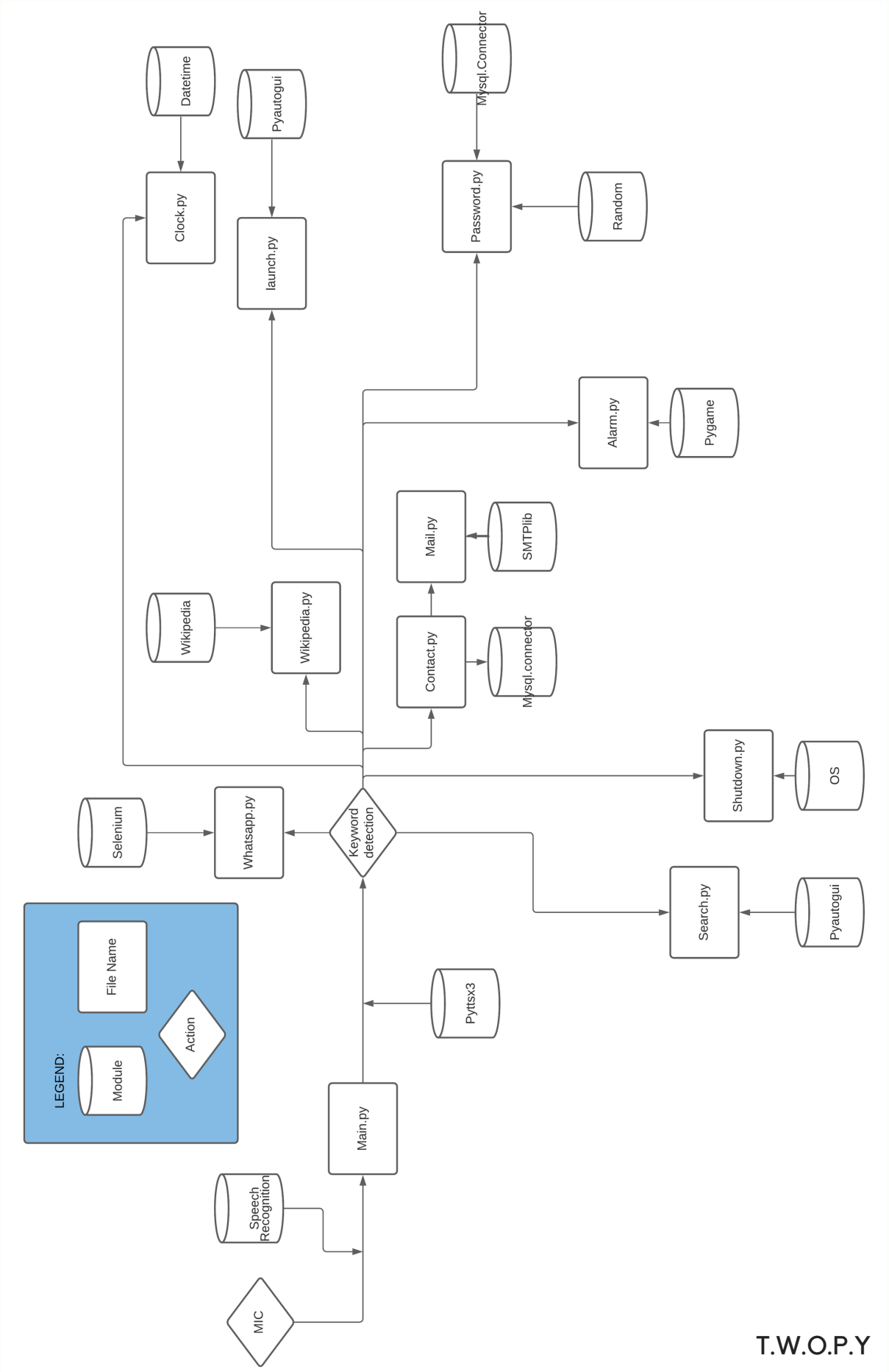
ANALYSIS:

• INPUT:

ALL T.W.O.P.Y INPUTS ARE IN THE FORM OF SPEECH AND ARE TRANSLATED BY THE SPEECH RECOGNITION MODULE INTO TEXT (DIGITAL DATA) AND INTERPRETED BY THE MACHINE.

