

## **Journal Buddy: A Tool for Actionable Feedback on Journal Entries Using Generative AI**

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## Abstract:

Journaling has been recognized as a time tested, effective tool for personal growth, selfreflection, and mental well-being for millennia. However, a challenge many individuals face when journaling is the lack of guidance and actionable feedback on their entries. To address this issue, I developed Journal Buddy, a powerful tool that utilizes OpenAI API capability to provide users with insightful feedback on their journal entries. By leveraging the capabilities of artificial intelligence Journal Buddy shows promise in its ability to enhance the journaling experience, helping users gain deeper insights into their thinking, thought patterns and emotions.

## 1. Introduction:

This paper introduces Journal Buddy, a Python-based tool utilizing OpenAI API capability to provide users with actionable feedback on their journal entries. Journaling is a widely recognized practice for personal reflection and self-improvement, and Journal Buddy aims to enhance this process by leveraging the power of artificial intelligence. This project was conceived as a solution to a problem raised by my sister. The problem being that although a journal contains your inner most thoughts and true feelings, it is never seen by anyone but the pages it is written upon. By analyzing the content, emotion, and language of journal entries, Journal Buddy offers users valuable insights and suggestions for personal growth. This paper explores the development process of Journal Buddy, its key features, and its potential impact on the field of self-reflection and mental well-being.

## 2. Literature Review:

While reviewing possibilities and literature / to see if this was a problem which had been solved by another individual I found 'Chat Journal' (Punct 23). This has a similar goal and deliverable as my model, although it is hosted in a different medium (JSON).

it is important to address the potential issues associated with using generative AI for mental health. One ethical implication that arises is the lack of substantiation and rigor in the output generated by Language Models (LLMs) (Hurlburt 23). Despite appearing literate, LLMs are unable to provide a solid foundation for the information they produce. This is primarily because LLMs assemble information in a probabilistic manner, linking words together based on the content of the prompt. However, this approach often results in a mathematical amalgamation of concepts without considering their true meaning or underlying accuracy. While it is impressive that generative AI models such as GPT can rhyme, code, and generate and interpret images, these abilities are merely variations of their mathematical prediction capabilities. They are not indicative of an innate understanding or the ability to justify their logic.

Another issue for blanket use of Generative AI in a therapeutic sense, is the models will only ever be as good as the data they are trained on. In other words, they are inherently biased based off the materials they are trained on (Davidson 23). Another example of AI Chatbot style programs exhibiting bias can be dated back a couple years to a chatbot trained off Reddit posts. While this doesn't sound inherently wrong, the model suggested genocide would be acceptable if it made people happy (Gault 21). Without oversight and proper training models such as

ChatGPT have been seen to output false or even harmful content (Hilsdorf 23). This issue of building powerful AI systems which are aligned with their operators is commonly referred to as the 'alignment issue'.

As Generative AI becomes more mainstream, it will be necessary for legislation and oversight to be implemented around this new technology. In some senses the prompt dictates the output, placing the onus on the individual to use the technology responsibly (Hurlburt 23). Despite this being a potential defense point of a programmer or company deploying such models, we are certainly at a tipping point with regards to these types of models. Caution and oversight must be exercised when rolling out technologies of this type, especially when used for a mental health function. In its current state Journal Buddy should not be substituted for therapy or a licensed mental health professional. However models like Journal Buddy do show promise when paired with a licensed mental health professional.

### 3. Data:

My data is a mixture of some of my journal entries, as well as historical journal publications.

The length of entries ranges from a couple of sentences for some of my entries to over 1000

pages from the journal of deceased poet Sylvia Plath. Additionally, by using the OpenAI API I

was able to read in the journal of Sylvia Plath and The Diary of Anne Frank in their entirety.

Through its ability to process works far longer than the website version of ChatGPT, the users

will be able to process single entries or diaries in their entirety. Due to being only trained

(currently) on my entries or the entries of 2 others, this model will need further training and

testing with many more subjects in beta before a public rollout. Only having a sample of 3 users

could inherently lead to bias in output, or failure to uncover harmful / irresponsible output.

To satisfy a greater need for current entries outside of myself, the tool will be made available to

friends and family to further progress testing soon. At this time Journal Buddy has not shown

any harmful output with the samples it was provided. Moreover it shows promise as a tool

which could truly benefit individuals when paired with discretion and a licensed mental health

professional.

#### 4. Methods:

Journal Buddy was developed using Python and incorporates the OpenAI GPT (Generative Pretrained Transformer) model. The tool is designed to analyze journal entries based on various factors, such as content, sentiment, and language complexity. By employing natural language processing techniques, Journal Buddy can identify patterns and provide users with feedback that is both personalized and actionable. The tool also enables users to set specific goals or focus areas, allowing Journal Buddy to tailor its feedback to their individual needs.

