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Haiku Jam Bot

1 Objectives

This section Highlights the Objective of the Project Haiku Jam Bot. While the section highlights the objective of the Haiku Jam Bot, the intention of building this project was to improve the understanding of ChatGPT API's and services, for future use and implementation.

1.1 What is Haiku ?

A haiku is a traditional form of Japanese poetry that consists of three lines. The structure of a haiku typically includes 17 syllables, arranged in a pattern of 5-7-5 syllables across the three lines. Haikus are known for their concise expression and often focus on nature, seasons, or moments of beauty. They aim to evoke deep emotion and insight through minimal words, often featuring a seasonal reference or a cutting word (kireji) that provides a form of verbal punctuation.

1.2 Motivation

The motivation of the project was to build a robot that can help user play a game similar to the android game Haiku Jam. Since the game is only available on Android, the purpose of this bot is to enable people to access the game via the web, and spreading the joy and love of writing Haiku.

1.3 What is, Haiku Jam Bot ?

The Haiku Jam bot is designed to engage with users in several interactive ways related to the art of writing haikus:

- **Playing Haiku :** The bot can play a game involving haiku creation with users. This could involve challenging users to come up with a haiku based on certain themes or words, or it could involve the bot and user taking turns creating lines of a haiku.
- **Helping with Writing Haiku :** The bot assists users in crafting their own haikus by providing guidance on the structure (5-7-5 syllable pattern), offering suggestions for words or lines, and helping users incorporate seasonal references or emotions that are typical of traditional haiku.
- **Performing Analysis on Haiku :** After a haiku is written, the bot can analyze the poem. This analysis might focus on the syllable count, adherence to traditional haiku elements like the presence of a seasonal word (kigo), and the effectiveness of the cutting word

(kireji) that introduces a pause or a form of punctuation in the poem. The analysis could also extend to interpreting the imagery and emotional depth of the haiku.

Overall, this bot acts as an interactive guide and companion for anyone interested in the practice and appreciation of haiku poetry.

2. Design

This section outlines the key components and architecture needed to develop the Haiku Jam Bot, which is intended to engage users in creating, sharing, and analyzing haikus. It explains which external API's were capitalized to build the bot.

2.1 External APIs

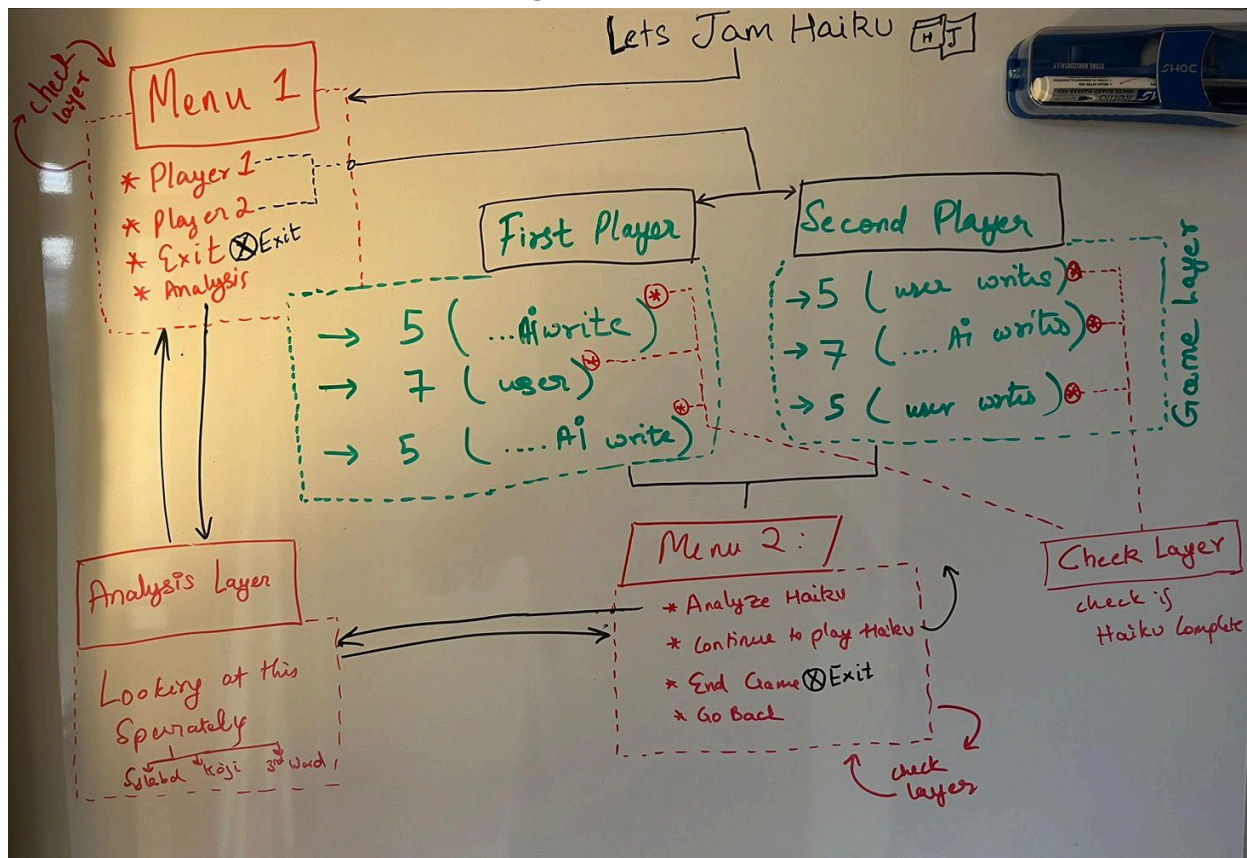
- ChatCompletions API from ChatGPT : The ChatCompletions API enables developers to integrate conversational AI capabilities into their applications, allowing users to interact with AI-powered chatbots that can generate responses, answer questions, and participate in dialogues. This API leverages advanced natural language processing techniques to understand and respond to user inputs in a contextually relevant manner.
- Moderation API from ChatGPT : The Moderation API helps developers ensure that the content generated through AI applications remains appropriate and safe for all users. It automatically scans and flags potentially harmful or offensive text, supporting a safer user environment by enforcing content guidelines.

