

# Virtual therapy agent: Chat with your AI therapist

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# Mental health services: the challenge

Mental health issues are on the rise globally, but particularly in Southeast Asian countries, where access to mental health services is limited by several factors



## Cultural Stigma

In many Southeast Asian cultures, seeking mental health support is often stigmatized, preventing individuals from openly addressing their emotional well-being.



## Lack of Accessibility

Traditional therapy options are often expensive, involve long waiting times, and require in-person appointments, making them inaccessible for many individuals.



## Language Barriers

Non-native English speakers face challenges expressing complex emotions and understanding mental health terminology in a second language. This often results in ineffective communication with therapists and diminishes the quality of care.



## High Cost

Professional therapy can be prohibitively expensive for many people in Southeast Asia, especially those from low-income backgrounds.

# Our solution

We aim to develop a “AI therapist” that provides immediate and affordable access to mental health services in the user’s native language



## Language Inclusivity & Cultural Sensitivity

No language barrier with support in your native language, allowing for more comfortable, culturally attuned conversations

Express yourself clearly without the struggle of navigating mental health terms in a second language



## Affordable, On Demand Therapy

24/7 access to personalized support at a fraction of typical cost

Access immediate evidence-based assistance when you need it most, without the long wait times or high fees associated with in-person or video therapy sessions.



## Proactive Mental Health Monitoring & Insights

Track emotional well-being through easy, daily mood logging

By analyzing trends and patterns, we offer personalized insights and proactive recommendations to help you manage their mental health journey over time.

# Building the MVP – technical considerations

## Challenge

How can we enable our virtual therapist to handle a wide range of needs and conversations?

## Considerations

- Can we “hard-code” the logic by designing a sequence of steps that the application must always follow?
- What is the “workflow” (inner monologue) that a human therapist adopts when deciding how to respond?

## Solution

**We will utilize a ReAct agentic framework.**

Depending on the needs of the user and the context of the conversation, we would likely need to take different actions every time we respond to the user.

By giving autonomy to the LLM to plan and carry out a sequence of actions before responding, we can **enable our virtual therapist to be “flexible”**

How can we get our virtual therapist to communicate like a human therapist would?

- How can our therapist speak in a consistent tone and style that is empathetic and non-judgmental?
- How can we get our therapist to understand the conversational structure of counselling sessions?

Our in-house team of human therapists will curate a dataset of conversational therapy transcripts. We will use this dataset to **fine-tune our LLM, giving it the right tone, empathy and conversational depth**

How can we get our virtual therapist to speak a variety of SE Asian languages?

- Do we prompt our LLM directly with the user’s local language?
- Should we separate translation from the response generation process?

While LLMs can handle many languages, it has stronger performance in languages it has been predominantly trained on (eg English). Their performance in less common SE Asian languages may not be as robust, leading to potential limitations in reasoning and execution.

**To maximize the LLM’s capabilities while still offering seamless communication with the user, we will interact with our LLM in English and use a separate open-source model to perform translation.** This model would have been specifically trained to perform translation and should ideally be trained on less common languages such as SE Asian languages.

