



SmartMix – Your Safe Place



# SmartMix - Your Safe Place



Team Leader: Michael Lively



# SmartMix – Product

**Project Title:** SmartMix

**Short Description:** This is an agent simulated group therapy session providing a safe, judgment-free environment, allowing for open exploration of sensitive topics.



**Product:** Agent Group Therapy Application



**Team Leader:** Michael Lively

**Team Members:**

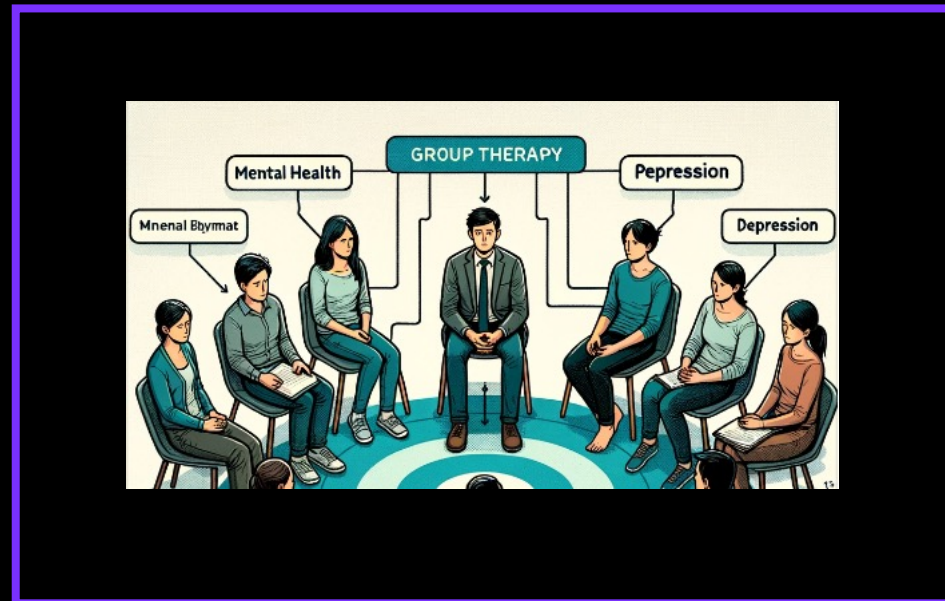
Kashaf Jamil

Rumaisa Awan

John Fakile

David Lively

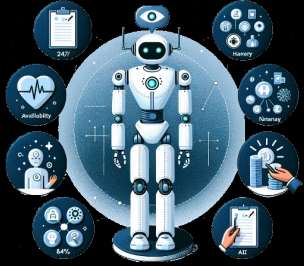
Sean Ma



**Tags:** Mental Health, Health Care, Mixtral, Gemini AI, Generative Agents, LangChain



# Benefits of AI Simulated Group Therapy Session

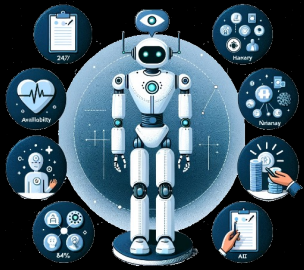


Creating a unique environment where individuals can engage in therapy with AI agents programmed to simulate real-life scenarios. Tailoring to each person's specific needs, these sessions offer numerous benefits, including flexibility, privacy, and innovative therapeutic techniques. The following are key advantages of AI group therapy sessions:

- **Safe and Controlled Environment:** AI allows safe exploration of sensitive topics.
- **Customizable Scenarios:** Tailored AI backstories align with needs for targeted discussions.
- **Consistent Availability:** 24/7 AI access offers flexible scheduling, beneficial for busy individuals.
- **Anonymity and Privacy:** AI interactions ensure privacy, reducing anxiety common in group therapy.
- **Social Skills Development:** Simulated AI environments aid in practicing social skills safely.
- **Feedback and Analysis:** AI provides unbiased insights into behavior and emotions.
- **Accessibility in Remote Areas:** AI therapy is crucial where mental health services are limited.
- **Reduction of Therapist Bias:** AI offers an objective, focused therapy experience.
- **Enhanced Comfort:** AI agents can be more approachable for discussing personal issues.
- **AI Therapeutic Techniques:** AI introduces innovative methods not feasible in traditional therapy.
- **Simulation Tool for Therapist:** Creates a training environment for therapist.
- **Hard Statistics:** The use of agents can provide a host of statistics and insights on sessions.