• OUTPUT:

T.W.O.P.Y HAS SPEECH OUTPUTS. PYTTSX3 IS THE MODULE THAT HELPS US CONVERT TEXT TO SPEECH.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MIC
LEGEND:
File Name
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DATABASES/MODULES USED:

- pyttsx3 : THIS IS A TEXT TO SPEECH CONVERSION LIBRARY.
- speech_recognition : THIS LIBRARY IS USED TO CONVERT TEXT TO SPEECH
- datetime : SINCE DATE IN PYTHON IS NOT A DATA TYPE, WE USE THE datetime MODULE TO WORK WITH DATES AS OBJECTS
- wikipedia : THIS IS USED TO ACCESS AND PARSE DATA FROM WIKIPEDIA. FUNCTIONS INCLUDE GETTING ARTICLE SUMMARIES, LINKS AND IMAGES FROM THE SAME.
- selenium : SELENIUM IS USED FOR BROWSER AUTOMATION AND INTERACTION FROM PYTHON.

- pynput : THIS MODULE IS USED TO CONTROL AND MONITOR INPUT DEVICES, NAMELY KEYBOARD AND MOUSE.

- pyautogui : THIS LETS OUR PYTHON CODE AUTOMATE INTERACTIONS WITH OTHER APPLICATIONS.

- mysql.connector : THIS ENABLES PYTHON PROGRAMS TO ACCESS MySQL DATABASES.

- tkinter : THIS LIBRARY IS A GUI FRAMEWORK THAT IS USED TO BUILD GUI BASED APPLICATIONS IN PYTHON.

- pyperclip : THIS IS A CROSS PLATFORM PYTHON MODULE FOR COPYING AND PASTING TEXT TO THE CLIPBOARD.

- random : THIS GENERATES RANDOM NUMBERS IN PYTHON. NUMBERS GENERATED ARE PSEUDO-RANDOM IN NATURE.

- pyaudio : THIS LIBRARY HELPS IN PLAYBACK AND RECORDING AUDIO WITHIN A PYTHON ENVIRONMENT.

- smtplib : THIS MODULE HELPS IN CREATING A SMPT CLIENT SESSION THAT CAN SEND MAILS TO ANY MACHINE.

- pygame : IT IS A SET OF PYTHON MODULES COMPILED TO WRITE AND DESIGN VIDEO GAMES.

- os : THIS PROVIDES FUNCTIONS TO INTERACT WITH THE OPERATING SYSTEM **THUS THE NAME , os.**

USER-DEFINED MODULES:

- alarm : SETS AN ALARM BASED ON USER INPUT.
- clock : TELLS THE USER THE CURRENT TIME.
- contact : THIS IS OUR VERSION OF A PHONE BOOK(input using tkinter) WHICH STORES NAME, E-MAIL ID, AND PHONE NUMBER IN A SQL TABLE.
- launch : USES pynput AND pyautogui TO AUTOMATE YOUR WEBSEARCHES AND SKYPE CALLS.
- mail : USES THE EMAIL IN THE DATABASE(PHONEBOOK) AND SENDS AN EMAIL TO THE RECIPIENT.

- wiki : USES THE WIKIPEDIA MODULE TO SEARCH FOR ANY ARTICLE ON THE SAME.

- password : GENERATES AND PRINTS A RANDOM PASSWORD. STRENGTH OF THE PASSWORD CAN ALSO BE SET.

- shutdown : USING THE os MODULE THIS AUTOMATES A SHUTDOWN SEQUENCE IF USER WANTS THE SAME.

- srch : USES pynput AND pyautogui TO AUTOMATE SEARCHES IN THE WINDOWS SEARCH BAR.

- whatsapp : USES selenium AND AUTOMATES THE BROWSER AND SENDS WHATSAPP MESSAGES TO ANY CONTACT ON CONTACT LIST AND USER INPUT.