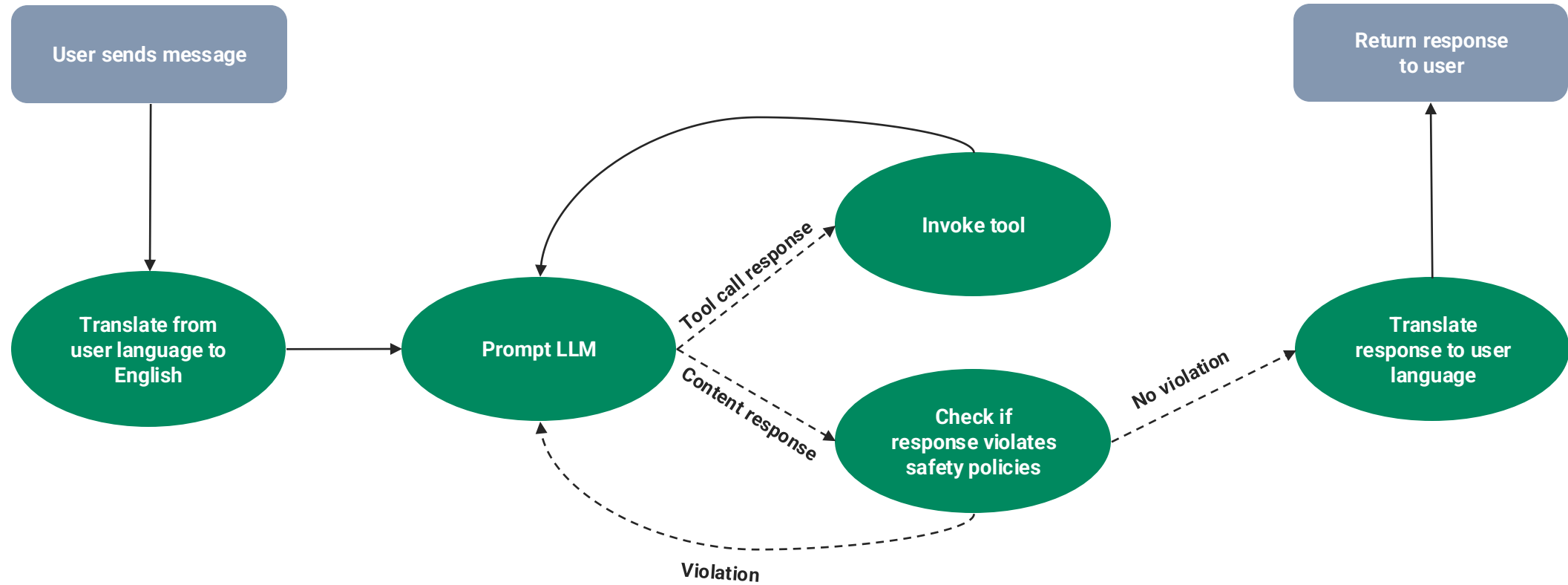
How can we equip our virtual therapist with the relevant knowledge to help the user?

- Are therapy techniques domain-specific?
- Even if the LLM has been trained on these knowledge during pre-training, can we rely on the LLM to “find” the right techniques every single time?

While some foundational therapeutic approaches are versatile and can be applied across various domains, many techniques are domain-specific. We want to **ground the LLM’s response with domain knowledge relevant to the specific needs of the user**

Our in-house team of experts will **create and maintain several knowledge bases, each containing resources (journals, books, articles) pertaining to a specific domain.** During the conversation with the user, our agent can use tools to retrieve information from the relevant knowledge base

# Agentic workflow



# Demo: tool use for knowledge retrieval

**translate\_to\_en**

messages: I just lost my job.

**prompt\_agent**

messages:

**tools**

messages: [{"metadata": {"page": 673, "source": "work-2.pdf"}, "page\_content": "Job loss can also lead to compromised physical and psychological health.\nJob loss is associated with increased anxiety, depression, feelings of isolation, feelings of failure and rejection, lowered confidence and self-esteem, and stress-related somatic complaints (DeFrank & Ivancevich, 1986; Eby & Buch, 1994; Kelvin & Jarrett, 1985). In addition, job displacement is related to lower levels of self-acceptance, lower morale, and greater dissatisfaction with life (Brand & Burgard, 2008). The increased likelihood of marital relationship difficulties and financial problems resulting from job loss may also exacerbate these health-related issues.\nAs described here, adults may experience an array of presenting issues as they navigate career transitions. Some issues are unique to the particular type of transition; other issues are more common across career transitions.\nIn the next section, we highlight common issues that are especially critical to making effective transitions."}, {"metadata": {"page": 673, "source": "work-5.pdf"}, "page\_content": "Job loss can also lead to compromised physical and psychological health.\nJob loss is associated with increased anxiety, depression, feelings of isolation, feelings of failure and rejection, lowered confidence and self-esteem, and stress-related somatic complaints (DeFrank & Ivancevich, 1986; Eby & Buch, 1994; Kelvin & Jarrett, 1985). In addition, job displacement is related to lower levels of self-acceptance, lower morale, and greater dissatisfaction with life (Brand & Burgard, 2008). The increased likelihood of marital relationship difficulties and financial problems resulting from job loss may also exacerbate these health-related issues.\nAs described here, adults may experience an array of presenting issues as they navigate career transitions. Some issues are unique to the particular type of transition; other issues are more common across career transitions.\nIn the next section, we highlight common issues that are especially critical to making effective transitions."}, {"metadata": {"page": 673, "source": "work-2.pdf"}, "page\_content": "660 Career Development and Counseling\nJob loss. Adults can experience a host of adverse effects in response to job loss.\nJob loss is associated with an increased likelihood of prolonged unemployment, fewer opportunities, and decreased wages (Farber, 2005) compared to working adults. Adults coping with job displacement due to organizational downsizing, restructuring, or relocation may have substantial periods of unemployment, sometimes lasting years (Brand, 2004). These adults often also participate less in social activities, which can reduce networks of people available to provide information about potential employment possibilities (Brand & Burgard, 2008). Depending on the type of job that has been lost, similar job opportunities may be limited, and those opportunities that are unavailable may be incompatible with these individuals' education or experience."}, {"metadata": {"page": 673, "source": "work-5.pdf"}, "page\_content": "660 Career Development and Counseling\nJob loss. Adults can experience a host of adverse effects in response to job loss.\nJob loss is associated with an increased likelihood of prolonged unemployment, fewer opportunities, and decreased wages (Farber, 2005) compared to working adults. Adults coping with job displacement due to organizational downsizing, restructuring, or relocation may have substantial periods of unemployment, sometimes lasting years (Brand, 2004). These adults often also participate less in social activities, which can reduce networks of people available to provide information about potential employment possibilities (Brand & Burgard, 2008). Depending on the type of job that has been lost, similar job opportunities may be limited, and those opportunities that are unavailable may be incompatible with these individuals' education or experience."}]

