

## **Insight Box: A Multi-agent AI assistant for detecting and addressing cognitive distortions**

Ram priyadarshini Ramchandran

rampriyadarshini@gmail.com

AI-based interventions are well-suited for early detection and management of mental health conditions, serving as a valuable complement to traditional treatments. One early indicator of conditions like depression and anxiety, which predict the severity of its symptoms, is the persistent presence of cognitive distortions - maladaptive negative thought patterns. Previous research has demonstrated the potential of Large Language Models (LLMs) to detect cognitive distortions. This study attempts to develop a conversational multi-agent LLM-based AI system called Insight Box. In addition to the detection of cognitive distortions, Insight Box can also engage in interactions with users in an attempt to augment their reasoning to alleviate detected cognitive distortions. This study preliminarily investigates the ability of Insight Box to detect and address cognitive distortions in simulated journal entries by gently providing counterarguments to challenge negative assumptions and offers insights to help users navigate stressors.

**Additional Keywords and Phrases:** cognitive distortion, AI assistant, Multi-agent, augmented reasoning.

## **1. INTRODUCTION**

There is a global need for cheap and novel mental health interventions which will facilitate early detection, continuous monitoring and immediate assistance for mood disorders. Affordable and accessible AI-based interventions can meet this need by providing ancillary support to traditional

assistance, such as the Cognitive behavioural therapy (CBT), a common psycho therapeutic treatment for individuals affected with depression and anxiety. One of the major components of CBT is to make individuals identify cognitive distortions/errors in their thinking and restructure it to help them cope with their situations better. This study develops a Multi-agent AI system and explores and evaluates its potential in detecting and addressing distortions based on journal entries by providing insights that can help users cope with their daily struggles and alleviate persistent patterns of cognitive distortions.

The cognitive behavioural therapy proposed by Aron Beck [1] states that anxiety and depression emerge from cognitive distortions, maladaptive negative patterns of thinking. A recent study [2] has shown that cognitive distortions predate and predict severity of symptoms in depression. CBT aims to restructure these thoughts over time by recognizing and challenging the negative assumptions to better deal with the stressors. There are around 10-20 common types of distortions available in the literature and have been shown to predict severity of depression symptoms. For this study, 10 common types of distortions (*Table 1*) from the study Shreevastava and Foltz [3] are considered.

Recent advances in natural language processing have created new opportunities for AI-based interventions in mental health care. AI conversational assistants can help bridge gaps in accessibility and affordability within traditional care systems. Interacting with AI assistants may also reduce the fear of judgment, providing users with a safe space to express their thoughts. However AI systems ability to enhance human reasoning through augmented feedback, fostering personal insight and cognitive growth has not been explore much. To address this gap, the present study evaluates a LMM based Multi-agent system named ‘Insight box’ capability for cognitive distortion detection in Journal entries and assist the user through augmented reasoning.

It detects the cognitive distortion and interacts with the user by providing counter-reasoning to nudge the person to restructure their distortive thought.

Table 1: Cognitive distortions and counter-reasons used for chain-of-thought prompting

	Cognitive distortion type	Distortion	Counter Reasoning
1	<b>All-or-Nothing Thinking</b>	Viewing situations in absolute terms, as either all good or all bad.	Nudge to see Middle Grounds.
2	<b>Overgeneralization</b>	Drawing broad conclusions based on limited information	Allow oneself the benefit of the doubt to remember the evidence to support or refute Distress causing assumption.
3	<b>Mental Filter</b>	Focusing solely on negative details and ignoring positive aspects	Point out the positive or neutral aspects.
4	<b>Should Statements</b>	Using rigid 'should' or 'must' statements about yourself or others that cause distress	Insist on being kind to oneself and embrace flexibility.
5	<b>Labeling</b>	Reducing yourself or others to a single negative characteristic	A single action or mistake does not define a person's life. Instead of labeling, focus on the behavior itself — behaviors can change.
6	<b>Personalization</b>	Blaming yourself for situations outside your control or assigning blame to others unjustly	people's actions and emotions are influenced by many factors beyond you.
7	<b>Magnification</b>	Exaggerating the importance of mistakes or negative events	Reminding mistakes or failures are part of growth and rarely as catastrophic as they feel.

8	<b>Emotional Reasoning</b>	Believing that because you feel a certain way, it must be true	Feelings aren't absolute facts.
9	<b>Mind Reading</b>	Assuming you know what others are thinking or why they're acting a certain way without any concrete evidence, often leading to negative conclusions and misunderstandings in relationships	People's thoughts aren't transparent. give them the benefit of the doubt rather than assuming the worst.
10	<b>Fortune-Telling</b>	Expecting things to go badly without sufficient evidence	No one can accurately predict the future. Instead of jumping to conclusions, focus on what you can control in the present moment.