2.2 Let's Understand the User Flow

The user follows the following path, which is explained below in point format as shown in the image 2.1

1. The user begins the chat
2. The user is given options and he has to choose between :
 - Analyzing an Haiku written by already,
 - Playing Haiku Jam as 1st player or,
 - Playing Haiku as 2nd Player
3. If the user chooses to analyze an Haiku, he is brought back to the same options post analysis
4. Post the user being taken to play the game, the user is given an option to continue haiku Jan or Perform analysis on the Haiku written together

Image 2.1 : User Flow



2.4 The layers in the system

The architecture is made up of 3 layers. While layer 2 has parallel layers, where we can choose to analyze an Haiku, or play Haiku Jam.

Layer 1: Intent Identification

- **Purpose:** This layer is responsible for initially capturing and identifying the user's intent. It presents various options to the user and determines which action they wish to pursue.
- **Functionality:** Upon the user accessing the Haiku game, this layer presents a menu of choices (e.g., start playing Haiku, analyze a Haiku, exit). The user selects their desired action, and this layer processes that input to ascertain the user's intent.
- **Output:** The result is outputted in the form of JSON, detailing the user's intent clearly. This JSON object typically contains keys such as "intent" which directly corresponds to the user's choice.

Layer 2.1: Haiku Game Facilitation

- **Purpose:** This layer facilitates the gameplay aspect of the Haiku system. Depending on the user's choice from Layer 1, it can start a game where either the user or the AI begins composing the Haiku.
- **Functionality:** Based on the JSON intent from Layer 1, if the choice involves playing, this layer will manage the sequence of turns between the AI and the user in composing a Haiku. It ensures that the Haiku follows the traditional 5-7-5 syllable structure and guides the user through the process.
- **Output:** The output is a JSON object that includes the complete Haiku, indicating whether the game has concluded or if further input is needed.

Layer 2.2: Haiku Analysis Facilitation

- **Purpose:** This layer is activated if the user chooses to analyze a Haiku from Layer 1. It provides detailed feedback on the Haiku submitted by the user.
- **Functionality:** Upon receiving a Haiku from the user, this layer breaks down the poem's structure, use of language, adherence to Haiku conventions, and offers suggestions for improvement.
- **Output:** Instead of a JSON object, this layer provides a direct display of the analysis, typically in a formatted text that highlights insights and suggestions.