Key features of Journal Buddy include sentiment analysis, content analysis, and language complexity analysis. Sentiment analysis provides users with an understanding of the emotional tone of their entries, enabling them to identify recurring patterns or triggers. Content analysis helps users identify key topics or themes that they frequently write about, allowing them to gain insights into their interests and concerns. Language complexity analysis assesses the complexity of writing style, providing users with suggestions to improve clarity and coherence.

To build 'Journal Buddy', a Python script was utilized alongside an OpenAI API key to enable sentiment analysis based on the user's input. This application aims to assist individuals in journaling by providing insights into the tone and content of their entries. Python, being a widely used and versatile programming language, was employed for its simplicity and extensive libraries that facilitate text processing and analysis.

The OpenAI API key played a crucial role in the development of 'Journal Buddy' as it leverages OpenAI's advanced natural language processing capabilities. By utilizing this API, the application can analyze the sentiment of the user's journal entries, providing valuable information about the emotional tone and overall sentiment expressed in the text. The API allows for much larger text samples to be read in, enabling users to gain a deeper understanding of their own emotions and thoughts. Through receiving feedback on a journal in its entirety could potentially unlock greater personal growth and self-reflection.

The integration of sentiment analysis into 'Journal Buddy' provides users with an objective assessment of their journal entries. By analyzing the tone and content of the text, the application can identify positive, negative, or neutral sentiments expressed by the user. This analysis can help individuals track their emotional well-being over time, identify patterns or triggers, and even suggest coping mechanisms or positive affirmations based on the sentiment detected.

In conclusion, 'Journal Buddy' utilizes a Python script and the OpenAI API to provide sentiment analysis for journal entries. This application aims to assist individuals in their self-reflection and personal growth journey by providing insights into the emotional tone of their journaling. By leveraging the power of natural language processing, 'Journal Buddy' enables users to gain a deeper understanding of their emotions and thoughts, potentially leading to enhanced well-being and self-awareness.

## 5. Results:

For all entries the model provided (semi) useful feedback. However, it is apparent that the model lacks the ability to infer additional context as shown by the output it provided for Anne Frank's Diary. It suggested she seemed depressed and isolated, which is extremely understandable given the context of being in hiding from Nazi soldiers.

No dangerous output was provided in the limited sample sizes provided to the model, but this is not to say there weren't issues with the output. In multiple instances the text feedback provided by the model was cut off mid-sentence. This issue will need to be smoothed out as the model is further refined.

## 6. Analysis & Interpretation:

Journal Buddy has the potential to significantly impact the field of self-reflection and mental well-being. By providing users with personalized feedback and insights, Journal Buddy empowers individuals to gain a deeper understanding of their thoughts, emotions, and behaviors. This tool can assist users in identifying recurring patterns, triggers, or areas for personal growth, ultimately leading to improved self-awareness and well-being. Additionally, Journal Buddy could serve as a valuable tool for therapists or mental health professionals, facilitating more informed discussions during therapy sessions.



## 7. Conclusion:

Journal Buddy is a powerful tool built in Python using OpenAI that offers users actionable feedback on their journal entries. Using API technology it can read in text much greater than the website version of ChatGPT. Leveraging the capabilities of artificial intelligence, Journal Buddy enhances the journaling experience, providing users with personalized insights and suggestions for personal growth. With its key features such as sentiment analysis, content analysis, and language complexity analysis, Journal Buddy has the potential to significantly impact the field of self-reflection and mental well-being. Further research and development in this area could pave the way for more advanced AI-powered tools that revolutionize how individuals engage in selfreflection and personal development.

## 8. Directions for Future Work:

As noted, Journal Buddy shows great promise as a tool with potential to unlock actionable feedback from journal entries, and aid in detecting patterns of thought and behavior. However, it is very much still in a nascent phase and needs further testing on a greater userbase. Next step will be offering it to friends or family and receiving their feedback on its output. In this phase I will need to focus on any nonsensical or potentially harmful feedback provided.

From that point the technology will need to be deployed, either in website or app format. Then, monetization will become necessary to pay for the servers. The path here would be to offer tiered subscription packages (after a free trial period). Through tapping into a user revenue stream, the goal will be to continue to upgrade and enhance the model with different tones, and

“personalities” the user may interact with.

## References:

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Chat Journal is an online platform that offers AI-powered chatbots for journaling and selfreflection purposes. The website provides users with a user-friendly interface to engage in conversations with their personal chatbot, which helps them record their thoughts, emotions, and experiences. The chatbot utilizes natural language processing and machine learning algorithms to understand and respond to user inputs, making the journaling experience more interactive and engaging.