---

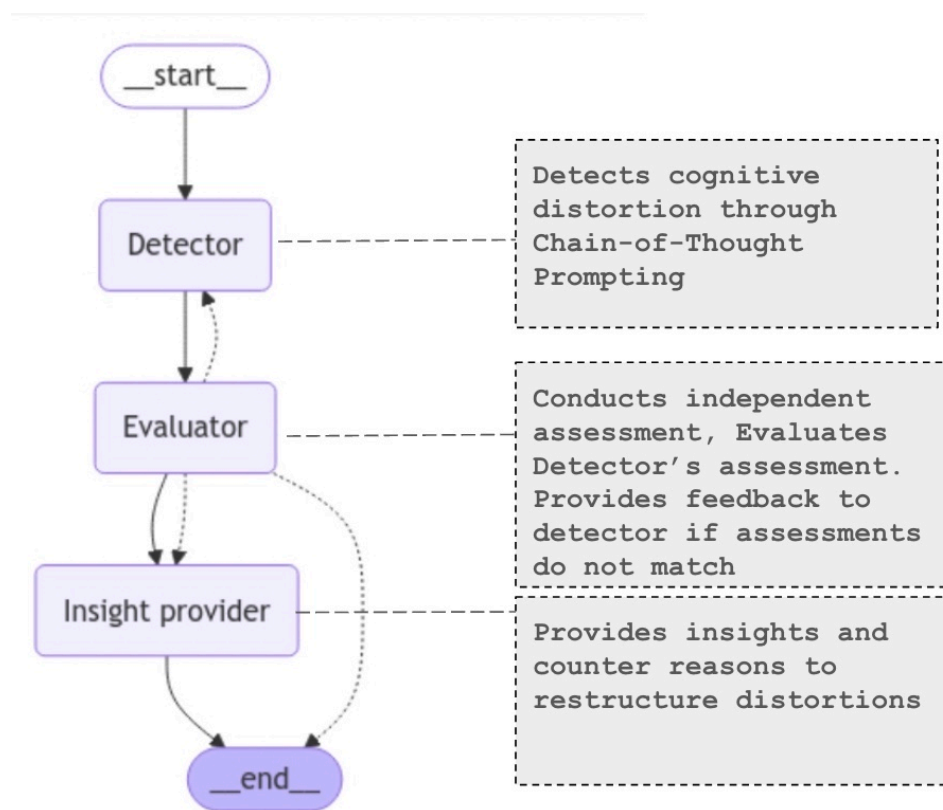
## 2. DATA

Due to lack of open and verified clinical datasets with annotated cognitive distortion labels by clinical provider, a synthetic dataset is created to test the prototype AI system. Month-long simulated journal of a college student going through varied emotional states and situations were generated using 'gpt-3.5-turbo' api to assess the feasibility of the prototype. The simulated journal data of an individual contains 30 daily journal entries. The successful operation on the prototype on this simulated dataset illustrates the potential of such an AI system to identify and address condition distortion through augmented reasoning. However, such a system should eventually be tested and validated against real-world datasets with cognitive distortion labels provided by clinicians.

### 3. INSIGHT BOX ARCHITECTURE

#### 3.1. Multiagent workflow

The current ‘Insight box’ prototype features three distinct LLM-based agents, the Distortion detector, the Evaluator and the Insight provider. The Multi-agent system at its core has a reflective agent and was implemented using *LangGraph* and it utilises the ‘*gpt-3.5-turbo*’ model.. The agent workflow implemented via Langgraph as shown in *Figure 1*. Each agent has distinct functions in the workflow as follows,



*Figure 1: Agentic workflow implemented in Langgraph*

#### 3.2. Detector

The detector checks the entry if a cognitive distortion is present or not through the ‘chain of thought’ prompting through (i) assessing the situation of the person, (ii) Questions if the person

is coping with their situation? (iii) If yes, then respond ‘none’. If not, identify the most likely distortion from the provided checklist, which is responsible for not being able to cope. (iii) Justify your choice of distortion.

### **3.3. Evaluator**

The evaluator is a *reflective agent* whose role is to independently detect cognitive distortions, assess alternate options to the detector and then compare its assessment to Watson’s assessment. It outputs both the assessment and if there is a match or not. If unmatched, it provides feedback to the detector to revise. It loops for five iterations to converge their findings.

