RAJALAKSHMI ENGINEERING COLLEGE
RAJALAKSHMI NAGAR, THANDALAM – 602 105

RAJALAKSHMI
ENGINEERING COLLEGE
An AUTONOMOUS Institution
Affiliated to ANNA UNIVERSITY, Chennai

CS19211 - PYTHON PROGRAMMING
LABORATORY NOTEBOOK

Name : YOKESH.R

Year / Branch / Section : 2021/CSE/E

University Register No. : 200701303

College Roll No. : 200701303

Semester : II

Academic Year : 2020-21

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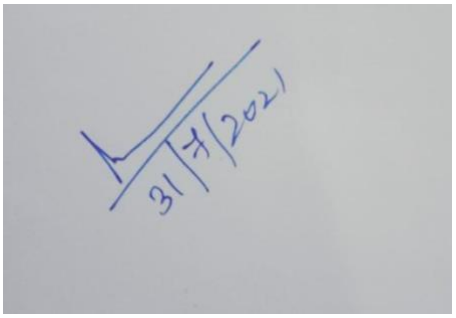
NAME YOKESH.R

ACADEMIC YEAR 2021` SEMESTER II BRANCH CSE

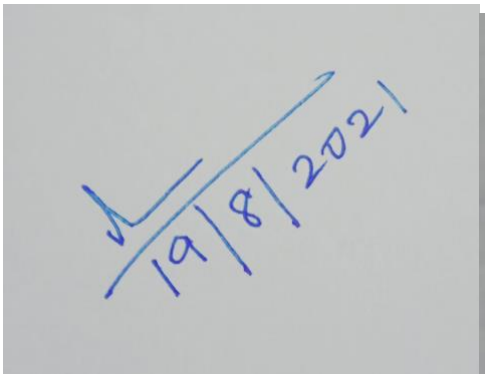
UNIVERSITY REGISTER NO.200701303

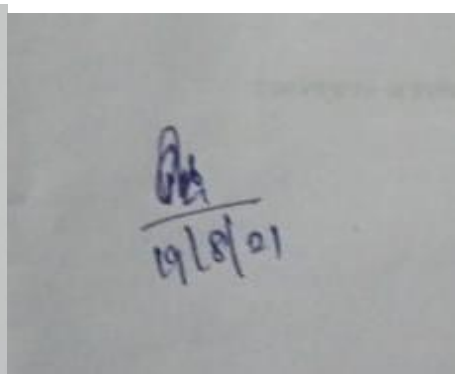
Certified that this is the bonafide record of work done by the above student in the
PYTHON Laboratory during the year 2020 - 2021



Signature of Faculty - in - Charge

Submitted for the Practical Examination held on .....19-08-2021.....





Internal Examiner External Examiner

VOICE RECOGNITION CALCULATOR

NAME : YOKESH.R
ROLL NO:200701303
CLASS: CSE-E

ABSTRACT :

By seeing the topic, we can infer that this project is about calculators. Nowadays, we are using calculators in many fields and without them we can't do any complicated problems.We are doing some mathematical problems like factorial ,pow, sin,cos,tan.We are going to create a calculator based on google voice recognition. We have used four different library packages or modules like gtts, speech recognition, win32com.client, math. gTTS (Google Text-to-Speech) is a Python library and CLI tool to interface with Google Translate text-to-speech API. We will import the gTTS library from the gtts module which can be used for speech translation. The text variable is a string used to store the user's input. Speech recognition helps us to save time by speaking instead of writing. There are several APIs available to convert text to speech in python. One of such APIs available in the python library commonly known as win32com library. It provides a bunch of methods to get excited about and one of them is the Dispatch method of the library.Dispatch method when passed with the argument of SAPI.SpVoice It interacts with the Microsoft Speech SDK to speak what you type in from the keyboard.in this project speech is recognized by user and it converts into computer language and also gives output in text and in voice. In the future we are trying to make an app with voice recognition.

MODULE DESCRIPTION :

1.Gtts module:

There are several APIs available to convert text to speech in Python. One of such APIs is the Google Text to Speech API commonly known as the gTTS API. gTTS is a very easy to use tool which converts the text entered, into audio which can be saved as a mp3 file.

The gTTS API supports several languages including English, Hindi, Tamil, French, German and many more. The speech can be delivered in any one of the two available audio speeds, fast or slow. However, as of the latest update, it is not possible to change the voice of the generated audio.

To install this module:

pip install gTTS

2. win32com.client:

There are several APIs available to convert text to speech in python. One of such APIs available in the python library commonly known as win32com library. It provides a bunch of methods to get excited about and one of them is the Dispatch method of the library. Dispatch method when passed with the argument of SAPI.SpVoice It interacts with the Microsoft Speech SDK to speak what you type in from the keyboard.

