AI Memory Diary Generator

Submitted to YBI Foundation

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Course: AI & Generative AI Training Program

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1. Introduction

The project **AI Memory Diary Generator** is an interactive application that uses Artificial Intelligence and Generative AI to analyze a user's image and mood description to create a personalized diary entry. It combines facial emotion recognition, sentiment analysis, and GPT-2 text generation.

2. Objectives

- Detect emotion from a user-uploaded face image
- Analyze mood from text input
- Generate a diary entry using GPT-2
- Provide a simple web interface using Gradio

3. Tools and Libraries Used

- **Google Colab** – Cloud environment
- **Gradio** – For creating UI
- **DeepFace** – Emotion detection
- **Transformers (GPT-2)** – Text generation
- **TextBlob** – Sentiment analysis
- **Python** – Programming language

4. Project Workflow

1. User uploads image via Colab
2. User writes a mood description
3. Image is analyzed for emotion (DeepFace)
4. Text is analyzed for sentiment (TextBlob)
5. GPT-2 generates the diary entry
6. Output is shown using Gradio

5. Code Explanation

5.1. Install Required Libraries

```
!pip install gradio deepface transformers textblob
```

5.2. Import Libraries

```
import gradio as gr
from deepface import DeepFace
from transformers import pipeline
from textblob import TextBlob
from google.colab import files
```

5.3. Load GPT-2 Model

```
diary_generator = pipeline("text-generation", model="gpt2")
```

5.4. Detect Emotion from Image

```
def detect_emotion_from_image(image_path):
    try:
        result = DeepFace.analyze(
            img_path=image_path, actions=['emotion'],
               ↪ enforce_detection=False)
        emotion = result[0]['dominant_emotion']
        return emotion.capitalize()
    except Exception:
        return "Could␣not␣detect"
```

5.5. Detect Sentiment from Text

```
def detect_emotion_from_text(text):
    blob = TextBlob(text)
    polarity = blob.sentiment.polarity
    if polarity > 0.2:
        return "Positive"
    elif polarity < -0.2:
        return "Negative"
    else:
        return "Neutral"
```

5.6. Upload Image via Colab

```
uploaded_file = files.upload()
image_path = list(uploaded_file.keys())[0]
```

5.7. Generate Diary Entry

```
def generate_diary(text_input):
    image_emotion = detect_emotion_from_image(image_path)
    text_emotion = detect_emotion_from_text(text_input)

    prompt = (f"My␣day␣was␣{image_emotion.lower()}␣and␣I␣felt␣"
              f"{text_emotion.lower()}.␣{text_input}.␣Here's␣my␣
                 ↪ diary:")

    generated = diary_generator(prompt, max_length=100,
       ↪ num_return_sequences=1)
    diary = generated[0]['generated_text']

    result_text = (f"Emotion␣from␣Image:␣{image_emotion}\n"
                   f"Emotion␣from␣Text:␣{text_emotion}\n\n"
                   f"Diary␣Entry:\n{diary}")

    return image_path, result_text
```

5.8. Launch Gradio UI

```
iface = gr.Interface(
    fn=generate_diary,
    inputs=gr.Textbox(lines=4, placeholder="How␣are␣you␣feeling␣
       ↪ today?", label="Describe␣Your␣Mood"),
    outputs=[
        gr.Image(label="Uploaded␣Image"),
        gr.Textbox(label="AI␣Generated␣Diary␣Entry")
    ],
    title="AI␣Memory␣Diary␣Generator",
    description="Upload␣an␣image,␣describe␣your␣mood,␣and␣generate␣a
       ↪ ␣diary␣entry."
)
iface.launch()
```

6. Output

Figure 1: User uploaded image and mood description

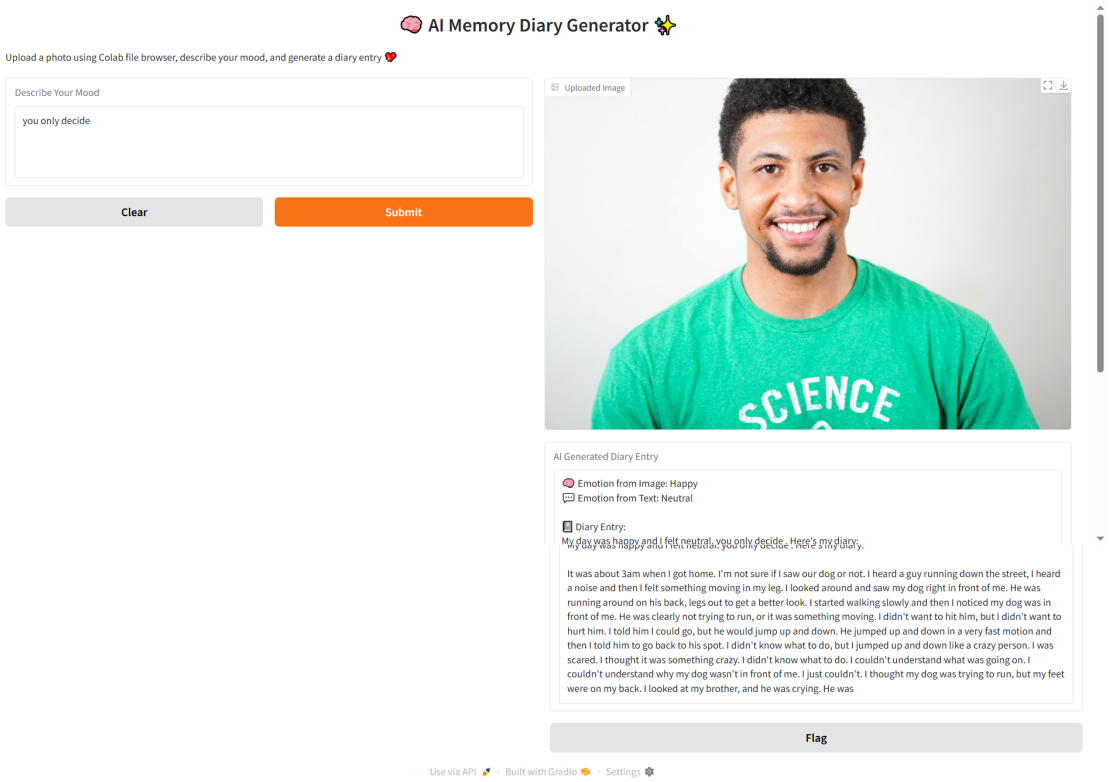

Figure 2: Generated diary entry based on inputs

7. Project Notebook Link

The complete implementation and code execution of this project can be accessed through the following Google Colab link:

- **Click here to open the Colab Notebook**

8. Conclusion

This project uses AI to turn mood and face input into a creative diary entry. It shows how emotion detection and text generation can come together for mental wellness and journaling support.

9. Future Scope

- Add voice input instead of typing
- Export diary as PDF
- Track user mood over time
- Recommend music or quotes

10. References

1. DeepFace GitHub
2. Transformers Documentation
3. Gradio Official
4. TextBlob Docs