TEXT TO SPEECH CONVERSION

THIRD YEAR MINI-PROJECT IN PYTHON

WITH GUIDANCE OF

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1. **<u>INDEX</u>**

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ABOUT

NAME: TEXT TO SPEECH CONVERSION

DOMAIN:PYTHON

LIBRARIES:gTTS,TKINTER,PYGAME,RANDOM

SUBJECT:TE MINI-PROJECT

PROJECT DEVELOPVERS:

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INPUT:AT RUNTIME BY ADMIN/INTERVIEWER TRAINING PF CLASSIFIER

OUTPUT: 1.ADD TEXT FILE

2.CONVERT TO AUDIO

3.PLAY THE AUDIO

4.DELETE IF REQUIRED

NEED

People today are more selective about the websites they visit, as most are inundated with information daily. Websites must have updated content, but it must also be dynamic and accessible, and give all visitors the choice to experience them in multiple ways and on multiple devices. Text to speech (TTS) is an exciting technology that addresses these challenges in an easy and inexpensive way. With text-to-speech solutions, websites, mobile apps, digital books, e-learning tools and online documents can literally have their own voice. Detailed in Read Speaker's latest eBook, you will find the 6 following reasons why text to speech is an essential technology to offer with your digital content:

1. **Extend the reach of your content** – TTS gives access to your content to a greater population, such as those with literacy difficulties, learning disabilities, reduced vision and those learning a language. It also opens doors to anyone else looking for easier ways to access digital content.

2. **Accessibility is relevant** – Did you know that 15-20 percent of the worldwide population has some form of language-based learning disability? Did you know that 14 percent of adults in the are illiterate and many have only basic reading skills? Making your online content audible helps the online population to better understand the text. The text is read and highlighted simultaneously so that the reader may easily follow along.

3. **Populations are evolving** – Language proficiency and schooling in the host country's language is a very real problem for migrants and their families.

4. **A growing population depends on technology** –85% of citizens use the Internet daily. Making digital content on the Internet accessible in multiple forms creates an easier user experience.

5. **More autonomy for the digital content owner** – Many think that text to speech software is something to be downloaded manually. It can be, but there are web-based forms, or Software as a Service (SaaS). With a few simple lines of code, the audio is generated instantly, and with new of updated content, the spoken version is updated automatically.

6. **People are increasingly mobile and looking for convenience** – In the INDIA, a growing share of time spent on digital content is on mobile devices, and the demand for connected devices continues to rise on a worldwide scale. Text to speech can turn any digital content into a multimedia experience, and people can listen to a news or blog article, a PDF document, or an eBook on-the-go!
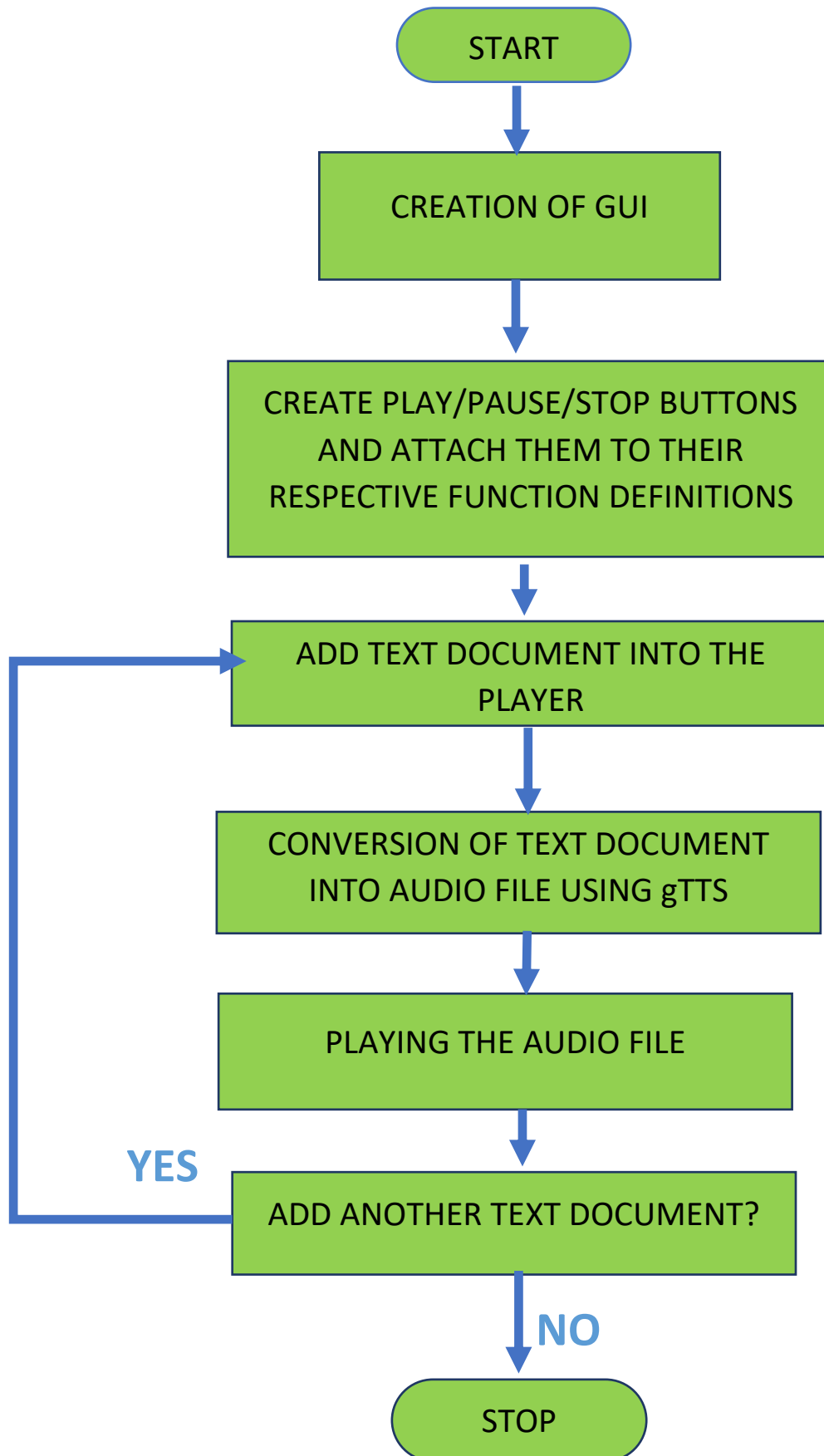
INTRODUCTION