Code

Main.py

```
import pyttsx3
import speech_recognition
import datetime
import wikipedia
from selenium import webdriver
from webdriver_manager.chrome import ChromeDriverManager
import clock #User defined
import whatsapp#User defined
import Wiki#User defined
import mail#user defined
import contact#User defined
import srch#User defined
import shutdown#User defined
import alarm#User defined
import launch#User defined
import password#User defined
engine = pyttsx3.init('sapi5')
voices = engine.getProperty('voices')

engine.setProperty('voice', voices[0].id)


def Goverbal(audio):
    engine.say(audio)
    engine.runAndWait()
```

```
def Greet():
    hour = int(datetime.datetime.now().hour)
    if hour>=0 and hour<12:
        Goverbal("Good Morning!")

    elif hour>=12 and hour<18:
        Goverbal("Good Afternoon!")

    else:
        Goverbal("Good Evening!")

    Goverbal("I am TWO PY .")

def Input():

    global query
    r = speech_recognition.Recognizer()
    with speech_recognition.Microphone() as source:
        Goverbal("A moment of silence, please...")
        r.adjust_for_ambient_noise(source)
        Goverbal("Set minimum energy threshold to {}".format(r.energy_threshold))
        Goverbal("Listening...")
        r.pause_threshold = 1
        audio = r.listen(source)

    try:
        Goverbal("Recognizing...")
        query = r.recognize_google(audio, language='en-us')
        print(f"User said: {query}\n")

    except Exception as e:
        # print(e)
        Goverbal("Sorry i didn't quite catch that. Say it again")
        Input()
```

Main.py(cont.)

```
if __name__ == "__main__":
    Greet()
    while True:
    # if 1:
        query = Input().lower()
        if 'bye' in query:
            break
        l=['wikipedia','whatsapp','the time','contact','alarm','shutdown','password','launch','open']
        if 'contact' in query:
            contact.con()
        if 'mail' in query:
            mail.run()
        if 'wikipedia' in query:
            Wiki.wiki(query)
        if 'whatsapp' in query:
            whatsapp.whatsapp()
        if 'the time' in query:
            clock.time()
        if 'alarm' in query:
            alarm.alarm()

        if 'shutdown' in query:
            shutdown.off()
        if 'password' in query:
            password.key()


        c=0
        for i in l:
            if i in query:
                c=c+1

        print(c)
        if c == 0:
            srch.srch(query)
```

Clock.py(User-Defined)

SPEAKS OUT THE TIME

```
import main
import datetime
def time():
    strTime = datetime.datetime.now().strftime("%H:%M:%S")
    main.Goverbal(f" the time is {strTime}")
```

ShutDown.py(User-Defined)

SHUTS DOWN PC

```
import os
import main
def off():

    main.Goverbal("Do you wish to shutdown your computer ? ")
    shutdown = main.Input()

    if shutdown == 'no':
        exit()
    else:
        main.Goverbal('ok bye')
        os.system("shutdown /s /t 1")
```

Whatsapp.py(User-Defined)

OPENS WHATSAPP WEB AND SEND MESSAGE

```
def whatsapp():


    driver = webdriver.Chrome(ChromeDriverManager().install())
    driver.get('https://web.whatsapp.com/')
    main.Goverbal('Enter the name of user or group : ')
    name =main.Input()
    main.Goverbal('Enter your message : ')
    msg = main.Input()


    user = driver.find_element_by_xpath('//span[@title = "{}"]'.format(name))
    user.click()

    msg_box = driver.find_element_by_class_name('_3u328')

    for i in range(0):
        msg_box.send_keys(msg)
        button = driver.find_element_by_class_name('_3M-N-')
        button.click()
```

WIKI.py(User-Defined)

SEARCHES QUERY IN WIKIPEDIA AND READS OUT THE SUMMARY

```
import wikipedia
import main
def wiki(a):
    if a == 'wikipedia':
        main.Goverbal('Please ask your question ....')
        main.Input()

    else:
        main.Goverbal('traversing through the wide collections of wikipedia...')
        a = a.replace("wikipedia", "")
        results = wikipedia.summary(a, sentences=2)
        main.Goverbal("According to Wiki")
        print(results)
        main.Goverbal(results)
```

