TEXT TO SPEECH CONVERSION

INTRODUCTION

Text-to-speech synthesis TTS is the automatic conversion of a text into speech that resembles, as closely as possible, a native speaker of the language reading that text. A text-to-speech synthesizer (TTS) is the technology that lets computers speak to you. The TTS system gets the text as the input and then a computer algorithm called the TTS engine analyses the text, pre-processes the text, and synthesizes the speech with some mathematical models. The TTS engine usually generates sound data in an audio format as the output.

The text-to-speech (TTS) synthesis procedure consists of two main phases. The first is text analysis, where the input text is transcribed into a phonetic or some other linguistic representation, and the second one is the generation of speech waveforms, where the output is produced from this phonetic and prosodic information. These two phases are usually called high and low-level synthesis.

A simplified version of this procedure is presented. Speech sound is finally generated with the low-level synthesizer by the information from a high-level one. The created application also includes customization where users can change the voice rate, volume, and gender of the voice. "Pyttsx3" library is used in the application to convert text to speech.

SYSTEM REQUIREMENTS

Operating system: Linux-Ubuntu 16.04 to 17.10, Windows 7 to 10 or Mac

Processor: Intel Core i3 and above / AMD Ryzen 3ooo Series or above

RAM: Requires 4GB(or above)

Any Python Compiler: Jupyter Notebook, Pycharm, Online Python Compiler like gdb, etc.

ALGORITHM

STEP 1: START

STEP 2: Import Tkinter module

STEP 3: Import pyttsx3 library

STEP 4: Create GUI application main window.

STEP 5: Add widgets (Frames, label, button) and customize accordingly

STEP 6: Create a function for conversion to speech and set different properties like rate, volume, and gender of the voice.

