

Language Learning AI Tutor Assistant App: LightTalk

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INTRODUCTION

LightTalk is an AI chatbot which lets users first specify information about themselves including the language they want to learn, their experience in the language, points for improvement, their goals such as learning more vocabulary or improving reading. LightTalk provides suggestions on exercises that may aid them in their language-learning journey. Various learning topics such as conversation practice, reading comprehension, pronunciation practice, or vocabulary practice produce different types of exercises. The assistant receives feedback from the user on how easy or difficult they found the exercise to be and analyzes that data to assess the effectiveness of the chatbot and tailor improved responses for the user's skill level.

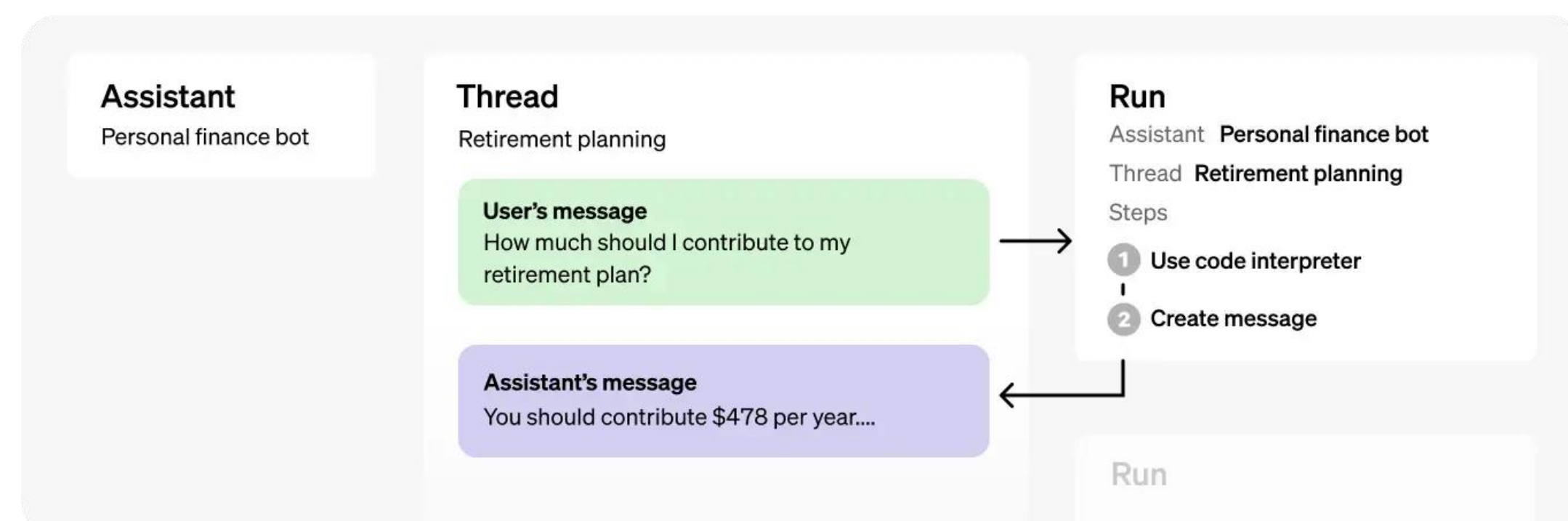
OBJECTIVES

As a child of immigrants who was never taught my heritage language, I understand the unique challenges faced by individuals navigating through multiple languages and cultures. I hope to provide individuals a safe and supportive environment to help their journey in reclaiming their linguistic identities and bridging communication gaps through generations. To overcome barriers to language-learning to people of all ages, this app allows learning resources to become more accessible, personalized, and empowering regardless of one's previous experience or background with language-learning.