### **3.4. Insight provider**

The insight provider is the end point of this network and the main interactive element with the user. It assimilates the findings of the other two agents to come up with counter reasoning using ‘chain of thought approach to nudge the user to think contrary to what their distortion might suggest.

.

## **4. RESPONSES FROM THE PROTOTYPE SYSTEM**

Initial findings indicate that the AI system can effectively detect and address cognitive distortions through augmented reasoning, as demonstrated in *Table 2*. To illustrate the working through the example below, (i) The entry is first received by the “*Detector*” and deploys ‘chain of thought’ prompting to identify the distortion in the entry. Every step of its decision making such as assessing the situation, judging if the person is coping or not and finally the distortion “*All-or-nothing*” is chosen and sent to evaluator for further reflection and reevaluation. (ii) The

“Evaluator” conducts its own assessment and compares it to “Detectors” assessment. If matched it passess on its assessment to “insight provider”. If not it gives feedback to detector to re-evaluate till it matches .(iii) After passing evaluation, insight box compares both assessments, identifies the best “counter reason” theme mentioned in the prompt to incorporates it in its reply to the user as shown below. The full results including all 30 synthetic user entries, responses of each agent and the final output is available in the supplementary materials (<https://github.com/Rampriya92/Insight-Box>).

Table 2: Agents interactions with the Entry

<b>User Entry</b>	["Completely bombed the chem quiz today. I knew I wasn't prepared, but seeing that F staring back at me was still a punch in the gut. It feels like I am failing, but I need to study harder. I'm such a failure. Why can't I just be smart like everyone else in this class? I skipped tennis practice ,Äì what's the point? If I can't even manage a simple quiz, how can I hope to be good at anything? Spent the evening scrolling through Instagram, just feeling sorry for myself."]
<b>detected_distortion</b>	['All-or-nothing thinking']
<b>Detector</b>	[' <b>situation:</b> Feeling like a failure after performing poorly on a chemistry quiz and skipping tennis practice. <b>coping:</b> No, the person is not coping well with the situation. <b>detected distortion:</b> All-or-nothing thinking\n <b>reason:</b> The person is viewing their performance on the quiz as an indication of their overall intelligence and worth, using extreme language like "I\'m such a failure" and "Why can\'t I just be smart like everyone else in this class." This black-and-white thinking doesn\'t account for the possibility of improvement or other factors contributing to their quiz performance.']
<b>Evaluator</b>	[' <b>Evaluator detected distortion:</b> All-or-nothing thinking <b>Detector detected distortion:</b> All-or-nothing thinking <b>feedback:</b> None <b>match:</b> yes, matched!']
<b>Insight Provider</b>	[' <b>acknowledge:</b> All-or-nothing thinking <b>Counter reason:</b> Nudge to see Middle Grounds  <b>Final output:</b> Hey there, I'm sorry to hear that you're feeling this way after the

	chemistry quiz. It's understandable to be disappointed, but remember, one quiz does not define your intelligence or worth. It's important to not be too hard on yourself. Instead of viewing this as a failure, think of it as a learning opportunity. Maybe you can talk to your teacher or a classmate for study tips or extra help. Also, skipping tennis practice is okay once in a while, everyone needs a break. It's not a reflection of your abilities in other areas. How about taking a break from social media and doing something that makes you feel good, like going for a walk or reading a book? Remember, you are capable and smart in your own unique way. Let's work together to come up with a plan to bounce back from this setback. What do you think?"
--	---

#### **4.1 Limitations**

One of the main limitations of this study is that it needs further clinical validation with a clinician annotated dataset to further confirm the efficacy of the system. Lack of open and verified clinical dataset prevented a quantitative assessment of the performance of this prototype.

#### **4.2 Future work**

The multi-agent network needs to be further made more complex to yield more natural conversational responses. It can be extended to be an interactive journal where the user can interact and reason further with the agent. The scope for improving AI system performance through feedback from users needs to be explored and implemented.

