Chapter - 1

Introduction, Motivation and Objective

In this Python project, we will build a GUI-based text to speech converter using python Tkinter and pyttsx3 modules. It is an intermediate-level python project that is used on a daily basis by some people and you will be able to create and apply it in real life. Speech synthesis (or Text to Speech) is the computer-generated simulation of human speech. It converts human language text into human-like speech audio.

The Motive of our project is:

To specifically reach out to blind people who can't see but can listen. A device that can read text using OCR (Optical Character Recognition) and using text to speech it can read aloud. It is beneficial for Smart Devices and Voice Assistants. Text to Speech comes very useful for physically disabled people, ie it can be used in mobile phones, computers to guide blind people.

The objective of our project is:

In the current generation students, researchers, authors don't find time to read a book on an electronic device as that might strain their eyes and might face other issues (headache, itchiness in the eye). So, to overcome those problems we have designed this project to select the text and reads it out to the user.

Chapter - 2
Description and Work done

This project is made to convert the text into voice with the click of a button. This project will be developed using Tkinter, gTTs, and playsound library.

In this project, we add a message which we want to convert into voice and click on play button to play the voice of that text message.

Text to speech converters convert text into speech using various algorithms. They have multiple applications and are especially useful when you have a sore throat. Generally, python Text to speech converters operate via CLI only if you have an active internet connection, but for this project, we will create a GUI python Text to speech converter which you can operate from your computer offline as well.

Functions in Python- A Function is a block of code which only runs when it is called.

We can pass data, known as parameters, into a function.

A function can return data as a result.

Creating a function: A Function is defined using the def keywords.

Syntax-

```
def my_function():
```

Modules in Python: It is a file definitions and statements. A module can define fuctions , classes, and variables. A module can also include runnable code.

We can import the functions, classes defined in a module using the **import** statement.

Syntax:

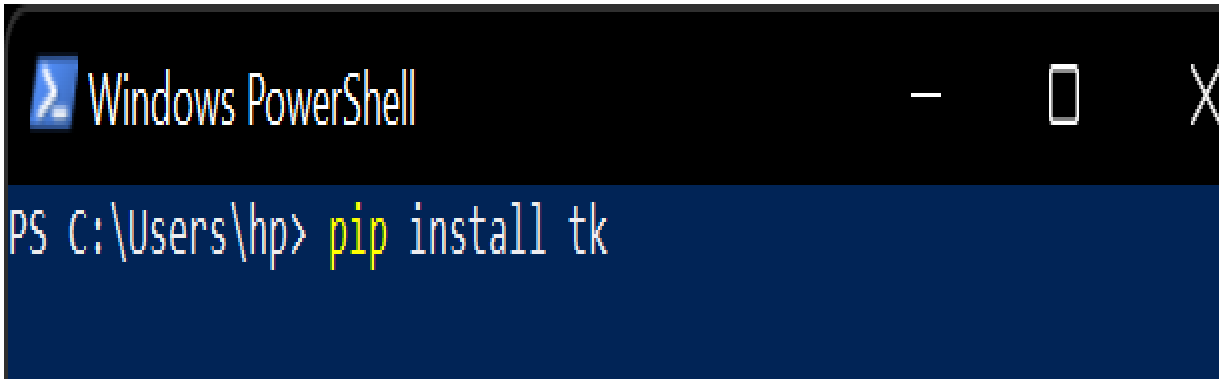
```
import module_name
```

In this project we use the following modules in python:

Tkinter-Tkinter tutorial provides basic and advanced concepts of Python Tkinter. Our Tkinter tutorial is designed for beginners and

professionals.Python provides the standard library Tkinter for creating the graphical user interface for desktop based applications

For implementation of this module firstly, we have to download its package from windows terminal as given below:



Tkinter Widgets:

There are various widgets like button, , etc. that are used to build the python GUI applications.

- **Button**- The Button is used to add various kinds of buttons to the python application.

  Syntax:

  W = Button(parent, options)
- **Entry**- The entry widget is used to display the single-line text field to the user. It is commonly used to accept user values.

Syntax:

w = Entry (parent, options)

- **Frame**- It can be defined as a container to which, another widget can be added and organized.

  Syntax:

  w = Frame(parent, options)

  The list of possible option is given below:

  i. **bd**:- It represents the border width.
  ii. **bg**:- The background color of the widget.
  iii. **Height**:- The height of the frame.
  iv. **Width**:- It represents the width of the widget.

- **Label**- A label is a text used to display some message or information about the other widgets.

