

Week2_2.1_App

February 4, 2025

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[1]: import os
import openai
import speech_recognition as sr
import wave
import requests
from io import BytesIO
from PIL import Image
from dotenv import load_dotenv
from IPython.display import display, Audio, Image as IPImage
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[2]: # Load OpenAI API Key
load_dotenv()
openai.api_key = os.getenv("OPENAI_API_KEY") # Replace with your actual key
```

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[3]: # Function to Record Real-Time Audio
def record_audio(filename="recorded_audio.wav", duration=15, sample_rate=44100):
    recognizer = sr.Recognizer()
    microphone = sr.Microphone()

    with microphone as source:
        print(" Speak now...")
        recognizer.adjust_for_ambient_noise(source)
        audio = recognizer.listen(source, timeout=duration)

    with open(filename, "wb") as f:
        f.write(audio.get_wav_data())

    return filename
```

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[4]: # Function to Transcribe Audio Using OpenAI Whisper
def transcribe_audio(audio_file):
    with open(audio_file, "rb") as audio:
        response = openai.Audio.transcribe(model="whisper-1", file=audio)
    return response["text"]
```

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[5]: # Function to Generate AI Image Using DALL-E 3
def generate_image(prompt):
    response = openai.Image.create(
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        model="dall-e-3",
        prompt=prompt,
        n=1,
        size="1024x1024"
    )
    image_url = response["data"][0]["url"]
    image_response = requests.get(image_url)
    img = Image.open(BytesIO(image_response.content))
    return img

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[10]: # Record Audio
audio_path = record_audio(duration=15)
print(" Recording Completed")

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Speak now...
Recording Completed

```

[11]: # Transcribe Audio
transcription = transcribe_audio(audio_path)
print(f" **Transcription:** {transcription}")

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****Transcription:**** Include a female playing with the solar system.

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[12]: # Generate AI-modified Image
modified_image = generate_image(transcription)

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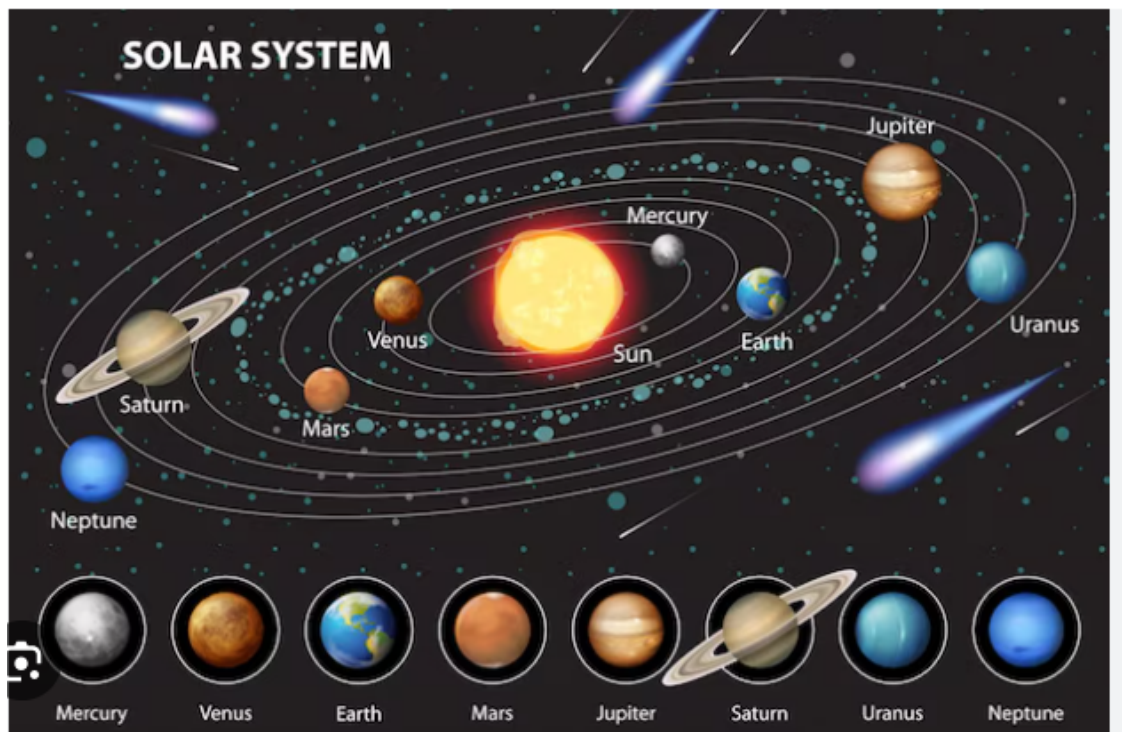
```

[21]: from IPython.display import display, Image as IPImage

# Display Original and Modified Images
uploaded_image = Image.open(r"C:\Users\bharw\Pictures\Screenshots\Screenshot_
↳2025-02-03 181302.png") # Use raw string
print(" Original Image:")
display(IPImage(filename=r"C:\Users\bharw\Pictures\Screenshots\Screenshot_
↳2025-02-03 181302.png", width=400)) # Use raw string
print(" AI-Generated Image:")
display(modified_image)

```

Original Image:



AI-Generated Image:



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[22]: # Provide Download Option
modified_image.save("modified_image.png")
print(" AI-Generated Image saved as 'modified_image.png'.")
```

AI-Generated Image saved as 'modified_image.png'.

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[23]: # Embed Audio
display(Audio(filename=audio_path))
```

<IPython.lib.display.Audio object>

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[ ]:
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