#### **References**

[1] Adriana Munhoz Carneiro, Danilo Assis Pereira, Fernando Fernandes, Makilim Nunes Baptista, André Russowsky Brunoni, and Ricardo Alberto Moreno. 2023. Distorted thoughts as a mediator of depressive symptoms in patients with major depressive disorder: a longitudinal



study. *Health and Quality of Life Outcomes* 21, 1 (August 2023), 88.  
<https://doi.org/10.1186/s12955-023-02178-y>

[2] Haaga Da, Dyck Mj, and Ernst D. 1991. Empirical status of cognitive theory of depression. *Psychological bulletin* 110, 2 (September 1991). <https://doi.org/10.1037/0033-2909.110.2.215>

[3] Sagarika Shreevastava and Peter Foltz. 2021. Detecting Cognitive Distortions from Patient-Therapist Interactions. In *Proceedings of the Seventh Workshop on Computational Linguistics and Clinical Psychology: Improving Access*, 2021. Association for Computational Linguistics, Online, 151–158. <https://doi.org/10.18653/v1/2021.clpsych-1.17>

### **Data and supplementary material**

Data and code used to analyse the data is openly available

here: <https://github.com/Rampriya92/Insight-Box>

## APPENDIX I

### Patient Entry 1

<b>Patient Entry</b>	["Started the month with a decent swim practice. It felt good to be back in the water, a familiar comfort. Classes are piling up though, and I already feel behind in Organic Chemistry. I hate the idea of a new month, of having to put in the work for another 30 days. Maybe I'm being overly dramatic, but the divorce is still so raw. I miss how things used to be. I talked to Mom tonight, which always helps. I feel calmer and a bit better after catching up with her. I need to find that same peace in my studies."]
<b>detected_ distortion</b>	[' <b>Emotional reasoning</b> ']
<b>Detector</b>	<p>['<b>situation:</b> Feeling overwhelmed by academic workload and emotional stress from a recent divorce, seeking comfort in familiar activities and connections with loved ones.\n\ncoping: Partially coping, as the person is finding comfort in speaking with their mom but still feels overwhelmed by the workload and emotional turmoil.</p> <p><b>detected distortion:</b> Emotional reasoning</p> <p><b>reason:</b> The person\'s belief that their negative emotions about the divorce and academic stress dictate their ability to succeed ("I hate the idea of a new month," "Maybe I'm being overly dramatic," "I need to find that same peace in my</p>

	studies") reflects emotional reasoning, where feelings are seen as evidence for the truth of a situation rather than objectively evaluating their circumstances.']
<b>Evaluator</b>	<p>['<b>Evaluator detected distortion:</b> Emotional Reasoning</p> <p><b>Detector detected distortion:</b> Emotional Reasoning</p> <p><b>feedback:</b> None\nmatch: Yes, matched!']</p>
<b>Insight Provider</b>	<p>["<b>acknowledge:</b> Emotional reasoning</p> <p><b>Counter reason:</b> Feelings are valid but not always factual. Your emotions from the divorce and academic stress are real, but they do not define your capabilities or potential for success.</p> <p><b>Final output:</b> It's understandable that you're feeling overwhelmed by everything going on in your life right now. Remember, your emotions are valid, but they don't determine your worth or ability to handle challenges. It's great that talking to your mom helped you feel calmer. Perhaps consider reaching out to a counselor or academic advisor for additional support in managing your workload and emotions. Remember, it's okay to ask for help when you need it. How about scheduling a study session with a classmate or setting aside some time for self-care this week? You've got this! What's one small step you can take today to feel more at peace with your studies?"]</p>

## Patient Entry 2

<b>Patient</b>	["Completely bombed the chem quiz today. I knew I wasn't prepared, but seeing
----------------	---

<b>Entry</b>	that F staring back at me was still a punch in the gut. It feels like I am failing, but I need to study harder. I'm such a failure. Why can't I just be smart like everyone else in this class? I skipped tennis practice ,Äì what's the point? If I can't even manage a simple quiz, how can I hope to be good at anything? Spent the evening scrolling through Instagram, just feeling sorry for myself."]
<b>detected_ distortion</b>	['All-or-nothing thinking']
<b>Detector</b>	<p>['<b>situation:</b> Feeling like a failure after performing poorly on a chemistry quiz and skipping tennis practice.</p> <p><b>coping:</b> No, the person is not coping well with the situation.</p> <p><b>detected distortion:</b> All-or-nothing thinking\nreason: The person is viewing their performance on the quiz as an indication of their overall intelligence and worth, using extreme language like "I'm such a failure" and "Why can't I just be smart like everyone else in this class." This black-and-white thinking doesn't account for the possibility of improvement or other factors contributing to their quiz performance.']</p>
<b>Evaluator</b>	<p>['<b>Evaluator detected distortion:</b> All-or-nothing thinking</p> <p><b>Detector detected distortion:</b> All-or-nothing thinking</p> <p><b>feedback:</b> None</p> <p><b>match:</b> yes, matched!']</p>
<b>Insight</b>	[' <b>acknowledge:</b> All-or-nothing thinking