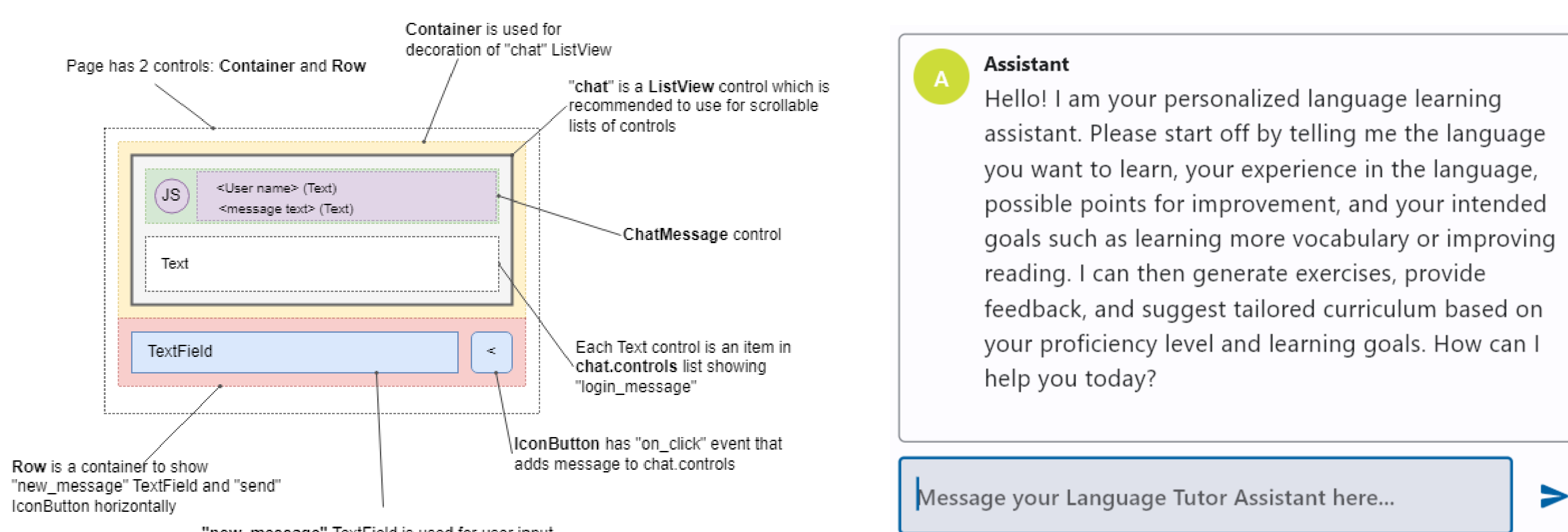
METHODOLOGY

Materials: Python, Flet, OpenAI Assistant API, Visual Studio Code

1. Utilize the OpenAI Assistant API to create an Assistant incorporating a base model, instructions, and context documents.



2. Engineer and define custom instructions for the language-learning tutor Assistant, identifying topics for user assistance on their language-learning journey.
3. Include instructions for tracking user language proficiency throughout conversation and providing constructive feedback.
4. Implement LightTalk Assistant into a multi-platform app using Flet, a framework powered by Flutter. The provided Python script utilizes the Flet library to create a chat interface for the language-learning assistant.



Overview of Program Methodology:

1. Page Setup: Set up page title and alignment.
2. Chat Window and User Input Field: Create ListView for chat window and TextField for user input.
3. Joining the Chat Function: Define function to handle user joining, send welcome message.
4. Welcome Dialog: Create AlertDialog to welcome user with join function trigger.
5. Language Tutor Assistant Creation: Instantiate TutorAssistant class for assistant's functionality.
6. Send Message Function: Define function to handle user message events, process responses, and update chat window.
7. Page Content Addition: Add chat messages and re-enable input field for the page.
8. This methodology aims to provide a user-friendly interface for interacting with the language-learning assistant, offering clear prompts and responses. Utilizing classes for messages and chat messages allows for efficient management and display of chat content.

RESULTS

The chatbot suggests a personalized curriculum based on the language the user wants to learn. This curriculum is meticulously designed to assist the user in learning the language efficiently, taking into account their individual learning preferences and progress. Users are provided with a variety of interactive exercises aimed at enhancing language proficiency. These exercises are thoughtfully crafted to be engaging and enjoyable, encouraging active participation and making the learning process more dynamic and effective. The chatbot effectively tracks the user's language proficiency through conversation history. This feature enables users to monitor their progress over time, offering insights into their strengths and areas for improvement. Furthermore, the chatbot utilizes this data to adapt the curriculum and exercises according to the user's evolving skill level, ensuring a tailored learning experience. During experimentation, challenges arose in accessing and displaying user and assistant messages separately on the chat page, which required the creation of specialized functions to extract and distinguish message content. Additionally, crafting appropriate responses for language-learning prompts posed a challenge, necessitating precise formulation of instructions to ensure effective user engagement and assistance.