To install this module:

pip install pypiwin32

from this module in our project we imported dispatch module from this library file.

3. speech recognition:

In this Speech Recognition we are using “API” and “Py Audio” library.
Speech Recognition API supports several API’s, in this blog I used Google speech recognition API. It helps to translate for converting speech into text.

To install this module:

! pip install SpeechRecognition

we are using those three modules to get voice from the user and display the result both in text and voice commands

4. math module:

This module is used to do some mathematical operations easier and in an efficient way

To install this module:

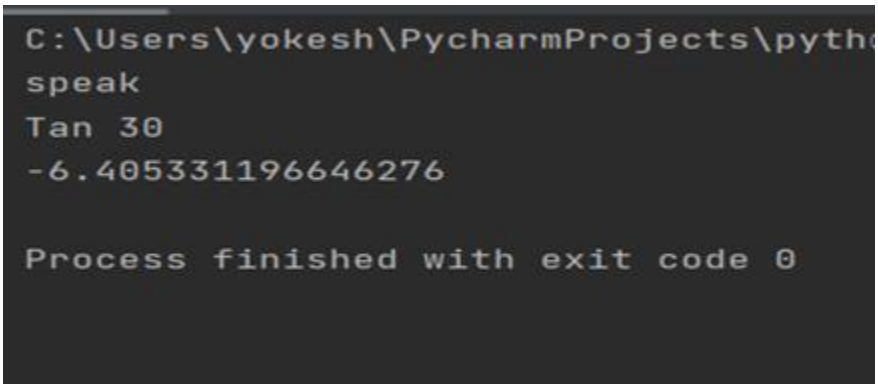
pip install python-math

SOURCE CODE :

```
import gtts
from win32com.client import Dispatch
import speech_recognition as sp
from win32com.client.dynamic import CDispatch
import math

r = sp.Recognizer()


def speak(string):
	spear = Dispatch("SAPI.SpVoice")
	spear.Speak(f"okay.answer={string}")


def listen():
	print("speak")
	with sp.Microphone() as source:
	audio = r.listen(source)
	MyText = r.recognize_google(audio)
	print(MyText)
	return MyText


words = listen()
x = words.split()
if x[1] == '+':
	speak(int(x[0]) + int(x[2]))
	print(int(x[0]) + int(x[2]))
elif x[1] == '-':
	speak(int(x[0]) - int(x[2]))
	print(int(x[0]) - int(x[2]))
elif x[1] == 'into':
	speak(int(x[0]) * int(x[2]))
	print(int(x[0]) * int(x[2]))
elif x[1] == 'by':
	speak(int(x[0]) / int(x[2]))
	print(int(x[0]) / int(x[2]))
elif x[1] == 'modulo':
	speak(int(x[0]) % int(x[2]))
```

```
            print(int(x[0]) % int(x[2]))
elif x[1] == 'power':
            a = int(x[0])
            b = int(x[2])
            speak(math.pow(a, b))
            print(math.pow(a, b))
elif x[1] == 'factorial':
            a = int(x[0])
            speak(math.factorial(a))
            print(math.factorial(a))
elif x[1] == 'floor':
            a = float(x[0])
            speak(math.floor(a))
            print(math.floor(a))
elif x[1] == 'degree':
            a = int(x[0])
            speak(math.radians(a))
            print(math.radians(a))
elif x[0] == 'sin':
            a = int(x[1])
            speak(math.sin(a))
            print(math.sin(a))
elif x[0] == 'cos':
            a = int(x[1])
            speak(math.cos(a))
            print(math.cos(a))
elif x[0] == 'tan':
            a = int(x[1])
            speak(math.tan(a))
            print(math.tan(a))
elif x[0] == 'hyperbolic':
            a = int(x[1])
            speak(math.tanh(a))
            print(math.tanh(a))
else:
            speak("try again")
            print("try again”)
```

SAMPLE OUTPUT : 1



SAMPLE OUTPUT :2

```
C:\Users\yokesh\PycharmProjects\pythonProject1\venv\Scripts\python.exe C:/Users/yokesh/PycharmProjects/pythonProject1/main.py
speak
sin 30
-0.9880316240928618

Process finished with exit code 0
```

SAMPLE OUTPUT : 3

```
C:\Users\yokesh\PycharmProjects\pythonPro
speak
3 factorial
6

Process finished with exit code 0
```

SAMPLE OUTPUT :4

```
C:\Users\yokesh\PycharmProjects\pythonProject1\venv\Scripts\python.exe C:/Users/yokesh/PycharmProjects/pythonProject1/main.py
speak
programming language
try again

Process finished with exit code 0
```