Contact.py(User-Defined)

SAVES CONTACT DETAILS IN MySQL DATABASE

```
import mysql.connector

import tkinter as tk

root=tk.Tk()


root.geometry("600x400")


name_var=tk.StringVar()
email_var=tk.StringVar()
phone_var=tk.StringVar()
def con():
    def submit():
        a=mysql.connector.connect(host="localhost",port='3306',user="root",passwd="root123",database="pavel")

        global ab
        global emailid
        global phone
        ab=name_var.get()
        emailid=email_var.get()
        phone=phone_var.get()

        cursor=a.cursor()
        b="Insert into contacts (Name,Phone,Email) values "+str((ab,phone,emailid))
        cursor.execute(b)
        a.commit()
        a.close()



        name_var.set("")
        email_var.set("")
        phone_var.set("")


    name_label = tk.Label(root, text = 'Name',
    font=('calibre',10, 'bold'))

    name_entry = tk.Entry(root,
    textvariable = name_var,
    font=('calibre',10,'normal'))


    emailid_label = tk.Label(root,
    text = 'mail-id',
    font = ('calibre',10,'bold'))


    emailid_entry=tk.Entry(root,
    textvariable = email_var,
    font = ('calibre',10,'normal'))

    phone_label = tk.Label(root,
    text = 'phone number',
    font = ('calibre',10,'bold'))


    phone_entry=tk.Entry(root,
    textvariable = phone_var,
    font = ('calibre',10,'normal'))

    sub_btn=tk.Button(root,text = 'Submit',
    command = submit)

    name_label.grid(row=0,column=0)
    name_entry.grid(row=0,column=1)
    emailid_label.grid(row=1,column=0)
    emailid_entry.grid(row=1,column=1)
    phone_label.grid(row=2,column=0)
    phone_entry.grid(row=2,column=1)
    sub_btn.grid(row=3,column=1)
    root.mainloop()
```

Mail.py(User-Defined)

SENDS MAIL YOU WRITE TO SPECIFIED EMAIL

```
import smtplib as s
import tkinter as tk
global root

root=tk.Tk()

root.geometry("600x400")

sub_var=tk.StringVar()
bod_var=tk.StringVar()
mail_var=tk.StringVar()
def run():
    def submit():
        global sa
        global b
        global m


        sa=sub_var.get()
        b=bod_var.get()
        m=mail_var.get()

        sub_var.set("")
        bod_var.set("")
        mail_var.set("")

    sub_label = tk.Label(root, text = 'Subject', font=('calibre',10, 'bold'))

    sub_entry = tk.Entry(root, textvariable = sub_var, font=('calibre',10,'normal'))


    bod_label = tk.Label(root, text = 'Body', font = ('calibre',10,'bold'))


    bod_entry = tk.Entry(root, textvariable = bod_var, font = ('calibre',10,'normal'))

    mail_label = tk.Label(root, text = 'Email-id', font = ('calibre',10,'bold'))


    mail_entry=tk.Entry(root, textvariable = mail_var, font = ('calibre',10,'normal'))


    send_btn=tk.Button(root,text = 'Send', command= submit)

    sub_label.grid(row=0,column=0)
    sub_entry.grid(row=0,column=1)
    bod_label.grid(row=1,column=0)
    bod_entry.grid(row=1,column=1)
    mail_label.grid(row=2,column=0)
    mail_entry.grid(row=2,column=1)
    send_btn.grid(row=3,column=1)
    root.mainloop()



    ob=s.SMTP("smtp.gmail.com",587)
    ob.starttls()
    ob.login("pavelnarayan660@gmail.com","twopy.2020")


    message="Subject:{}\n\n{}".format(sa,b)
```

Srch.py(User-Defined)