You
Hi, I'm new to Spanish and have no prior experience. I would like to have the ability to travel to Mexico and do things such as ask for directions, order food, and check into my hotel. Can you help me get started?

Assistant
¡Hola! (Hello!) Welcome to the world of Spanish! To get you started on your language learning journey, let's begin with some basic vocabulary and phrases that will be helpful for your travel goals in Mexico.

First, let's start with some essential words and phrases for asking for directions:

Vocabulary:
- Direcciones (Directions)
- Calle (Street)
- Derecha (Right)
- Izquierda (Left)
- Adelante (Straight)
- Al lado de (Next to)

Phrases:
1. ¿Dónde está el baño? (Where is the bathroom?)
2. ¿Dónde está la estación de metro? (Where is the subway station?)
3. ¿Cómo llego a la playa? (How do I get to the beach?)

Now, let's move on to ordering food:

Message your Language Tutor Assistant here... ➤

You
Give me a brief lesson on Spanish conjugations.

Assistant
Of course! In Spanish, verbs change their endings to indicate who is performing the action, such as "I eat" vs. "he eats." This is called conjugation. There are three common verb endings in Spanish: -ar, -er, and -ir. Let's take a look at how they are conjugated in the present tense using the verb "hablar" (to speak), "comer" (to eat), and "vivir" (to live) as examples.

Here are the present tense conjugations for regular verbs ending in -ar:

- Yo (I) hablo (I speak)
- Tú (You, informal) hablas (You speak)
- Él/Ella/Usted (He/She/You formal) habla (He/She/You speak)
- Nosotros/Nosotras (We) hablamos (We speak)
- Vosotros/Vosotras (You all, informal - used in Spain) habláis (You all speak)

Message your Language Tutor Assistant here... ➤

After filling in the blanks, I'll provide you with feedback on your answers.

You
Now give me practice exercises for conjugation based off that lesson.

Assistant
Great! Let's practice conjugating the verbs "hablar" (to speak), "comer" (to eat), and "vivir" (to live) in the present tense. Please conjugate the verbs to match the subjects provided.

1. Yo (hablar)
2. Tú (comer)
3. Él/Ella/Usted (vivir)
4. Nosotros/Nosotras (hablar)
5. Vosotros/Vosotras (comer)
6. Ellos/Ellas/Ustedes (vivir)

After filling in the blanks, I'll provide you with feedback on your answers.

Message your Language Tutor Assistant here... ➤

After filling in the blanks, I'll provide you with feedback on your answers.

You
1.hablo. 2.comes. 3.vive 4.hablamos 5.comeis 6.viven

Assistant
Excellent job! You conjugated the verbs perfectly according to the subjects. Your answers are all correct:

1. Yo hablo. (I speak.)
2. Tú comes. (You eat.)
3. Él/Ella/Usted vive. (He/She/You formal live.)
4. Nosotros/Nosotras hablamos. (We speak.)
5. Vosotros/Vosotras coméis. (You all eat - used in Spain.)
6. Ellos/Ellas/Ustedes viven. (They/You all formal live.)

Keep practicing verb conjugations to reinforce your understanding. If you have any more questions or would like to continue practicing, feel free to let me know!

Message your Language Tutor Assistant here... ➤

CONCLUSIONS

The implemented language-learning assistant successfully incorporates several key features including tailored curriculum, interactive exercises, and language proficiency tracking to enhance the user's learning experience. In future iterations, users could be enabled to attach files of their language courses for the chatbot to reference. Upon user request, the chatbot would then generate personalized lessons and exercises based on the provided text, offering users more tailored assistance in line with their current language-learning endeavors. This addition would enhance the adaptability and customization of the language-learning assistant, further optimizing the user experience.

ACKNOWLEDGEMENTS

- Flet - Creating realtime chat app in Python | Flet
- Ilan Bigio - Assistants API Overview (Python SDK) | OpenAI Cookbook
- OpenAI Assistants API
- Tobias Solis - 9 Ways to Use ChatGPT for Language Learning