```python
#converting You-Tube audio to text
!pip install gtts
```

```
Collecting gtts
  Downloading gTTS-2.5.4-py3-none-any.whl.metadata (4.1 kB)
Requirement already satisfied: requests<3,>=2.27 in /usr/local/lib/python3.11/dist-packages (from gtts) (2.32.3)
Collecting click<8.2,>=7.1 (from gtts)
  Downloading click-8.1.8-py3-none-any.whl.metadata (2.3 kB)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests<3,>=2.27->gtts) (3
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/dist-packages (from requests<3,>=2.27->gtts) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests<3,>=2.27->gtts) (2.4.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.11/dist-packages (from requests<3,>=2.27->gtts) (2025.4
Downloading gTTS-2.5.4-py3-none-any.whl (29 kB)
Downloading click-8.1.8-py3-none-any.whl (98 kB)
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 98.2/98.2 kB 5.3 MB/s eta 0:00:00
Installing collected packages: click, gtts
  Attempting uninstall: click
    Found existing installation: click 8.2.0
    Uninstalling click-8.2.0:
      Successfully uninstalled click-8.2.0
Successfully installed click-8.1.8 gtts-2.5.4
```

```python
!pip install SpeechRecognition
```

```
Collecting SpeechRecognition
  Downloading speechrecognition-3.14.3-py3-none-any.whl.metadata (30 kB)
Requirement already satisfied: typing-extensions in /usr/local/lib/python3.11/dist-packages (from SpeechRecognition) (4.13.2)
Downloading speechrecognition-3.14.3-py3-none-any.whl (32.9 MB)
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 32.9/32.9 MB 55.8 MB/s eta 0:00:00
Installing collected packages: SpeechRecognition
Successfully installed SpeechRecognition-3.14.3
```

```python
import speech_recognition as sr
```

```python
model=sr.Recognizer()
```

```python
mp3_file=r'/content/class.mp3'
```

```python
!pip install pydub
```

```
Collecting pydub
  Downloading pydub-0.25.1-py2.py3-none-any.whl.metadata (1.4 kB)
Downloading pydub-0.25.1-py2.py3-none-any.whl (32 kB)
Installing collected packages: pydub
Successfully installed pydub-0.25.1
```

```python
import os
from pydub import AudioSegment
from pydub.playback import play
import speech_recognition as sr

mp3_file = r'/content/class.mp3'

if not os.path.exists(mp3_file):
    print(f"Error: File not found at {mp3_file}")
else:
    print(f"File found: {mp3_file}")
    try:

        audio = AudioSegment.from_file(mp3_file, format="mp3",
                                       parameters=["-probesize", "50M", "-analyzeduration", "50M"])
        print("MP3 loaded successfully.")


        temp_wav_file = "temp.wav"
        audio.export(temp_wav_file, format="wav")
        print(f"Exported to {temp_wav_file}")


        model = sr.Recognizer()
        audio_file = temp_wav_file

        with sr.AudioFile(audio_file) as source:
            audio_data = model.record(source)
            try:
                text = model.recognize_google(audio_data)
                print("Recognized text:")
```

```
            print(text)
        except sr.UnknownValueError:
            print("Speech Recognition could not understand audio")
        except sr.RequestError as e:
            print(f"Could not request results from Google Speech Recognition service; {e}")

    except Exception as e:
        print(f"An error occurred while processing the audio file: {e}")
        print("The MP3 file might be corrupted or in an unsupported format.")
        print("Please ensure '/content/class.mp3' is a valid and readable MP3 file.")
```

```
File found: /content/class.mp3
MP3 loaded successfully.
Exported to temp.wav
Recognized text:
a recursive function is a function that calls itself inside of its own definition it's like having a dream inside of a dream when yo
```

```
!pip install transformers
```

```
Requirement already satisfied: transformers in /usr/local/lib/python3.11/dist-packages (4.51.3)
Requirement already satisfied: filelock in /usr/local/lib/python3.11/dist-packages (from transformers) (3.18.0)
Requirement already satisfied: huggingface-hub<1.0,>=0.30.0 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.31.2)
Requirement already satisfied: numpy>=1.17 in /usr/local/lib/python3.11/dist-packages (from transformers) (2.0.2)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/dist-packages (from transformers) (24.2)
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.11/dist-packages (from transformers) (6.0.2)
Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.11/dist-packages (from transformers) (2024.11.6)
Requirement already satisfied: requests in /usr/local/lib/python3.11/dist-packages (from transformers) (2.32.3)
Requirement already satisfied: tokenizers<0.22,>=0.21 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.21.1)
Requirement already satisfied: safetensors>=0.4.3 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.5.3)
Requirement already satisfied: tqdm>=4.27 in /usr/local/lib/python3.11/dist-packages (from transformers) (4.67.1)
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub<1.0,>=0.30.0->trans
Requirement already satisfied: typing-extensions>=3.7.4.3 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub<1.0,>=0.3
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (3
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (2.4.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (2025.4.2
```

```
#Summarizing
from transformers import pipeline
```

```
summarize=pipeline('summarization')
```

```
No model was supplied, defaulted to sshleifer/distilbart-cnn-12-6 and revision a4f8f3e (https://huggingface.co/sshleifer/distilbart
Using a pipeline without specifying a model name and revision in production is not recommended.
/usr/local/lib/python3.11/dist-packages/huggingface_hub/utils/_auth.py:94: UserWarning:
The secret `HF_TOKEN` does not exist in your Colab secrets.
To authenticate with the Hugging Face Hub, create a token in your settings tab (https://huggingface.co/settings/tokens), set it as :
You will be able to reuse this secret in all of your notebooks.
Please note that authentication is recommended but still optional to access public models or datasets.
  warnings.warn(
config.json: 100%                                      1.80k/1.80k [00:00<00:00, 146kB/s]

pytorch_model.bin: 100%                                1.22G/1.22G [00:10<00:00, 246MB/s]

model.safetensors: 100%                               1.22G/1.22G [00:09<00:00, 251MB/s]

tokenizer_config.json: 100%                            26.0/26.0 [00:00<00:00, 799B/s]

vocab.json: 100%                                      899k/899k [00:00<00:00, 5.41MB/s]

merges.txt: 100%                                      456k/456k [00:00<00:00, 7.02MB/s]
Device set to use cpu
```

```
text=input('')
```

```
a recursive function is a function that calls itself inside of its own definition it's like having a dream inside of a dream when yo
```

```
res=summarize(text,min_length=50,max_length=150)
```

```
res
```

```
[{'summary_text': " Recursion is just another way to create a loop but infinite Loops aren't very useful in practice in practice .
Recursive functions are not the right choice in every situation but they are very good for tree and graph traversals this is been
recursion and 100 seconds thanks for watching ."}]
```

```
#Analyzing
analyzer=pipeline('sentiment-analysis')
```