The website also offers various features and tools to enhance the journaling experience, such as prompts, reminders, and the ability to customize the chatbot's personality. Additionally, Chat Journal provides users with data analytics and insights based on their journal entries, allowing them to gain a deeper understanding of their emotions, patterns, and personal growth over time.

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Appendix:

```
In [1]: import openai import
```

```
    pandas as pd from docx
```

```
import Document
```

```
# Load the complete diary of Anne Frank document = Document("Anne-  
Frank-The-Diary-Of-A-Young-Girl.docx")
```

```
# Extract paragraphs from the document paragraphs = [para.text for para in  
document.paragraphs if para.text.strip() != ""]
```

```
# Convert the paragraphs to a DataFrame
```

```
AnneFrank = pd.DataFrame(paragraphs, columns=['Text'])
```

```
#print(df.head()) openai.api_key =
```

```
'Your API Key Here'
```

```
def analyze_journal_entry(journal_entry):    response
```

```
= openai.Completion.create(    engine="text-
```

```
davinci-003",    prompt=journal_entry,
```

```
temperature=0.5,    max_tokens=100
```

```
)
```

```
    return response.choices[0].text.strip()
```

```
feedback = analyze_journal_entry(journal_entry) print(feedback)
```

```
journal_entry = "analyze the content in 'AnneFrank' as though you were a mental health professional, providing 1 actionable insights they may take in order to improve their situation, while referencing the specific instance where this was identified."
```

1. As a mental health professional, one actionable insight I can provide to Anne

Frank is to practice self-compassion. This can be seen in her diary entries when she expresses her feelings of guilt and self-criticism for not being able to control her emotions. It is important for Anne to understand that it is ok to have these feelings and to be kind to herself during difficult times.

2 Mental health professionals may take the actionable insight of providing Anne Fra

nk with a safe and secure environment to improve her situation. This was identified in the book when Anne writes, "In spite of everything I still believe that people are really good at heart." (Anne Frank, The Diary of a Young Girl). This statement reflects a desire for a safe and secure environment, which is an actionable insight that mental health professionals can provide to improve Anne's situation.

```
In [2]: #sylvia plath document2 =
```

```
Document('unabjournsplath.docx') # Extract paragraphs
```

```
from the document
```

```
paragraphs = [para.text for para in document2.paragraphs if para.text.strip() != ""]
```

```
# Convert the paragraphs to a DataFrame
```

```
feedback = analyze_journal_entry(journal_entry) print(feedback)
```

```
sylviaplath = pd.DataFrame(paragraphs, columns=['Text'])
```

```
journal_entry = "analyze the content in 'sylviaplath' as though you were a therapist,  
providing actionable feedback on three to five ways they may improve their situation,  
while referencing the specific instance where this was identified."
```

1. SylviaPlath should focus on developing healthier coping strategies to deal with her emotions. This could include activities such as journaling, deep breathing, yoga, or mindfulness. She should also make sure to take time for herself and engage in selfcare practices such as getting enough sleep, eating healthy, and exercising regularly.
2. SylviaPlath should work on her communication skills. She should practice being assertive and expressing her needs and feelings in a clear and direct way.

```
In [3]: journal_entry2 = 'Analyze the following journal entry as though you were a therapist,  
providing actionable feedback on ways to improve their situation and mental health.  
Today I lost my job, I'm not sure what I will do for money now' feedback2 =  
analyze_journal_entry(journal_entry2) print(feedback2)
```

.  
  
It sounds like you are feeling overwhelmed and uncertain about the future. It is understandable to feel this way when something unexpected like losing your job happens. I suggest that you take some time to process your emotions and take care of yourself. Make sure to get enough sleep, eat healthy meals, and engage in activities

that bring you joy. Additionally, it is important to reach out for support from family and friends.

When it comes to finding a new job, it is important to (Cuts off)

```
In [6]: journal_entry3 = 'Analyze the following journal entry as though you were  
a longtime best friend, providing supportive feedback. Today I had my first child. It  
has been the happiest day of my life, and my heart is overflowing. I'm nervous about  
the upcoming changes.'
```

```
feedback3 = analyze_journal_entry(journal_entry3)
```

```
print(feedback3)
```

Congratulations on the birth of your first child! It is certainly a momentous occasion and one that deserves to be celebrated. It is understandable that you are feeling a bit overwhelmed and uncertain about the upcoming changes that come with being a parent. You are not alone in this feeling. It is normal to feel a bit apprehensive when you are entering a new phase of life. Talk to other parents, read books, and take advantage of resources available.