SEARCHES THE QUERY IN BING

```
#Opens Windows Search and Searches the query
from pynput.keyboard import Key, Controller
import main
import time
import pyautogui
keyboard = Controller()
def srch(query):
    keyboard.press(Key.cmd)
    keyboard.release(Key.cmd)

    time.sleep(1)


    for char in query:
        keyboard.press(char)
        keyboard.release(char)
        time.sleep(0.11)
    keyboard.press(Key.enter)
    keyboard.release(Key.enter)
    time.sleep(3)
```

ALARM.py(User-Defined)

SETS AN ALARM USING PyGAME MODULE

```
import pygame
import time
import main
def alarm():
    main.Goverbal("Enter the hour")
    hr=int(main.Input())
    main.Goverbal("Enter the minute")
    mn=int(main.Input())
    pygame.mixer.init()
    sound = pygame.mixer.Sound("bullet.mp3")

    n=5

    print("Alarm set for",str(hr),":",str(mn))
    while True:
        if time.localtime().tm_hour==hr and time.localtime().tm_min==mn
            print("Wake up")
            break


    while n>0:
        sound.play()
        time.sleep(2)

    snz=main.Input()
    if snz=='Stop':
        n=3
        time.sleep(100)
        while n>0:
            sound.play()
            time.sleep(2)
    else:
        exit()
        sound()
        alarm()
```

Launch.py(User-Defined)

LAUNCHES SUPPORTED APPS LIKE SKYPE AND CHROME AND AUTOMATES TASKS

```
from pynput.keyboard import Key, Controller
import main
import time
import pyautogui
def launch(query):
    if 'launch' in query:
        query = query.replace("launch", "")
    elif 'open' in query:
        query = query.replace("open", "")
    keyboard = Controller()


    keyboard.press(Key.cmd)
    keyboard.release(Key.cmd)

    time.sleep(1)


    for char in query:
        keyboard.press(char)
        keyboard.release(char)
        time.sleep(0.11)
    keyboard.press(Key.enter)
    keyboard.release(Key.enter)
    time.sleep(3)

    if 'skype' in query:
        main.Goverbal('what would you like to do?')
        options=main.Input()
        if 'video' in options:
            main.Goverbal('who would you like to call?')
            name=main.Input()
            pyautogui.moveTo(201, 152, duration = 0.5)  #158,318
            pyautogui.click(201,152)
            pyautogui.moveTo(185, 101, duration = 0.5)  #158,318
            pyautogui.click(185,101)
            time.sleep(5)
            pyautogui.typewrite(name)
            time.sleep(4)
            pyautogui.moveTo(158, 318, duration = 0.5)  #158,318
            pyautogui.click(158,318)
            pyautogui.moveTo(1144, 80, duration = 0.5)  #158,318
            pyautogui.click(1144,80)
        elif 'voice' in options:
            main.Goverbal('who would you like to call?')
            name=main.Input()
            pyautogui.moveTo(201, 152, duration = 0.5)  #158,318
            pyautogui.click(201,152)
            pyautogui.moveTo(185, 101, duration = 0.5)  #158,318
            pyautogui.click(185,101)
            time.sleep(5)
            pyautogui.typewrite(name)
            time.sleep(4)
            pyautogui.moveTo(158, 318, duration = 0.5)  #158,318
            pyautogui.click(158,318)
            pyautogui.moveTo(1282, 74, duration = 0.5)  #158,318
            pyautogui.click(1282,74)

    if 'chrome' in query:
        main.Goverbal('What would you like to do?')
        option=Input()
        if option == 'search':
            main.Goverbal('enter your search')
            query=main.Input()
            pyautogui.typewrite(query)
            keyboard.press(Key.enter)
            keyboard.release(Key.enter)
        elif option=='history':
             pyautogui.hotkey("ctrlleft", "h")



        elif option == 'private':
            pyautogui.typewrite(["ctrlleft","shift","n"])
```

Password.py(User-Defined)