TTS works with nearly <u>every personal digital device</u>, including computers, smartphones and tablets. All kinds of text files can be read aloud, including Word and Pages documents.

The voice in TTS is computer-generated, and reading speed can usually be speeded up or slowed down. Voice quality varies, but some voices sound human. There are even computer-generated voices that sound like children speaking.

TTS should not be confused with <u>voice response systems</u>. Voice response systems synthesize speech by <u>concatenating</u> sentences from a <u>database</u> of pre-recorded words and are used for different purposes than TTS systems, which form sentences and/or phrases based on a language's graphemes and phonemes. Voice response systems are limited to synthesizing sentences that contain only words that have been predetermined by the system.This program is generated using python with the libraries ofgTTS,tkinter and pygame.

TTS systems, in contrast, are theoretically capable of "reading" any string of text characters to form original sentences.

FLOWCHART

```
                    START
                      │
                      ▼
            ┌─────────────────────┐
            │   CREATION OF GUI   │
            └─────────────────────┘
                      │
                      ▼
       ┌─────────────────────────────────┐
       │ CREATE PLAY/PAUSE/STOP BUTTONS  │
       │   AND ATTACH THEM TO THEIR      │
       │  RESPECTIVE FUNCTION DEFINITIONS│
       └─────────────────────────────────┘
                      │
                      ▼
       ┌─────────────────────────────────┐
  ┌───▶│   ADD TEXT DOCUMENT INTO THE    │
  │    │            PLAYER               │
  │    └─────────────────────────────────┘
  │                   │
  │                   ▼
  │    ┌─────────────────────────────────┐
  │    │  CONVERSION OF TEXT DOCUMENT    │
  │    │  INTO AUDIO FILE USING gTTS     │
  │    └─────────────────────────────────┘
  │                   │
  │                   ▼
  │    ┌─────────────────────────────────┐
  │    │     PLAYING THE AUDIO FILE      │
  │    └─────────────────────────────────┘
  │                   │
  │                   ▼
  │  YES ┌─────────────────────────────────┐
  └──────│   ADD ANOTHER TEXT DOCUMENT?    │
         └─────────────────────────────────┘
                      │ NO
                      ▼
                    STOP
```

FUNCTION EXPLAINATION

TKINTER: Used for showing message in a window for certain tasks.

Eg: tkinter.messagebox.showinfo("Info","Output file deleted")

This command provides a window with message "Output file deleted".

Eg: tkinter.messagebox.showerror("Error","File not found")

This command provides error message "File not found".

RANDOM: Used for generating random values.

Eg: R1=random.randint(1,100000)

   R2=random.randint(1,100000)

Now R1 and R2 and assigned with random numbers ranging from 1 to 100000.

Gtts: Used for direct conversion from text file to audio file.

Eg: Gtts(text=f.read(),lang='en',slow=False)

This function loads the text file into read mode by setting the language before hand and converts into audio.

Pygame: Used for audio related functions.

Eg: mixer.music.rewind() //Rewind function for the audio is used

mixer.music.set_volume(value) //Sets the volume for the given value

RUNTIME FLOW

1. Let us consider an example where a user loads a text file into the player by clicking on the "Add" button.A window will open to locate the text file and the user have to select their respective text file that is to be converted into audio file.

2. Then the user should press the "Convert" button and wait until the message of successful conversion is delivered.

3. Now the text file is converted from .txt to .mp3 file.

4. User have to click the "Play" button on the player to hear the audio file that has been converted.

5. Now the user have the option of pausing the audio,rewinding and stopping the audio file.

6. After user has finished his/her work he/she can delete the temporary audio file that has been created by pressing the "Delete" button provided in the player.

7. User have options to Add more files to the player if he/she is willing to do so.

ADVANTAGES AND DISADVANTAGES

Advantages

- Natural and human-like voices contribute to improved customer experience.
- Correct read out with the help of high linguistic accuracy.
- Ability to run on all major file formatslikeDOCX, TXT etc support.
- Highly tuneable and customizable structure.
- No need to be at computer/have access to wi-fi. As this can be used offline.
- Can be used to improve listening skills.

Disadvantages

- The program doesn't know how to deal with text features and some symbols such as bullets or dashes.

- Despite large improvements, Speech can still sound a little unnatural.
- This program won't be helpful for people having hearing disabilities.

CONCLUSION

Thus,we have successfully completed Text To Speech Conversion using python.