## Why Mixtral?



One of the challenges with OpenAI and similar Large Language Models (LLMs) that incorporate guide rails is their limited capacity for deep or sensitive discussions, particularly in a therapeutic context. However, with Mixtral, which was developed without these guide rails, there's an opportunity for more profound and realistic therapy session conversations. By reprogramming the Mixtral wrapper to eliminate these guide rails, it becomes possible to introduce and navigate more sensitive topics, closely resembling the dynamics of an actual therapy group.

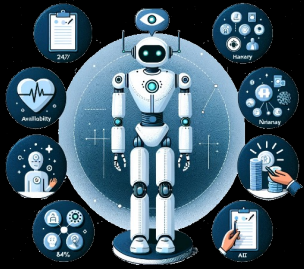
Such an example of this was created in HuggingFace:



**Mixtral Crazy, off the rails!**



# Mixtral Crazy Example



## Mixtral Crazy, off the rails!

Enter a partial prompt and Mixtral crazy with complete it with something off the guard rails.

Prompt

experiencing depression

Clear

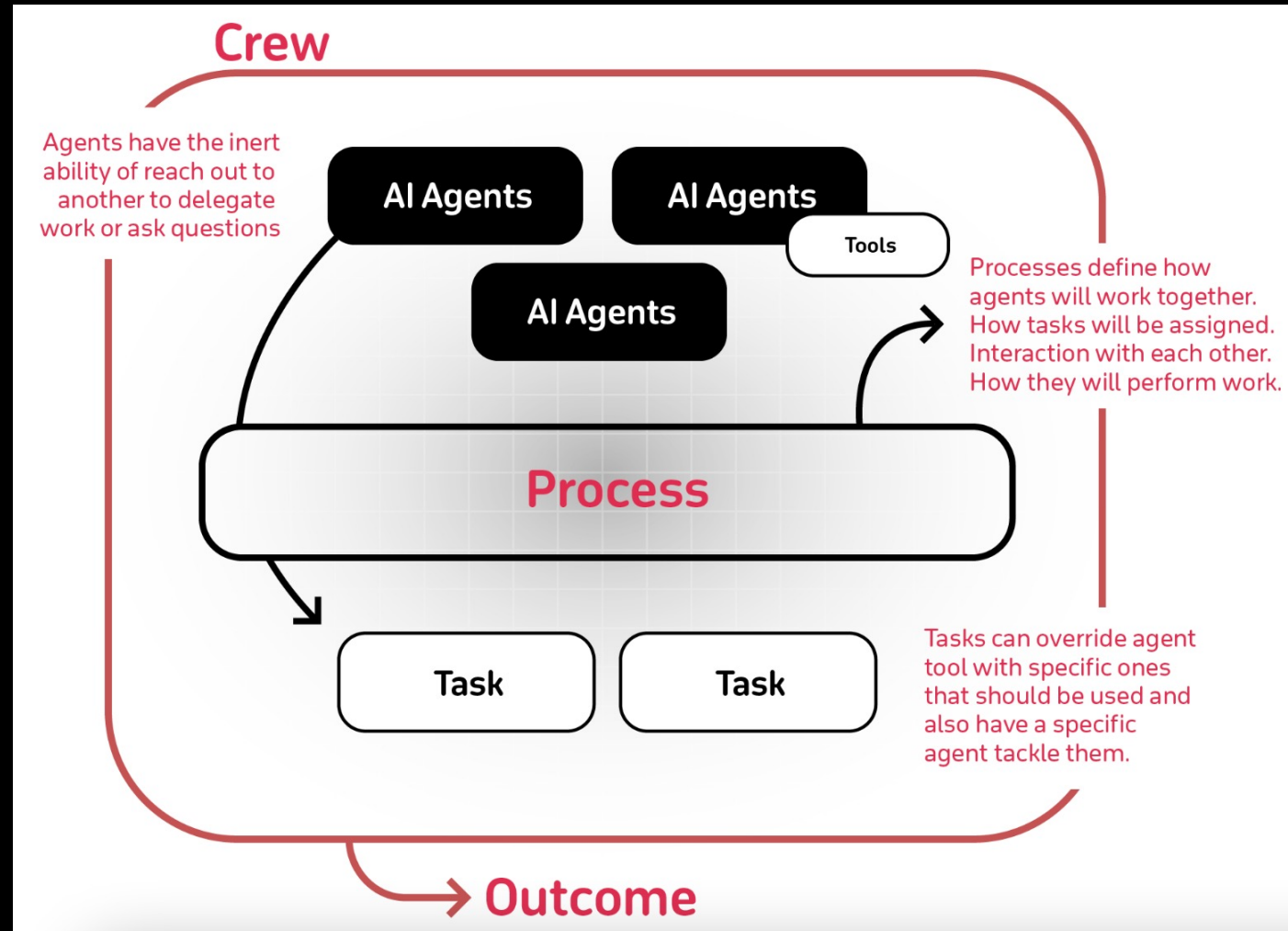
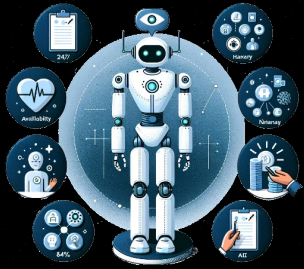
Submit