HELPS GENERATE STRONG PASSWORDS AND SAVES THEM IN MySQL DATABASE

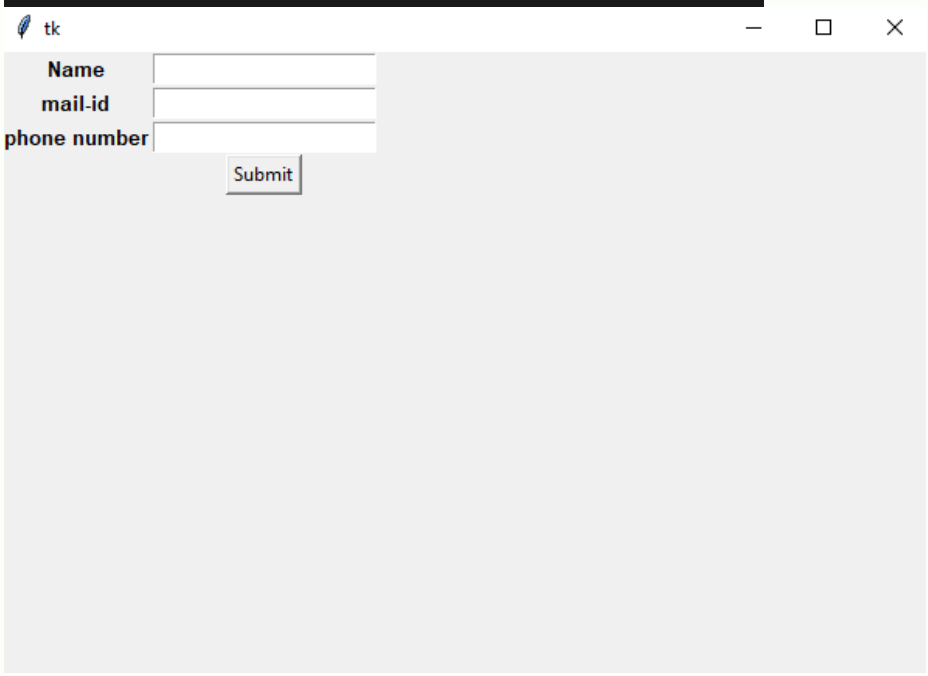
```
from pynput.keyboard import Key, Controller
import main
import time
import pyautogui
def launch(query):
    if 'launch' in query:
        query = query.replace("launch", "")
    elif 'open' in query:
        query = query.replace("open", "")
    keyboard = Controller()


    keyboard.press(Key.cmd)
    keyboard.release(Key.cmd)

    time.sleep(1)


    for char in query:
        keyboard.press(char)
        keyboard.release(char)
        time.sleep(0.11)
    keyboard.press(Key.enter)
    keyboard.release(Key.enter)
    time.sleep(3)

    if 'skype' in query:
        main.Goverbal('what would you like to do?')
        options=main.Input()
        if 'video' in options:
            main.Goverbal('who would you like to call?')
            name=main.Input()
            pyautogui.moveTo(201, 152, duration = 0.5)  #158,318
            pyautogui.click(201,152)
            pyautogui.moveTo(185, 101, duration = 0.5)  #158,318
            pyautogui.click(185,101)
            time.sleep(5)
            pyautogui.typewrite(name)
            time.sleep(4)
            pyautogui.moveTo(158, 318, duration = 0.5)  #158,318
            pyautogui.click(158,318)
            pyautogui.moveTo(1144, 80, duration = 0.5)  #158,318
            pyautogui.click(1144,80)
        elif 'voice' in options:
            main.Goverbal('who would you like to call?')
            name=main.Input()
            pyautogui.moveTo(201, 152, duration = 0.5)  #158,318
            pyautogui.click(201,152)
            pyautogui.moveTo(185, 101, duration = 0.5)  #158,318
            pyautogui.click(185,101)
            time.sleep(5)
            pyautogui.typewrite(name)
            time.sleep(4)
            pyautogui.moveTo(158, 318, duration = 0.5)  #158,318
            pyautogui.click(158,318)
            pyautogui.moveTo(1282, 74, duration = 0.5)  #158,318
            pyautogui.click(1282,74)

    if 'chrome' in query:
        main.Goverbal('What would you like to do?')
        option=Input()
        if option == 'search':
            main.Goverbal('enter your search')
            query=main.Input()
            pyautogui.typewrite(query)
            keyboard.press(Key.enter)
            keyboard.release(Key.enter)
        elif option=='history':
             pyautogui.hotkey("ctrlleft", "h")



        elif option == 'private':
            pyautogui.typewrite(["ctrlleft","shift","n"])
```