STEP 7: Start the GUI

STEP 8: Application Window gets displayed

STEP 9: Input the text

STEP 10: Enter SUBMIT

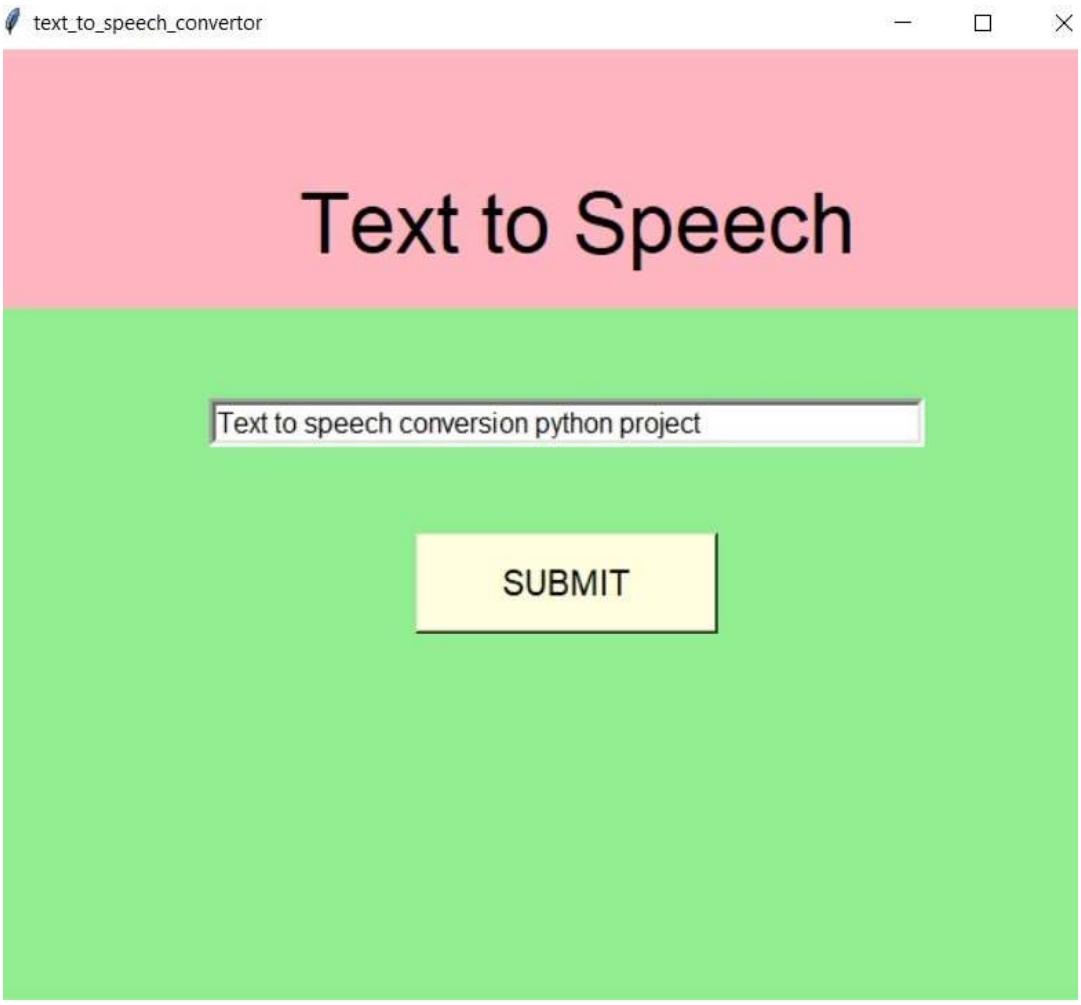
STEP 11: Text is converted to speech

STEP 12: END

CODE

```
#importing required module
from tkinter import *
import pyttsx3        # module to convert text to speech

window = Tk()          # create tkinter window
window.title("text_to_speech_convertor")   # title of window
window.geometry("650x550+350+400")

frame1 = Frame(window,bg = "lightpink",height = "150") # styling the frame
frame1.pack(fill = X)                          # place the widget


frame2 = Frame(window,bg = "lightgreen",height = "500")
frame2.pack(fill=X)

label = Label(frame1, text = "Text to Speech",font = "bold, 36",bg = "lightpink")  # styling the
label which shows text
label.place(x = 180, y = 70)

def talk():                  # function which helps to set speech properties and convert text Speech
    engine = pyttsx3.init()
    engine.setProperty('rate',100)
    engine.setProperty('volume',1)
    voices=engine.getProperty('voices')
    engine.setProperty('voice',voices[1].id)
    engine.say(enter_txt.get())
    engine.runAndWait()

enter_txt = Entry(frame2, width = 45,bd = 4, font = 14)  # entry is used to enter text
enter_txt.place(x = 130, y = 52)
enter_txt.insert(0, "")


button = Button(frame2, text = "SUBMIT",width = "15", pady = 10,font = "bold, 15",command =
talk, bg='lightyellow')     # create button which holds talk function using command

button.place(x = 250,y = 130)


window.mainloop() #Start the GUI
```