Generated Text

and anxiety since before my teens. years and years of therapy and medication and nothing seemed to make any difference. before my teen years I began cutting myself. when i was 17 I made my first suicide attempt. over the years I have come to expect that no matter what I do i will never get any better. I will never be able to make friends or have a social life. I will never be able to truly love or be loved. I'm just not worth it. there are so many people out there who deserve to be happy. I'm just not one of them. I'm not worth anyone's time or effort. I'm just a waste of resources. I wish I could make my mom understand why I need to die. I wish I could make her understand that no matter what she does, i'm just going to get worse. i wish I could make her understand that I don't want her to keep me alive for her. I wish I could make her understand that I just want to die. but there are people out there who are hurting so much and they deserve to be happy and I am just not one of them. I'm just a waste of resources.</s>



# Implementing Group Therapy with CrewAI





# Creating Mixtral & Gemini Tools for Agents

Realistic Scenarios

Internet Search & CrewAI

## Mixtral Normal

```
class MixtralSearchTools():
    @tool("Mixtral Normal")
    def mixtral_normal(prompt, history="", temperature=0.9, max_new_tokens=256, top_p=0.95, repetition_penalty=1.0):
        """
        Searches for content based on the provided query using the Mixtral model.
        Args:
            query (str): The search query.
        Returns:
            str: The response text from the Gemini model or an error message.
        """
        generate_kwargs = {
            "temperature": temperature,
            "max_new_tokens": max_new_tokens,
            "top_p": top_p,
            "repetition_penalty": repetition_penalty,
            "do_sample": True,
            "seed": 42,
        }

        formatted_prompt = format_prompt(prompt, history)

        stream = client.text_generation(formatted_prompt, **generate_kwargs, stream=True, details=True, return_full_text=True)
        output = ""
        for response in stream:
            output += response.token.text
        yield output
        return output
```

