Praktikum Pemrosesan Data

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Tutorial

Speech to Text

In [ ]:
```
import speech_recognition as sr
recognizer = sr.Recognizer()

def capture_voice_input():
    with sr.Microphone() as source:
        print("Listening...")
    audio = recognizer.listen(source)
    return audio
```

In [ ]:
```
def convert_voice_to_text(audio):
    try:
        text = recognizer.recognize_google(audio)
        print("You said: " + text)
    except sr.UnknownValueError:
        text = ""
        print("Sorry, I didn't understand that.")
    except sr.RequestError as e:
        text = ""
        print("Error; {0}".format(e))
    return text
```

In [ ]:
```
def process_voice_command(text):
    if "hello" in text.lower():
        print("Hello! How can I help you?")
    elif "goodbye" in text.lower():
        print("Goodbye! Have a great day!")
        return True
    else:
        print("I didn't understand that command. Please try again.")
        return False
```

In [ ]:
```
def main():
    end_program = False
    while not end_program:
        audio = capture_voice_input()
        text = convert_voice_to_text(audio)
        end_program = process_voice_command(text)
    if __name__ == "__main__":
        main()
```

In [ ]:
```
import pyttsx3
engine=pyttsx3.init()
while True:
    answer=input("Masukan Text=")
    engine.say(answer)
    engine.runAndWait()
```

Text to Speech

In [ ]:
```python
import speech_recognition as sr

# Buat objek Recognizer
recognizer = sr.Recognizer()

# Buka file audio
with sr.AudioFile("Thank you for contac.wav") as source:
    audio_data = recognizer.record(source)  # Merekam data audio dari file

    # Gunakan recognizer untuk melakukan speech-to-text
    try:
        text = recognizer.recognize_google(audio_data)
        print("Text:", text)
    except sr.UnknownValueError:
        print("Speech Recognition could not understand audio")
    except sr.RequestError as e:
        print("Could not request results from Google Speech Recognition service;
```

```
Text: thank you for contacting us all lines are currently busy your call is very
important to us
```

In [ ]:
```python
import pyttsx3

# Teks yang ingin Anda konversi menjadi suara
text = "Halo, selamat datang! Saya adalah asisten AI."

# Inisialisasi engine TTS
engine = pyttsx3.init()

# Set properti suara (opsional)
# engine.setProperty('rate', 150)  # Ubah kecepatan bicara
# engine.setProperty('volume', 0.9)  # Ubah volume suara

# Konversi teks menjadi suara dan putar
engine.say(text)
engine.runAndWait()
```

Speech to Text Translate

In [ ]:
```python
import speech_recognition as sr
from googletrans import Translator

# Fungsi untuk melakukan speech-to-text menggunakan library speech_recognition
def speech_to_text():
    recognizer = sr.Recognizer()
    with sr.Microphone() as source:
        print("Silakan mulai berbicara...")
        audio_data = recognizer.listen(source)
        try:
            text = recognizer.recognize_google(audio_data)
            print("Text:", text)
            return text
        except sr.UnknownValueError:
            print("Maaf, Speech Recognition tidak bisa memahami audio.")
        except sr.RequestError as e:
            print("Maaf, tidak ada respon dari Google Speech Recognition service
            return None
```

```
# Fungsi untuk menerjemahkan teks menggunakan Google Translate
def translate_text(text, target_language='en'):
    translator = Translator()
    translated_text = translator.translate(text, dest=target_language)
    print("Translated Text:", translated_text.text)
    return translated_text.text

# Contoh penggunaan:
# Merekam suara dari mikrofon, mentranskripsi teks, dan kemudian menerjemahkan k
input_text = speech_to_text()
if input_text:
    translated_text = translate_text(input_text, target_language='en')
```

Program

In [ ]:

```
import speech_recognition as sr
from gtts import gTTS
from googletrans import Translator

recognizer = sr.Recognizer()

def text_to_speech(text):
    tts = gTTS(text=text, lang='en')
    audio_file = 'output.mp3'  # Ganti ke MP3 agar dapat digunakan oleh semua pl
    tts.save(audio_file)
    print("File saved as 'output.mp3'.")

def record_audio(timeout=None):
    with sr.Microphone() as source:
        print("Listening...")
        try:
            audio = recognizer.listen(source, timeout=timeout)
            print("Audio recorded successfully.")
            return audio
        except sr.WaitTimeoutError:
            print("Timeout occurred. No speech detected.")
            return None

def recognize_speech(audio):
    try:
        text = recognizer.recognize_google(audio)
        print(f"You said: {text}")
        return text
    except sr.UnknownValueError:
        print("Sorry, I couldn't understand that.")
    except sr.RequestError:
        print("Sorry, there was an error processing your request.")
    return None

def save_to_text_file(text):
    if text:
        with open("recognized_text.txt", "w") as file:
            file.write(text)
        print("Recognized text saved to 'recognized_text.txt'.")

def speech_to_text_and_translate(target_language='en'):
    translator = Translator()
```

```
    with sr.Microphone() as source:
        print("Please start speaking...")
        audio_data = recognizer.listen(source)

    try:
        text = recognizer.recognize_google(audio_data)
        print("Original Text:", text)
        translated_text = translator.translate(text, dest=target_language)
        print("Translated Text:", translated_text.text)
        return translated_text.text
    except sr.UnknownValueError:
        print("Sorry, Speech Recognition could not understand the audio.")
        return None
    except sr.RequestError as e:
        print("Sorry, there was no response from the Google Speech Recognition s
        return None

if __name__ == "__main__":
    choice = input("1=Speech to text, 2=Text to speech, 3=Speech to translate. C
    if choice == "1":
        audio = record_audio(timeout=5)
        if audio:
            recognized_text = recognize_speech(audio)
            save_to_text_file(recognized_text)
        print("selesai ")
    elif choice == "2":
        text = input("Enter text to convert to speech: ")
        text_to_speech(text)
        print("selesai ")
    elif choice == "3":
        target_language = input("Enter target language (e.g., 'en' for English):
        translated_text = speech_to_text_and_translate(target_language=target_la
        print("selesai ")
    else:
        print("Invalid choice.")
```

```
File saved as 'output.mp3'.
```