No model was supplied, defaulted to distilbert/distilbert-base-uncased-finetuned-sst-2-english and revision 714eb0f (https://huggin
Using a pipeline without specifying a model name and revision in production is not recommended.

config.json: 100%   629/629 [00:00<00:00, 18.1kB/s]

Xet Storage is enabled for this repo, but the 'hf_xet' package is not installed. Falling back to regular HTTP download. For better p
WARNING:huggingface_hub.file_download:Xet Storage is enabled for this repo, but the 'hf_xet' package is not installed. Falling back

model.safetensors: 100%   268M/268M [00:02<00:00, 60.8MB/s]

tokenizer_config.json: 100%   48.0/48.0 [00:00<00:00, 3.07kB/s]

vocab.txt: 100%   232k/232k [00:00<00:00, 1.41MB/s]

Device set to use cpu

```
text_input=input("enter some text")
```

enter some textRecursion is just another way to create a loop but infinite Loops aren't very useful in practice in practice . Recurs

```
result=analyzer(text_input)
```

```
result
```

[{'label': 'POSITIVE', 'score': 0.9728212952613831}]

```
#Translating Language
from IPython import get_ipython
from IPython.display import display
import transformers
from transformers import pipeline
```

```
translator=pipeline("translation_en_to_hi",model="Helsinki-NLP/opus-mt-en-hi")
```

config.json: 100%   1.39k/1.39k [00:00<00:00, 44.5kB/s]

pytorch_model.bin: 100%   306M/306M [00:01<00:00, 177MB/s]

generation_config.json: 100%   293/293 [00:00<00:00, 17.5kB/s]

tokenizer_config.json: 100%   44.0/44.0 [00:00<00:00, 1.63kB/s]

model.safetensors: 100%   306M/306M [00:03<00:00, 111MB/s]

source.spm: 100%   812k/812k [00:00<00:00, 4.93MB/s]

target.spm: 100%   1.07M/1.07M [00:00<00:00, 2.41MB/s]

vocab.json: 100%   2.10M/2.10M [00:00<00:00, 8.45MB/s]

/usr/local/lib/python3.11/dist-packages/transformers/models/marian/tokenization_marian.py:175: UserWarning: Recommended: pip install
  warnings.warn("Recommended: pip install sacremoses.")
Device set to use cpu

```
text=input("enter some text")
```

enter some textRecursion is just another way to create a loop but infinite Loops aren't very useful in practice in practice . Recurs

```
result=translator(text)
```

```
result
```

[{'translation_text': 'एक लूप बनाने के लिए सिर्फ एक और तरीका है लेकिन अनंत लूपों अभ्यास में बहुत उपयोगी नहीं हैं. पुनरावर्तन कार्य प्रत्येक स्थिति में सही विकल्प नहीं हैं लेकिन वे पेड़ और ग्राफ के लिए बहुत अच्छा कर रहे हैं इस पर ध्यान देने के लिए फिर से और 100 सेकंड धन्यवाद.'}]

```
#Question-Answering
q_a=pipeline('question-answering')
```

No model was supplied, defaulted to distilbert/distilbert-base-cased-distilled-squad and revision 564e9b5 (https://huggingface.co/d
Using a pipeline without specifying a model name and revision in production is not recommended.
Device set to use cpu

```
q_a = pipeline('question-answering')
```

```
context = """
**RECURSION**
Recursion is just another way to create a loop but infinite Loops aren't very useful in practice . Recursive functions are not the right
"""
```

```
while True:
    question = input("Enter a question: ")

    # Simple check: See if any words from the question are in the context
    question_words = set(question.lower().split())
    context_words = set(context.lower().split())

    if not question_words.intersection(context_words):
        print("Your question is not directly related to the context.")
        break

    res = q_a({
        'question': question,
        'context': context
    })
    print("Answer:", res['answer'])
```

```
No model was supplied, defaulted to distilbert/distilbert-base-cased-distilled-squad and revision 564e9b5 (https://huggingface.co/d
Using a pipeline without specifying a model name and revision in production is not recommended.
Device set to use cpu
Enter a question: What types of data structures or problems are particularly suited for recursion?
/usr/local/lib/python3.11/dist-packages/transformers/pipelines/question_answering.py:390: FutureWarning: Passing a list of SQuAD exa
  warnings.warn(
Answer: tree and graph traversals
Enter a question: What is the role of tree and graph traversals in recursion?
Answer: very good
Enter a question: Why is version control (like Git) important in software development?
Answer: they are very good for tree and graph traversals
Enter a question: how wind energy works
Your question is not directly related to the context.
```

Start coding or generate with AI.