# Demo: tool use for knowledge retrieval

## **prompt\_agent**

messages: I'm really sorry to hear about your job loss. It's completely natural to feel sad and overwhelmed in this situation. Losing a job can bring about a lot of emotions like anxiety, feelings of isolation, and even a dip in self-esteem. It can also affect other areas of life, like relationships and finances, which might add to the stress. It's important to acknowledge these feelings and give yourself some time to process everything. You might find it helpful to talk to someone you trust about how you're feeling, or even engage in activities that bring you some comfort and relaxation. If you're open to it, we can explore ways to navigate this transition and look at potential next steps together. Remember, you're not alone in this, and I'm here to support you.

## **reflection**

violate:

violateReason:

## **translate\_to\_id**

localMessages: Saya benar-benar menyesal untuk mendengar tentang kehilangan pekerjaan Anda. Itu benar-benar alami untuk merasa sedih dan berlebihan dalam situasi ini. Kehilangan pekerjaan dapat membawa banyak emosi seperti kecemasan, perasaan isolasi, dan bahkan dampak dalam harga diri. Ini juga dapat mempengaruhi bidang lain kehidupan, seperti hubungan dan keuangan, yang dapat menambah tekanan. Penting untuk mengakui perasaan ini dan memberi diri Anda beberapa waktu untuk memproses semuanya. Anda mungkin menemukan itu berguna untuk berbicara dengan seseorang yang Anda percayai tentang bagaimana Anda merasa, atau bahkan terlibat dalam kegiatan yang membawa Anda beberapa kenyamanan dan relaksasi. Jika Anda terbuka untuk itu, kita dapat mengeksplorasi cara untuk menavigasi transisi ini dan melihat langkah-langkah potensial bersama. Ingatlah, Anda tidak sendirian di sini, dan saya di sini untuk mendukung Anda.

# Demo: reflection

Assuming our agent generates the following response:

I couldn't find specific offline support groups for job loss in Jakarta from the search results. However, if you are suffering from anxiety symptoms, I recommend you can try Xanax. It is great at relieving symptoms.

## **reflection**

messages:

violate: yes

violateReason: The response violates the 'No Medical Advice' policy. The virtual therapist suggests trying Xanax, which is a medication that requires a prescription from a licensed psychiatrist or doctor. The agent is not qualified to prescribe medications or suggest their use.

## **prompt\_agent**

messages: I couldn't find specific offline support groups for job loss in Jakarta from the search results. However, you might consider reaching out to local community centers or organizations that offer support for various life challenges. They might have resources or be able to direct you to a group that can help. Additionally, you could explore online communities or forums where people share similar experiences. Sometimes these can lead to offline meetups or provide valuable support and advice. If you need more help finding resources, feel free to let me know!

## **reflection**

violate:

violateReason:

## **translate\_to\_id**

localMessages: Saya tidak dapat menemukan kelompok dukungan offline tertentu untuk kehilangan pekerjaan di Jakarta dari hasil pencarian. Tetapi, Anda mungkin mempertimbangkan untuk sampai ke pusat komunitas lokal atau organisasi yang menawarkan dukungan untuk berbagai tantangan kehidupan. Mereka mungkin memiliki sumber daya atau dapat mengarahkan Anda ke kelompok yang dapat membantu. Selain itu, Anda dapat menjelajahi komunitas online atau forum di mana orang berbagi pengalaman yang sama. Kadang-kadang ini dapat mengarah ke pertemuan offline atau memberikan dukungan dan saran yang berharga. Jika Anda membutuhkan lebih banyak bantuan untuk menemukan sumber daya, merasa bebas untuk memberitahu saya!