<b>Provider</b>	<b>Counter reason:</b> Nudge to see Middle Grounds
	<p><b>Final output:</b> Hey there, I'm sorry to hear that you're feeling this way after the chemistry quiz. It's understandable to be disappointed, but remember, one quiz does not define your intelligence or worth. It's important to not be too hard on yourself. Instead of viewing this as a failure, think of it as a learning opportunity. Maybe you can talk to your teacher or a classmate for study tips or extra help. Also, skipping tennis practice is okay once in a while, everyone needs a break. It's not a reflection of your abilities in other areas. How about taking a break from social media and doing something that makes you feel good, like going for a walk or reading a book? Remember, you are capable and smart in your own unique way. Let's work together to come up with a plan to bounce back from this setback. What do you think?"</p>

### Patient 3

<b>Patient Entry</b>	<p>["Forced myself to go to the library today. Studied for a few hours, which is better than nothing. I'm still feeling down about the quiz, but I am trying to stop thinking about it. I did help this cute freshman with his math homework, which did my self-esteem a little good! Maybe I can use this chem debacle as motivation. My old coach used to say, „Äúfall down seven times, stand up eight.„Äù I have to change that negative feeling into a positive and become a better student from this experience. I ordered pizza and watched a movie with my roommate, which was a nice distraction."]</p>
----------------------	--

<b>detected_ distortion</b>	['None']
<b>Insight Provider</b>	["Great job on recognizing and addressing your feelings about the quiz! It's awesome that you are taking steps to move past the negative emotions by studying and helping others with math homework. Remember, setbacks are a part of the learning process, and your old coach's advice about resilience is spot on. Keep pushing forward and using this experience as motivation to become an even better student.\n\nAs you mentioned, treating yourself to pizza and a movie with your roommate was a nice distraction. It's important to take breaks and indulge in activities that bring you joy. Remember, self-care is just as important as academic success. Keep up the positive attitude and continue to focus on your growth and improvement. You're doing great! \n\nAs an interactive element, why not jot down a few things you learned from helping the freshman with math homework? Reflecting on your ability to assist others can boost your self-esteem and reinforce your own understanding of the material. What do you think?"]
<b>Detector</b>	['situation: Feeling down about a quiz but trying to move past it by studying and helping someone with math homework.\ncoping: Yes, the person is making efforts to cope with the negative feelings.\ndetected distortion: None\nreason: The person is acknowledging their feelings, taking positive steps to address them, seeking motivation from past experiences, and engaging in activities to distract themselves. There is no clear indication of a cognitive distortion affecting their ability to cope in this entry.']

<b>Evaluator</b>	['Evaluator detected distortion: None\nDetector detected distortion: None\nfeedback: None\nmatch: yes,matched!']
------------------	--

### Patient 3

<b>Patient Entry</b>	["Forced myself to go to the library today. Studied for a few hours, which is better than nothing. I'm still feeling down about the quiz, but I am trying to stop thinking about it. I did help this cute freshman with his math homework, which did my self-esteem a little good! Maybe I can use this chem debacle as motivation. My old coach used to say, „Äúfall down seven times, stand up eight.„Ä¸ I have to change that negative feeling into a positive and become a better student from this experience. I ordered pizza and watched a movie with my roommate, which was a nice distraction."]
<b>detected_distortion</b>	['None']
<b>Insight Provider</b>	["Great job on recognizing and addressing your feelings about the quiz! It's awesome that you are taking steps to move past the negative emotions by studying and helping others with math homework. Remember, setbacks are a part of the learning process, and your old coach's advice about resilience is spot on. Keep pushing forward and using this experience as motivation to become an even better student.\n\nAs you mentioned, treating yourself to pizza and a movie with your roommate was a nice distraction. It's important to take breaks and

	<p>indulge in activities that bring you joy. Remember, self-care is just as important as academic success. Keep up the positive attitude and continue to focus on your growth and improvement. You're doing great!</p> <p>As an interactive element, why not jot down a few things you learned from helping the freshman with math homework? Reflecting on your ability to assist others can boost your self-esteem and reinforce your own understanding of the material. What do you think?"</p>
<b>Detector</b>	<p>['situation: Feeling down about a quiz but trying to move past it by studying and helping someone with math homework.\ncoping: Yes, the person is making efforts to cope with the negative feelings.\ndetected distortion: None\nreason: The person is acknowledging their feelings, taking positive steps to address them, seeking motivation from past experiences, and engaging in activities to distract themselves. There is no clear indication of a cognitive distortion affecting their ability to cope in this entry.']</p>
<b>Evaluator</b>	<p>['Evaluator detected distortion: None\nDetector detected distortion: None\nfeedback: None\nmatch: yes,matched!']</p>