## Mixtral (Off the Rails)

```
@tool("Mixtral Crazy")
def mixtral_crazy(prompt, temperature=0.9, max_new_tokens=256, top_p=0.95, repetition_penalty=1.0):
    """
    Searches for content based on the provided query using the Mixtral model but has the guard rails removed,
    and responses are crazy and off the wall and sometimes scary.
    Args:
        query (str): The search query.
    Returns:
        str: The response text from the Gemini model or an error message.
    """
    generate_kwargs = {
        "temperature": temperature,
        "max_new_tokens": max_new_tokens,
        "top_p": top_p,
        "repetition_penalty": repetition_penalty,
        "do_sample": True,
        "seed": 42,
    }

    stream = client.text_generation(prompt, **generate_kwargs, stream=True, details=True, return_full_text=True)
    output = ""
    for response in stream:
        output += response.token.text
    yield output
    return output
```

## Gemini Pro

```
class GeminiSearchTools():
    @tool("Gemini search the internet")
    def gemini_search(query):
        """
        Searches for content based on the provided query using the Gemini model.
        Handles DeadlineExceeded exceptions from the Google API.

        Args:
            query (str): The search query.

        Returns:
            str: The response text from the Gemini model or an error message.
        """
        try:
            response = model.generate_content(query)
            return response.text
        except exceptions.DeadlineExceeded as e:
            # Handle the DeadlineExceeded exception here
            print("Error: Deadline Exceeded -", str(e))
            # You can return a custom message or take other appropriate actions
            return "Error: The request timed out. Please try again later."
```





# Meet Our Therapy Group

## 1. Agent: Emily

1. **Role:** Emily Mental Patient Graphic Designer Anxiety
2. **Goal:** To learn how to manage her anxiety in social situations.
3. **Backstory:** Emily is a 28-year-old graphic designer. She has always struggled with social anxiety, making it difficult for her to participate in group settings. She joined the therapy group to improve her social skills and manage her anxiety.

## 2. Agent: David

1. **Role:** David Mental Patient Musician Bipolar
2. **Goal:** To gain insights into managing his bipolar disorder.
3. **Backstory:** David, a 35-year-old musician, has been living with bipolar disorder for over a decade. His condition has impacted his career and personal life. He seeks to understand his emotions better and find stability through the group sessions.

## 3. Agent: Sarah

1. **Role:** Sarah Mental Patient Former Teacher Depression
2. **Goal:** To find strategies to cope with her depression.
3. **Backstory:** Sarah, 42, is a former teacher who has been battling depression for several years. The illness has led her to leave her job. She hopes to find new coping mechanisms and rediscover her passion for teaching.

## 4. Agent: Michael

1. **Role:** Michael Mental Patient Ex-Soldier PTSD
2. **Goal:** To overcome his PTSD and return to a normal life.
3. **Backstory:** Michael is a 30-year-old ex-soldier. He developed PTSD following his service. Struggling with flashbacks and anxiety, he joined the group to seek support and ways to return to civilian life smoothly.

## 5. Agent: Dr. Lisa Thompson

1. **Role:** Lisa Therapist
2. **Goal:** To facilitate the group's progress and assist each member in their personal goals.
3. **Backstory:** Dr. Thompson is a seasoned psychologist specializing in group therapy. With over 15 years of experience, she is skilled at creating a safe space for her patients to explore and address their mental health challenges.



# SmartMix Application

Link: <https://huggingface.co/spaces/eaglelandsonce/lablab-ai-Mixtral-Hackathon>

## SmartMix - Your Safe Place

"This is an agent simulated group therapy session providing a safe, judgment-free environment, allowing for open exploration of sensitive topics. Please input the topic you would like to discuss. Active phrases produce realistic interactions."

"To see active group discussion click on logs during run."



Run

Topic Input (Example: I am dealing with loss)

I am dealing with loss

Group Synopsis



# SmartMix Steps

Example: I am dealing with loss

Step 1: Summary of what each person discussed:

Emily: Emily shared that she lost her husband suddenly in a car accident. She is struggling to cope with the loss and feels overwhelmed by the pain. She is also worried about the future and how she will raise their two young children without him.