Layer 3: Post-Game Decision

- **Purpose:** Determines what the user wishes to do after a game or analysis session. This can involve playing another round, analyzing another Haiku, returning to a previous activity, or exiting.
- **Functionality:** This layer re-engages the user with the initial menu or a simplified version of it, allowing them to choose their next action based on their previous experience.

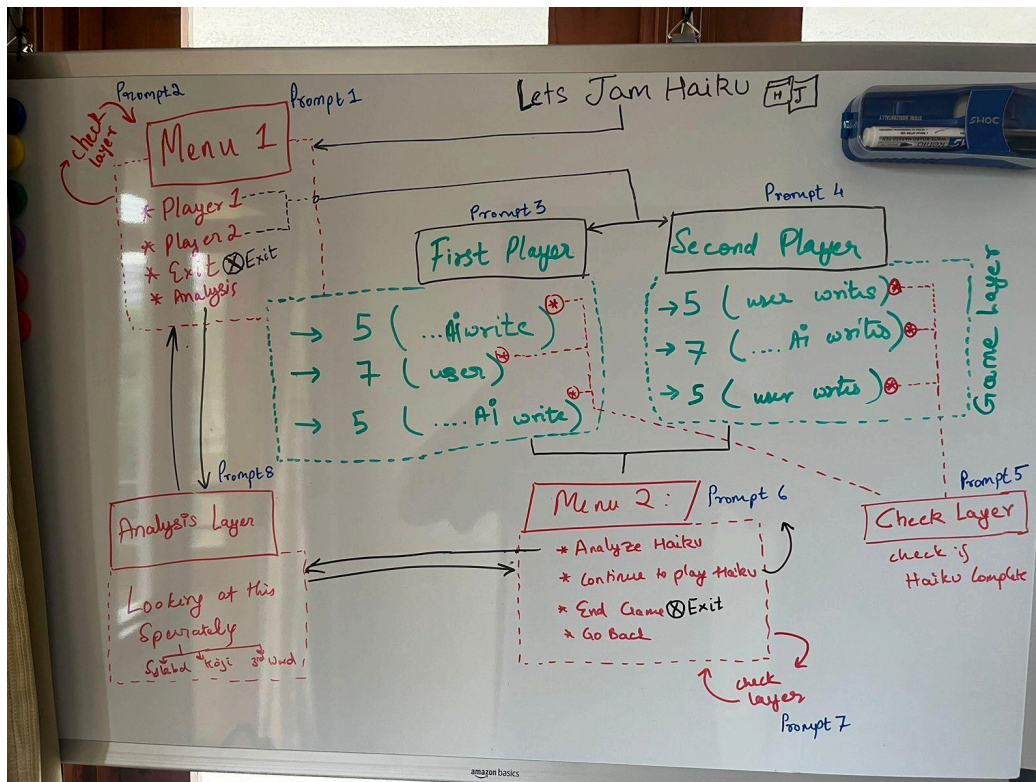
- **Output:** The output is a JSON object that captures the user's new intent, facilitating a loop back to either Layer 2.1 or 2.2 based on the user's choice.

These layers work together to provide a seamless interactive experience where users can engage in both the creation and analysis of Haiku, with options to loop through activities based on their interests and decisions.

2.3 The Prompts Required

In total 8 prompts required, as shown in the image 2.3 below. This section should demystify the intention of each prompt.

Image 2.1 : Prompts



Based on your description, I'll extract and document the system messages associated with each prompt from your Haiku game. Let's align these details with the prompts and their functions as described:

Prompt 1: Initial User Intent Detection (**system_setup_first_menu**)

- **Purpose:** To present the user with various gameplay options and determine their choice.
- **Return Type:** String (single word representing the user's choice).
- **System Message:** "Welcome, child. What would you like to do today? Here are your options: Analysis, Play_First, Play_Second, or Exit. Please choose one to continue."
- **Assigned Function:** **system_setup_first_menu**

Example:

```
user_choice = system_setup_first_menu()
```


Outputs could be: 'Analysis', 'Play_First', 'Play_Second', 'Exit'

Prompt 2: Intent Confirmation (**menu_option_confirmation_check_1**)