#### Patient 4

<b>Patient Entry</b>	<p>"Woke up feeling more positive. Went for a run, which always clears my head. I am very proud of myself for not skipping tennis practice, even though my ankle is still bothering me. My parents have been bickering non-stop lately. It is my fault that they hate each other now because of the problems that I have been</p>
----------------------	---



	<p>having at school. It's exhausting and makes me feel guilty even though I know it's not my fault. Why can't they just get along for my sake? I need to find a way to block out their drama. I thought about going to the student counseling center, but I'm not sure."]</p>
<b>detected_ distortion</b>	<p>['Personalization']</p>
<b>Insight Provider</b>	<p>["acknowledge: Personalization\nCounter reason: You are not responsible for your parents' relationship issues. Their interactions are influenced by many factors beyond your control.\nFinal output: It's understandable to feel overwhelmed by your parents' bickering, but it's important to remember that their issues are not your fault. It's not uncommon for children to feel responsible for their parents' conflicts, but it's essential to recognize that their relationship dynamics are independent of your actions. Have you considered talking to a counselor at the student counseling center about how you're feeling? They can provide support and guidance on how to navigate through these challenging emotions. Remember to prioritize your own well-being and self-care during this time. Let's explore some strategies together to help you cope with this situation. How do you feel about reaching out for help at the counseling center?"]</p>
<b>Detector</b>	<p>["situation: Feeling proud of not skipping tennis practice despite an ankle injury, parents bickering, feeling guilty for their relationship issues, considering seeking help at the student counseling center.\ncoping: Partially coping, as the person is</p>

	trying to find solutions and ways to deal with the situation.\ndetected distortion: Personalization\nreason: The person is taking undue responsibility for their parents' relationship issues, attributing blame to themselves for problems at school and feeling guilty for the parents' bickering. This distortion is evident as they believe their actions are the cause of the parents' problems and feel the need to find a solution to fix their parents' relationship issues."]
<b>Evaluator</b>	['Evaluator detected distortion: Personalization\nDetector detected distortion: Personalization\nfeedback: None\nmatch: yes, matched!']

## Patient 5

<b>Patient Entry</b>	["Had a really good tennis practice. I'm getting my serve back. It felt amazing to just focus on the game and not think about school or my parents. I can't believe I almost quit earlier this week. I am happy that I did not quit playing tennis. Evenings are hard though. I end up just lying in bed, staring at the ceiling and overthinking everything. My mind races with every what-if. I feel so alone, even though I know I have friends and family who care."]
<b>detected_distortion</b>	['Fortune-telling']
<b>Insight Provider</b>	["acknowledge: Fortune-telling\nCounter reason: The future is uncertain. Focus on what you can control in the present.\nFinal output: It's great to hear that you had a good tennis practice and are getting your serve back! It's important to

	<p>remember that the future is uncertain, and overthinking every possible scenario can lead to unnecessary stress and feelings of loneliness. Instead of focusing on the unknown, try to shift your attention to the present moment and what you can control. Have you tried any relaxation techniques or mindfulness exercises to help calm your mind in the evenings? Remember, you're not alone, and reaching out to friends or family for support can make a big difference. Let's work together to find ways to manage your overthinking and feel more connected. How about we explore some strategies to help you unwind and feel more at peace in the evenings?"</p>
<b>Detector</b>	<p>['situation: Feeling happy and accomplished after a good tennis practice, but struggling with overthinking and feelings of loneliness in the evenings.\ncoping: no, the person is struggling with overthinking and feelings of loneliness.\ndetected distortion: Fortune-telling\nreason: The individual is anticipating negative outcomes and assuming that the future will be filled with uncertainties and negative possibilities, as evidenced by the constant "what-if" thoughts and feelings of loneliness despite having supportive friends and family.']</p>
<b>Evaluator</b>	<p>['Evaluator detected distortion: Catastrophizing\nDetector detected distortion: Fortune-telling\nfeedback: The distortion detected by the detector is accurate in this case. The individual is engaging in fortune-telling by predicting negative outcomes and overthinking every possible scenario in the future. It aligns more closely with the fortune-telling distortion than catastrophizing.\nmatch: yes,</p>