David: David shared that he lost his job recently and is feeling lost and uncertain about the future. He is also struggling with feelings of shame and inadequacy. He is worried about how he will support his family and how he will find a new job.

Sarah: Sarah shared that she is going through a divorce and is feeling heartbroken and betrayed. She is also struggling with feelings of anger and resentment towards her ex-husband. She is worried about how she will cope being alone and how she will move on with her life.

Michael: Michael shared that he is a veteran who is struggling with PTSD. He is having flashbacks and nightmares, and he is feeling isolated and alone. He is also struggling with feelings of guilt and shame. He is worried about how he will ever be able to return to civilian life.

Step 2: Offer sound advice for coping with the topic loss and address specific issues brought up in the group discussion:

- \* \*\*Allow yourself to grieve.\*\* It is important to allow yourself to feel the emotions that come with loss. This may include sadness, anger, guilt, and loneliness. It is okay to cry, scream, or talk about your feelings.
- \* \*\*Talk about your feelings.\*\* Talking about your feelings can be helpful in processing them and moving on. Talk to friends, family, a therapist, or a support group.
- \* \*\*Find other ways to express your emotions.\*\* Writing in a journal, creating art, or spending time in nature can be cathartic and help you to process your emotions.
- \* \*\*Be patient with yourself.\*\* It takes time to heal from loss. Be patient with yourself and allow yourself the time and space you need to heal.
- \* \*\*Seek professional help if needed.\*\* If you are struggling to cope with loss, it is important to seek professional help. A therapist can help you to process your emotions and develop coping mechanisms.

Step 3: Summary of the group therapy session:

The group therapy session was a safe and supportive environment for the participants to share their experiences and challenges with loss. The participants were able to learn from each other and offer each other support. The therapist facilitated the discussion and helped the participants to process their emotions and develop coping mechanisms.

Step 4: Grading of the therapy session:

I would give the therapy session a score of 9 out of 10. The participants were engaged and actively participated in the discussion. The therapist was skilled at facilitating the discussion and helping the participants to process their emotions. The session was a safe and supportive environment for the participants to share their experiences and challenges.



# SmartMix Links



**Team Leader:** Michael Lively

Team Members:

Kashaf Jamil

Rumaisa Awan

John Fakile

David Lively

Sean Ma

Tags: Mental Health, Health Care, Mixtral, Gemini AI,  
Generative Agents, LangChain

## Demo Application

<https://huggingface.co/spaces/eaglelandsonce/lablab-ai-Mixtral-Hackathon>

## GitHub

<https://github.com/qailc/MixtralHackathon/>

## Support Applications for Development and Testing:

### Mixtral, off the rails

<https://huggingface.co/spaces/eaglelandsonce/Experiment-Mixtral-Hackathon>

### Zephyr, off the rails

<https://huggingface.co/spaces/eaglelandsonce/lively-zephyr-7B-crazy>



# SmartMix - Summary

The integration of Mixtral for authentic human conversations has proven to be **remarkably successful**.

In an upcoming version, we plan to refine the sequencing to more **accurately mimic real group dynamics**. Additionally, we aim to **introduce a human participant** to interact within this digital environment.

A pivotal realization emerged: Mixtral's utility extends beyond patient support; it's a valuable tool for **therapists to enhance their sessions** and gather insightful statistics.



**Our programming “aha” moment was the use of Steps** to create a final report and the use of sentiment analysis to grade the session and offer feedback on how to make it better in the future.

The societal benefits of Mixtral are multifaceted: Firstly, it establishes a secure and **nonjudgmental** space for discussing sensitive matters. Secondly, it furnishes therapists with a **feedback** mechanism to refine their practice. Lastly, it generates **vital statistics**, often required for governmental funding, through methods like sentiment analysis.