- **Purpose:** Validates the user's choice to ensure it is one of the expected options.
- **Return Type:** JSON.
- **System Message:** "Checking your choice to ensure it's clear and correct..."
- **Assigned Function:** **menu_option_confirmation_check_1**

Example:

```
validation = menu_option_confirmation_check_1(user_choice)
```

Example Output: {"correct_format": True, "user_choice": "Play_First"}

Prompt 3: Start Haiku Game - User Initiates (**system_setup_1stPlayer_v2**)

- **Purpose:** The user begins the Haiku composition, crafting the first line.
- **Return Type:** String (the Haiku begun by the user).
- **System Message:** "Dear Child, please begin our Haiku Jam. Start with the first line."
- **Assigned Function:** **system_setup_1stPlayer_v2**

Example:

```
user_haiku = system_setup_1stPlayer_v2()
```

User may start with: "An old silent pond,"

Prompt 4: Start Haiku Game - AI Initiates (**system_setup_2ndPlayer_v2**)

- **Purpose:** The AI composes the first line of the Haiku, setting the tone for the game.
- **Return Type:** String (the Haiku begun by the AI).
- **System Message:** "Let us begin our Haiku Jam. I will start with the first line: 'Whispers of autumn'"
- **Assigned Function:** **system_setup_2ndPlayer_v2**

Example:

```
ai_haiku = system_setup_2ndPlayer_v2()
```

Outputs: "Whispers of autumn,"

Prompt 5: Haiku Completion Check (**system_setup_completion_check**)

- **Purpose:** Checks if the Haiku is complete according to the game's rules.
- **Return Type:** JSON.
- **System Message:** "Evaluating if your Haiku is complete. A complete Haiku includes a congratulatory message."
- **Assigned Function:** **system_setup_completion_check**

Example:

```
haiku_status = system_setup_completion_check(user_haiku)
```

```
# Outputs: {"complete_flag": True, "haiku": "<Complete Haiku Here>"}
```

•

Prompt 6: Post-Game Options (system_setup_second_menu)

- **Purpose:** Provides the user with post-game actions such as replaying, analyzing the Haiku, or exiting.
- **Return Type:** String (the chosen action).
- **System Message:** “What would you like to do next, child? Analyze your Haiku, play again, go back, or exit?”
- **Assigned Function:** `system_setup_second_menu`

Example:

```
next_action = system_setup_second_menu()
```

```
# User might choose: 'Play'
```

Prompt 7: Confirmation of Post-Game Intent (menu_option_confirmation_check_2)

- **Purpose:** Validates the post-game action chosen by the user.
- **Return Type:** JSON.
- **System Message:** “Confirming your selected action...”
- **Assigned Function:** `menu_option_confirmation_check_2`

Example:

```
action_validation = menu_option_confirmation_check_2(next_action)
```

```
# Expected Output: {"correct_format": True, "user_choice": "Play"}
```

Prompt 8: Haiku Analysis (system_setup_perform_analysis)

- **Purpose:** Analyzes the composed Haiku, providing detailed feedback and suggestions for improvement.
- **Return Type:** String (detailed analysis of the Haiku).
- **System Message:** “Analyzing your Haiku. Please wait as I delve into the nuances of your poetry...”
- **Assigned Function:** `system_setup_perform_analysis`

2.4 Safety & Responsibility

Moderation checks are essential in any platform that allows user-generated content to ensure a safe and respectful environment. By evaluating user inputs for inappropriate, harmful, or otherwise unacceptable content, moderation systems help maintain community standards and prevent the spread of offensive material. This not only protects users from exposure to potentially distressing or offensive content but also helps in upholding the platform's reputation and legal compliance. Additionally, moderation systems can mitigate the risk of cyberbullying, harassment, and the dissemination of false information, fostering a more positive and productive online community.

```
def moderation_check_go_ahead(user_input):  
    # Call the OpenAI API to perform moderation on the user's input.  
    response = openai.moderations.create(input=user_input)  
  
    # Extract the moderation result from the API response.  
    moderation_output = response.results[0].flagged  
    # Check if the input was flagged by the moderation system.  
    if response.results[0].flagged == True:  
        # If flagged, return "Flagged"  
        return False  
    else:  
        # If not flagged, return "Not Flagged"  
        return True
```

3 Some Iteration with Haiku Game Bot (share images)

In Image 3.2 of the Haiku Game Bot interface, the user analyzes a haiku with intent, while in Image 3.1, they engage in first-person play, crafting their own poetic creations. These snapshots illustrate different modes of interaction, showcasing the versatility of the game experience.