	matched!']
--	------------

## Patient 6

<b>Patient Entry</b>	['Another productive day at the library. Starting to feel a little more on top of things. Organic Chemistry is still a beast, but I,Äôm chipping away at it. I am actually surprised that I have understood the last 2 weeks of material. Maybe I,Äôm not as dumb as I thought. I called Dad tonight. It was a short conversation, but it was nice to hear his voice. He will never change, but I still love him. I wish I could talk to him, though, for real. Maybe after more time has passed, I can do so. It will never be the same as it was before.']
<b>detected_ distortion</b>	['none']
<b>Insight Provider</b>	["Final output: It's great to hear about your progress in studying Organic Chemistry. Remember, your feelings are valid, but they don't always reflect reality. Keep chipping away at it, and remember to be kind to yourself. Maybe reaching out to your dad, even if the conversation may not be the same as before, could still be a positive step. Is there a way you can start that conversation?"]
<b>Detector</b>	["situation: Studying Organic Chemistry and reflecting on a conversation with Dad\ncoping: yes, the person seems to be coping well with their situation\ndetected distortion: none\nreason: The person is acknowledging their progress in understanding difficult material, expressing love for their father"]

	despite knowing he won't change, and recognizing the changes in their relationship. There is no clear indication of a cognitive distortion affecting their coping mechanisms in this entry."]
<b>Evaluator</b>	[Evaluator detected distortion: Emotional Reasoning\nDetector detected distortion: None\nfeedback: The cognitive distortion present in this entry is Emotional Reasoning, where the individual is basing their beliefs and thoughts on their emotions rather than facts. For example, feeling surprised that they have understood the material in Organic Chemistry may lead them to think they are not as dumb as they thought. This is an example of emotional reasoning, where emotions are guiding their beliefs about their intelligence.\nmatch: no match']

### Patient 7

<b>Patient Entry</b>	["Slept through my alarm and missed my morning class. I am so angry with myself! I'm starting to feel like I'm losing control. Everything feels like an uphill battle. What's the point of even trying? I skipped swim practice. I just didn't have the energy. Stayed in my room all evening, feeling numb. I just watched some random videos online."]
<b>detected_ distortion</b>	['Emotional reasoning']
<b>Insight Provider</b>	["Counter reason: Feelings are valid but not always factual. Just because you are feeling angry, numb, and unenergetic does not mean that you are losing control

	<p>or that there is no point in trying. Emotions can cloud our judgment, but they do not define our capabilities or worth. It's important to acknowledge your feelings, but also to challenge them with logic and self-compassion.</p> <p>Final output: It's understandable to feel frustrated and overwhelmed when things don't go as planned. Remember that your emotions are valid, but they don't have to dictate your actions. It's okay to have off days and make mistakes. Instead of isolating yourself, consider reaching out to a friend or coach for support. Maybe discussing what happened and how you're feeling can help you gain a new perspective. How about taking a short walk outside or doing a small activity to help lift your mood? You're not alone in this, and I'm here to support you. What do you think about trying to shift your focus and take a small step towards feeling better?"</p>
<b>Detector</b>	<p>['situation: Missed morning class, feeling angry and losing control, skipped swim practice, feeling numb and unenergetic, isolating in room watching random videos online.</p> <p>ncoping: no, the person is not coping well with the situation.</p> <p>ndetected distortion: Emotional reasoning</p> <p>nreason: The person is making decisions and judgments based on their emotions rather than objective reality. They believe that because they feel angry, numb, and unenergetic, there is no point in trying or participating in activities like swim practice. This distortion is influencing their perspective on their abilities and the value of their efforts.']</p>
<b>Evaluator</b>	<p>['Evaluator detected distortion: Emotional Reasoning</p> <p>Detector detected distortion: Emotional Reasoning</p> <p>nmatch: yes, matched!']</p>

## Patient 8

<b>Patient Entry</b>	["Had lunch with a friend from my English class. It was good to laugh and talk about something other than school and family drama. She invited me to a party later this week, I don't know if I feel up to it, but maybe getting out would be good. I need to stop being such a hermit, but the thought of getting ready and socializing seems so draining. I,Ãôm still behind on readings. I think I might be overwhelmed again."]
<b>detected_ distortion</b>	['Emotional reasoning']
<b>Insight Provider</b>	["Acknowledge: Emotional reasoning\nCounter reason: Feelings are valid but not always factual. Sometimes taking a break from the stress of school and family drama by socializing can actually help you feel more refreshed and energized. It's okay to feel overwhelmed, but try not to let those feelings dictate your decisions.\nFinal output: It's understandable that you feel drained and overwhelmed, but stepping out of your comfort zone and attending the party might actually be a good opportunity for you to relax and have some fun. Remember, it's important to take care of yourself and prioritize your mental well-being. How about setting aside some time to catch up on readings before the party and then decide if you feel up to it? You deserve a break and some time to