Sample Output

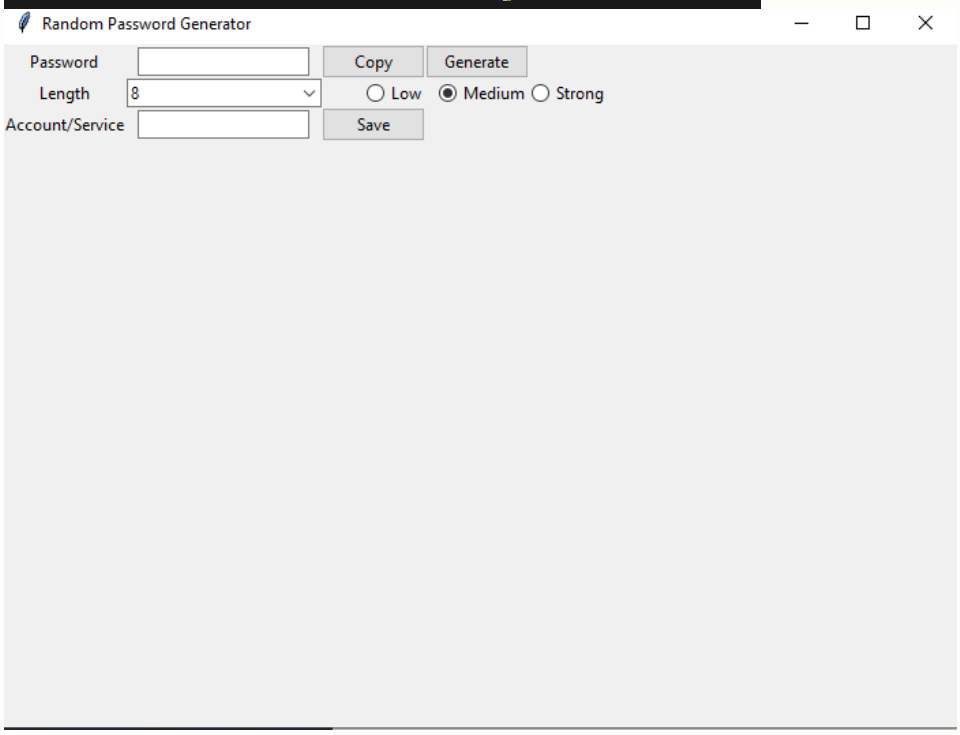
Disclaimer: All Inputs and outputs are in Audio.

```
PS D:\dev\assistant> pipenv run python main.py
pygame 2.0.0 (SDL 2.0.12, python 3.7.9)
Hello from the pygame community. https://www.pygame.org/contribute.html
A moment of silence please...
Set minimum energy threshold to 139.69883646318394
Listening..
Recognising...
User said: Python Wikipedia

Python is an interpreted, high-level and general-purpose programming language. Python's design philosophy emphasizes code readability
 with its notable use of significant whitespace.
1
A moment of silence please...
Set minimum energy threshold to 142.36440322957472
Listening..
Recognising...
User said: set an alarm

A moment of silence please...
Set minimum energy threshold to 131.4735394260647
Listening..
Recognising...
User said: 12

A moment of silence please...
Set minimum energy threshold to 123.14641308577936
Listening..
Recognising...
User said: 45

Alarm set for 12 : 45
```

```
User said: save a contact
```



```
User said: set a password
```




```
User said: what's the time

10:58:44
```

REFERENCES

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- "Computer Science with Python" by Sumita Arora
- GeeksforGeeks: https://www.geeksforgeeks.org/
- Stack Overflow: https://stackoverflow.com/
- W3Schools:https://www.w3schools.com/
- Unofficial Python Binaries: https://www.lfd.uci.edu/~gohlke/pythonlibs/