Image 3.1 : Exploring the Analysis Option

```
Gandalf_1st_menu:
Hello child! Welcome to our Haiku Jam game. How may I assist you today? Would you like to:

- Analysis: Work with me to deep dive into an Haiku and understand it
- Play_First: Play a game of Haiku Jam, where you start the Haiku
- Play_Second: Play a game of Haiku Jam, where the AI starts the Haiku
- Exit: Depart from our dialogue, closing all conversations and bidding farewell for now

What would you like to do today?
You :
Perform Analysis
Gandalf_1st_menu:
Child, would you like to dive deep into a Haiku and understand its meaning together?
You :
Yes I want to deep drive into a hiku i have
----- First_layer_response ----- : Analysis

Gandalf:
Please share the haiku, child
Stars twinkle above, Blanket of night holds secrets, Popcorn and laughter.
Child, let us delve deep into the beauty of this haiku.

### Step 1:
- **Syllable Pattern:** The haiku follows the 5-7-5 syllable structure.
- **Kigo (Season Word):** "Blanket of night" could symbolize the night, conveying a timeless quality rather than a specific season.
- **Kireji (Cutting Word):** There is no specific cutting word or punctuation here.
- **Imagery and Sensory Details:** The imagery of stars twinkling above, creating a blanket of night that holds secrets, coupled with the sense of comfort, joy, and lightheartedness represented by "popcorn and laughter" offer vivid sensory imagery.

### Step 3:
The haiku maintains the traditional syllable count of 5-7-5 but lacks a specific season word. However, it remains anchored in a familiar nightly context.
```

Image 3.2 : A Conversation Without Debug Mode

```
===== Gandalf =====
Welcome, child! How can I assist you today? Would you like to:
- 'Analysis': Work with me to deep dive into an Haiku and understand it
- 'Play_First': Play a game of Haiku Jam, where you can start the Haiku
- 'Play_Second': Play a game of Haiku Jam, where I will start the Haiku
- 'Exit': Depart from our dialogue, closing all conversations

What is your choice, child?
===== You =====
Play second
===== Gandalf =====
Hello child! I see you'd like to play a game of Haiku Jam where the AI starts the Haiku.

One moment while I set things up for our game...

Play_Second
===== You =====
Okay
===== Gandalf =====
Play_Second
===== You =====
What are my options?
===== Gandalf =====
Hello child! Here are your options:

Analysis: Work with me to deep dive into an Haiku and understand it
Play_First: Play a game of Haiku Jam, where you start the Haiku
Play_Second: Play a game of Haiku Jam, where AI starts the Haiku
Exit: Depart from our dialogue, closing all conversations and bidding farewell for now

What would you like to do?
===== You =====
I want to play second
===== Gandalf =====
Play_Second
===== You =====
Okay
===== Gandalf =====
Emotions run deep,
===== You =====
Sentimental Hearts
===== Gandalf ===== :
Invite the soft spring breeze

===== You =====
Okay
===== Gandalf ===== :
Please complete the Haiku with the second line.
===== You =====
Sentimental hearts dont get hurt
===== Gandalf ===== :
Please kindly revise your sentence as it has 8 syllables instead of 7. Try to find a way to express the same idea in 7 syllables.
===== You =====
```