	unwind. What do you think?"]
<b>Detector</b>	['situation: Feeling overwhelmed and hesitant about attending a party\ncoping: No, the person is feeling overwhelmed and hesitant about socializing.\ndetected distortion: Emotional reasoning\nreason: The person is basing their decision to attend a party on their feelings of being overwhelmed and drained by the idea of socializing, rather than objectively evaluating the potential benefits of getting out and interacting with others.']
<b>Evaluator</b>	['Evaluator detected distortion: Emotional Reasoning\nDetector detected distortion: Emotional Reasoning\nfeedback: None\nmatch: yes, matched!']

## Patient 9

<b>Patient Entry</b>	["Went to the party. I did enjoy myself once I got there, although I did not stay too long. It was nice to feel somewhat normal for a few hours. I need to remember that there's a world outside of my own head. I felt myself retreating back into old habits in the middle of the party. I almost left. I thought to myself: It is better that I go home now so that no one can ruin my mood. I am glad I did not leave. I might try that again."]
<b>detected_ distortion</b>	['none']
<b>Insight Provider</b>	["acknowledge: Emotional Reasoning\nCounter reason: Feelings are valid but



	<p>not always factual. It's important to consider the actual events and interactions at the party rather than letting emotions dictate your actions.</p> <p>Final output: It's great that you were able to push through those initial thoughts and stay at the party. Remember, our emotions can sometimes lead us astray, so it's important to take a step back and evaluate the situation objectively. It sounds like you had a positive experience once you allowed yourself to fully engage. Maybe next time, try to challenge those negative thoughts earlier on and see where it takes you. What do you think you could do differently next time to prevent those thoughts from taking over?"</p>
<b>Detector</b>	<p>['situation: Attended a party and initially struggled with retreating into old habits but ultimately stayed and enjoyed the experience.</p> <p>coping: yes, the person managed to stay at the party and even found enjoyment.</p> <p>detected distortion: none</p> <p>reason: The person acknowledges their initial struggle with retreating into old habits but ultimately overcame this negative thought pattern and stayed at the party. They also recognized the importance of stepping out of their own head and the positive outcome of staying at the party instead of leaving prematurely. There are no clear cognitive distortions present in this entry.']</p>
<b>Evaluator</b>	<p>["Evaluator detected distortion: Emotional Reasoning</p> <p>Detector detected distortion: None</p> <p>feedback: The evaluator's assessment of Emotional Reasoning is accurate in this context. The individual's thoughts of leaving the party to prevent others from ruining their mood suggest that their emotions were guiding their decision-making process rather than objective reality. This aligns with the</p>

	cognitive distortion of Emotional Reasoning, where feelings are taken as evidence for the truth of a situation.\nmatch: no match"]
--	--

## Patient 10

<b>Patient Entry</b>	["Woke up with a headache and feeling exhausted. I regret going to the party and getting only 4 hours of sleep. I'm so lazy. Why can't I just be more disciplined? Skipped all my classes and just lay in bed all day. I feel like I'm drowning in a sea of apathy. This is the worst that I have felt in the last month. I need to snap out of this funk."]
<b>detected_ distortion</b>	['Should statements']
<b>Insight Provider</b>	['acknowledge: Should Statements\nCounter reason: Replace rigid "should" rules with flexible, self-compassionate language.\nFinal output: Hey there, it sounds like you're being really hard on yourself right now. It's okay to have off days and not be at your best all the time. Instead of focusing on what you "should" be doing, try being kind to yourself and acknowledging that it's okay to have moments of exhaustion and apathy. Maybe taking small steps towards self-care, like getting some rest, hydrating, or doing something you enjoy, can help lift your mood. Remember, it's okay to not be perfect all the time. How about we brainstorm some self-care activities together? What do you think?']

<b>Detector</b>	['situation: Feeling exhausted, regretful, and overwhelmed with apathy after a night of little sleep and skipping classes.\ncoping: no, the person is struggling to cope with their situation.\ndetected distortion: Should statements\nreason: The individual is placing unrealistic expectations on themselves, believing they "should" be more disciplined and "snap out of" their feelings of apathy immediately. This cognitive distortion is evident in their self-criticism and harsh judgments about their behavior.']
<b>Evaluator</b>	['Evaluator detected distortion: Should Statements\nDetector detected distortion: Should Statements\nfeedback: None\nmatch: yes, matched!']