  Syntax:

  w = Label (master, options)

  The list of possible option is given below:

  i. **Text:-** This is set to the string variable which may contain one or more line of text.
  ii. **Font:-** The font type of the text written inside the widget.
  iii. **Padx:-** The horizontal padding of the text. The default value is 1.

- **LabelFrame**- A LabelFrame is a container widget that acts as the container

  Syntax:

  w = LabelFrame(top, options)

  The list of possible option is given below:

  i. **bd:-** It represents the size of the border shown around the indicator. The default is 2 pixels.
  ii. **bg:-** The background color of the widget.
  iii. **text**:- It represents the string containing the label text.
  iv. **font**:- It represents the font type of the widget text.

Python Tkinter Geometry:

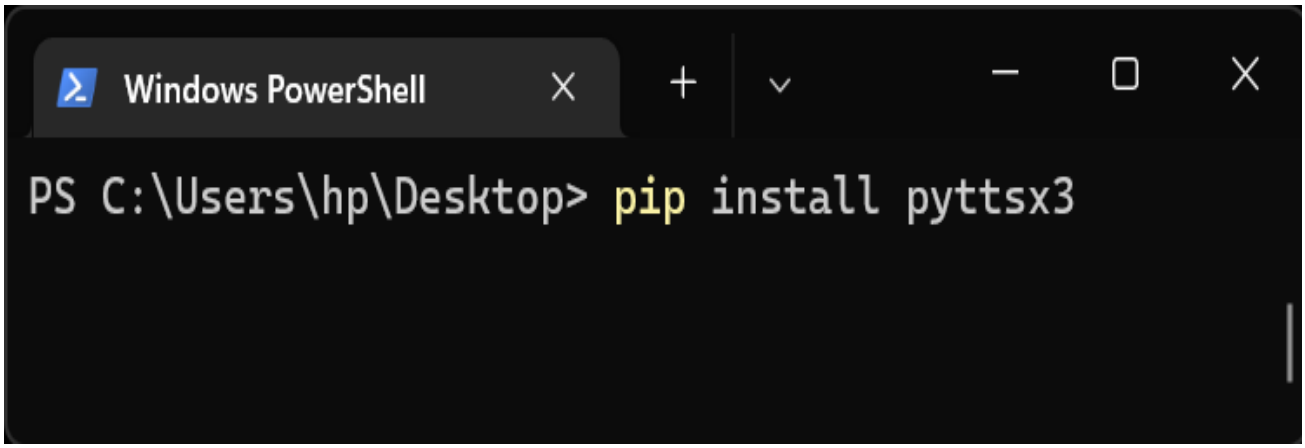
The Tkinter geometry specifies the method by using which, the widgets are represented on display. The python Tkinter provides the following geometry methods.

1. **The pack() method**:- The pack() widget is used to organize widget in the block. The positions widgets added to the python application using the pack() method can be controlled by using the various options specified in the method call.

   Syntax: widget.pack(options)

Pyttsx3- pyttsx3 is a text-to-speech conversion library in Python. Unlike alternative libraries, it works offline and is compatible with both Python 2 and 3. An application invokes the pyttsx3.init() factory function to get a reference to a pyttsx3. Engine instance. it is a very easy to use tool which converts the entered text into speech.

For implementation of this module firstly, we have to download its package from windows terminal as given below:



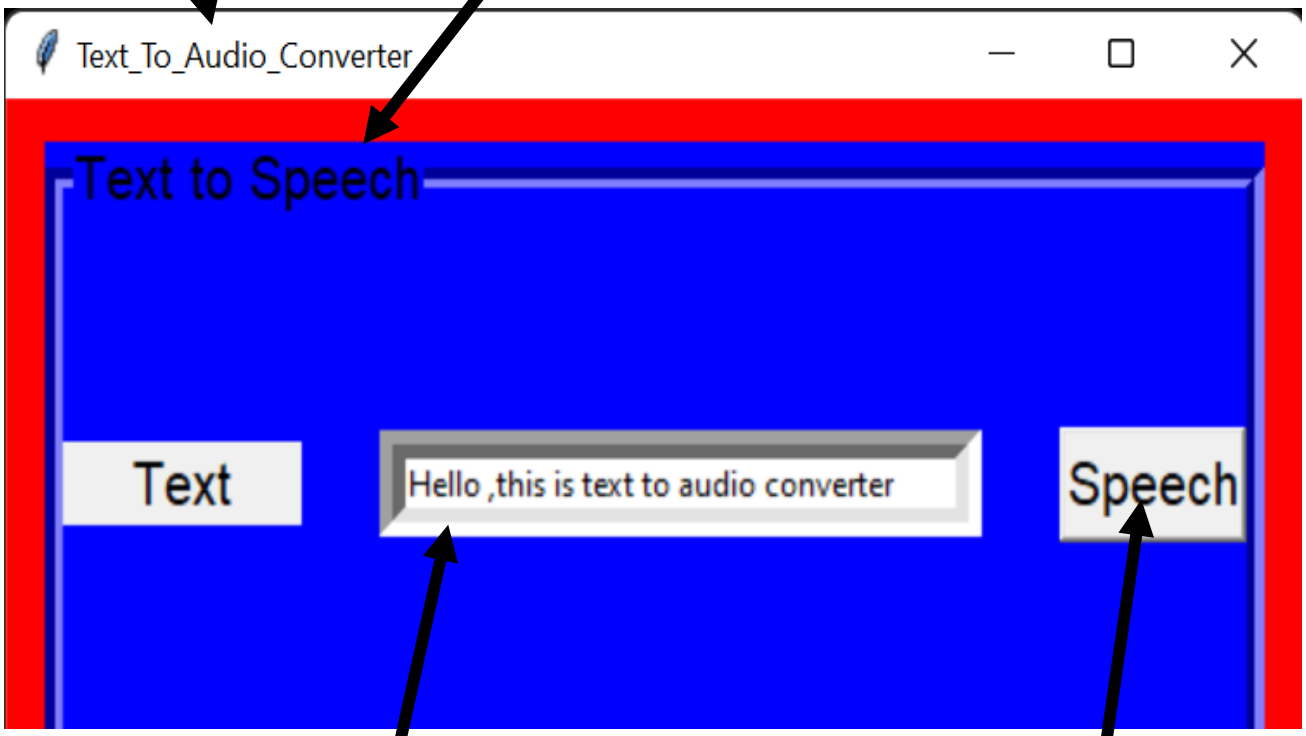
- **pyttsx3.init([driverName])** : string, debug : bool]) – Gets a reference to an engine instance that will use the given driver. If the requested driver is already in use by another engine instance, that engine is returned. Otherwise, a new engine is created.
- **getProperty(name : string)** – Gets the current value of an engine property.
- **setProperty(name, value)** : Queues a command to set an engine property. The new property value affects all utterances queued after this command.
- **say(text : unicode, name : string)** : Queues a command to speak an utterance. The speech is output according to the properties set before this command in the queue.
- **runAndWait()** :Blocks while processing all currently queued commands. Invokes callbacks for engine notifications appropriately. Returns when all commands queued before this call are emptied from the queue.

Source Code:

```
from tkinter import *
import pyttsx3
engine=pyttsx3.init()
win=Tk()
win.title("Text_To_Audio_Converter")
win.configure(bg="red")
win.geometry("500x250")

#fuction
def speak():
    voices=engine.getProperty('voices')
    engine.setProperty('voice',voices[1].id)  # Used for Female
#  Voice implementation.
    engine.say(text.get())
    engine.runAndWait()
    engine.stop()

#Label frame
lf=LabelFrame(win,text="Text to
Speech",font=35,bd=7,bg="blue")
```

```
lf.pack(fill="both",expand="yes",padx=15,pady=15)
Label(lf,text="Text",font=35,padx=25).pack(side=LEFT)
#entry--user enter his/her text
text=StringVar()
Entry(lf,width=35,bd=10,textvariable=text).pack(side=LEFT,padx=30)

#button
Button(lf,text="Speech",font=35,command=speak).pack(side=LEFT)
mainloop()
```

Output:


Label
Title
Text_To_Audio_Converter
Text to Speech
Text
Hello ,this is text to audio converter
Speech
Here, we have to input text
Which we want to convert into
audio
Button

Chapter - 3
Geotagged Images at the place of work

Geotagged Image 1

Geotagged Image 2

Geotagged Image 3

Geotagged Image 4

Chapter - 4

Findings and Conclusion

By this project we got to improve our coding skills and realised the importance of programming language in our day to day life.
This code would be ultimately boon to so many people around us.

We accomplished this by using certain libraries, modules, functions in python. And we firmly believe that this project of ours will be very useful for future introductory Computer Science students.

In future we can enhance this project by adding one language to another language translator so that our bot will also able to speak multiple languages as in this project we have just used English language.
And we can also convert a whole pdf .

Bibliography/ References

- https://www.w3school.com
- https://www.python.org
- https://www.geeksforgeeks.org
- https://www.javatpoint.com
- https://pypi.org