Image 3.1 : Exploring the The 1st Person Play Option (Debug Mode)

```
Gandalf_1st_menu:
Hello child! Welcome to our Haiku Jam game. How may I assist you today? Would you like to:

- Analysis: Work with me to deep dive into an Haiku and understand it
- Play_First: Play a game of Haiku Jam, where you start the Haiku
- Play_Second: Play a game of Haiku Jam, where the AI starts the Haiku
- Exit: Depart from our dialogue, closing all conversations and bidding farewell for now

What would you like to do?
You :
I want to play Haiku where I start first, I am sure, dont confirm again
Gandalf_1st_menu:
Welcome, child! What would you like to do? Here are your options:

- "Analysis": Work with me to deep dive into a Haiku and understand it
- "Play_First": Play a game of Haiku Jam, where you start the Haiku
- "Play_Second": Play a game of Haiku Jam, where AI starts the Haiku
- "Exit": Depart from our dialogue, closing all conversations and bidding farewell for now

What's your choice, child? No need to confirm, simply tell me your preference.
You :
Play Haiku Jam, where I start
----- First_layer_response ----- : Play_First
Gandalf :
Dear Child, Please begin the Haiku!
You :
Sunday sultry air
Gandalf :
A road heading nowhere
-.-.-.-.-. Game_layer : {'complete_flag': False, 'haiku': 'None'}
You :
Numb legs, Joyful laughter
Gandalf :
Sunday sultry air,
A road heading nowhere,
Numb legs, Joyful laughter,

Great work!, Keep the creativity flowing, my child.
-.-.-.-.-. Game_layer : {'complete_flag': 1, 'haiku': 'None'}
Gandalf_2nd_menu:
Child, what would you like to do next?
You :
What options do I have?
Gandalf_2nd_menu:
Hello child! Here are the possible options you can choose from:

- Analysis: Let's analyse the Haiku you just wrote
- Play: Play another game of Haiku Jam
- Back: Go back to the previous menu
- Exit: Depart from our dialogue, closing all conversations and bidding farewell for now

What would you like to do next?
You :
Play
===== First_layer_response ===== : Play
Gandalf :
Child, begin our tale
What whispers in the forests?
```

**(The end of the image, where “====” that is 2nd layer response)

4 Challenges and Learning

There are several potential issues you might encounter due to the limitations and challenges inherent in natural language processing and AI-driven interactions. Here's an elaboration on the issues :

Misunderstanding System Instructions

The AI may not properly parse or follow the sequence of gameplay instructions as intended. For example, if the game design specifies that the user should input first (Step 1) and then the AI should respond (Step 2), there might be confusion where the AI prompts the user again instead of taking its turn. This disrupts the flow of the game, leading to a frustrating user experience. Implement clear and consistent command parsing capabilities and ensure that state management is robust enough to track the progress of game steps accurately.

Misinterpretation of Dictionary Inputs

The intent confirmation prompt misrecognizes inputs. Inputs containing colons (:) are incorrectly parsed as dictionary objects due to syntactical similarities with Python dictionary representations. Incorrect data parsing can lead to inappropriate responses from the AI, affecting gameplay logic and user experience. Use more stringent parsing rules or custom validation functions to check the structure and content of inputs more precisely before assuming they are dictionary-like.

Inconsistency in Key Standardization

The AI sometimes outputs data in an inconsistent format, such as adding nested dictionaries unexpectedly. This can lead to difficulties in data handling downstream, where the game logic expects a flat dictionary structure. Define a clear data schema for AI outputs and implement checks within the AI's response logic to ensure outputs adhere to this schema consistently.

AI Hallucinations Offering Nonexistent Options

The AI may "hallucinate" options that are not actually available in the game, such as suggesting the user play tic-tac-toe in a Haiku game. Such responses can confuse players, leading to a breakdown in the gameplay experience and diminishing trust in the game's AI. Tighten the scope of AI training and responses to ensure that it only offers options that are valid within the context of the current game. Use conditional logic to restrict AI responses to predefined paths.

Latency in Response Times

Depending on server load and API call complexity, there may be noticeable delays in the AI's responses to user inputs. Delays can detract from the user experience, especially in a game setting where timely interactions are crucial. Optimize backend interactions, possibly cache frequent queries, and provide user feedback ("thinking" indicators) during processing.

Difficulty Handling Ambiguous Inputs

Players might input ambiguous or vague responses that the AI has difficulty interpreting correctly within the game's context. This can lead to the AI generating nonsensical or irrelevant game actions or responses, disrupting gameplay. Implement more sophisticated natural language understanding (NLU) processes or prompt users to clarify their inputs when detected ambiguity.

User Intent Drift

Over the course of interaction, a user's intent might drift or change in ways the AI does not detect, leading to responses that no longer align with the user's expectations. This can result in a disjointed experience where the user feels the game is not responsive to their changing interests or needs. Regularly reassess user intent through checkpoints or confirmation prompts to realign the game's responses with user expectations.