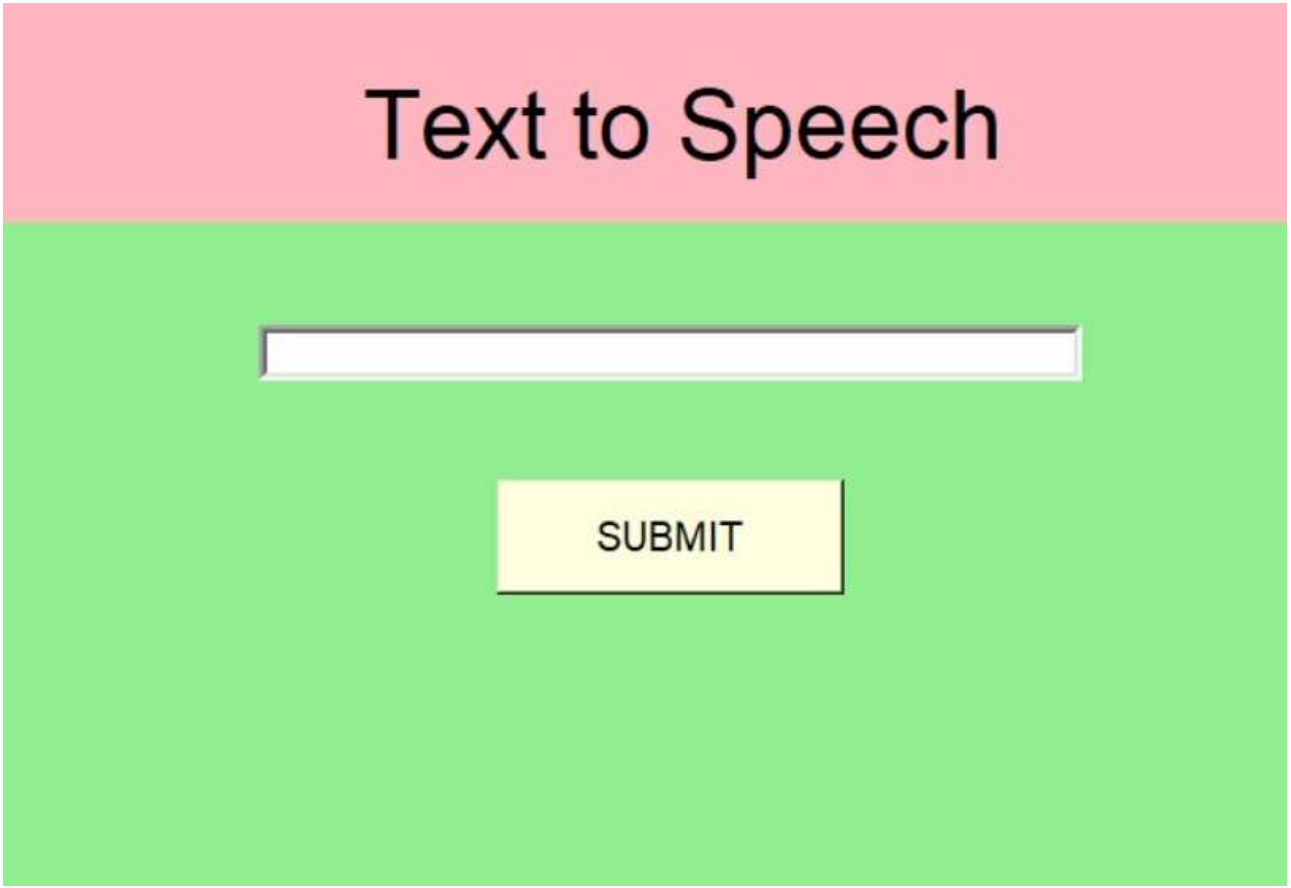
OUTPUT


text_to_speech_convertor
Text to Speech
Text to speech conversion python project
SUBMIT

UI DESIGN

Tkinter module is used in this project for UI design.
Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications.It is available in all OS systems.

The UI design for text to speech conversion:
1) The dimensions of application window: "650x550+350+400"
2) Frame 1: height="150" and background color="lightpink"
3) Frame 2: height="500" and background color="lightgreen"
4) Label: text="Text to Speech", font="bold,36"
5) Text field: width="45",font size="14"
6) SUBMIT button: width="15",pady="10",font="bold,15"



CONCLUSION

In this project, we have developed a very simple and attractive graphical user interface(GUI) that allows the user to type in his/her text provided in the text field in the application. It recognizes both capitals as well as small letters and numbers as well. This software does not require any internet connection, it works well both online & offline as well. This technology can be utilized for various purposes,e.g. car navigation, announcements in railway stations, ATM machines, video games, response services in telecommunications, and email reading, etc. And hence we have successfully developed and explored new things in python.