

SRISHTI: A SOPHISTICATED AI CHATBOT INTEGRATED WITH MODERN SEARCH ENGINE AND ENTHRAL ESSENTIAL SUGGESTOR, COGNITION AND SUGGESTIVE USER INTERFACE

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Abstract

The idea and motive are to propose a sophisticated AI chatbot. The AI Chatbot would be integrated with a modern search engine which also displays images along with text for users while giving its solutions. The proposed AI Chatbot will have an immense friendly user interface. It will have suggestions and user can discover various areas to search any topic in a preferable way. It will store repetitive queries of various users. The proposed AI Chatbot will have dynamic AI prediction mechanism. The crawler in the search engine would crawl those selected areas in depth and would provide inevitable information to user. In dealing with AI Chatbot, we have to enhance user experience with a consistent, empathetic persona, clear conversational flows, and proactive feedback loops to address user needs. This AI Chatbot will have a better decision and proper cognitive therapy which will be helpful to users. The AI chatbots like Deepseek, ChatGPT or Gemini can make use of our proposed solution. Our proposed AI Chatbot model is called *Srishiti*.

Keywords: AI Chatbot, users, user interface.

INTRODUCTION

An AI chatbot is a software application that simulates human conversation through text or voice, using Artificial Intelligence (AI), Machine Learning (ML), and Natural Language Processing (NLP). Unlike traditional, rule-based bots, AI chatbots understand context, intent, and sentiment, continuously learning from interactions to provide personalized, 24/7 assistance across various digital platforms. AI chatbots use Large Language Models (LLMs) and NLP to interpret user queries, allowing them to understand natural language rather than just pre-programmed commands. AI chatbots are increasingly used to handle complex tasks, such as diagnosing problems, and in some cases, act as AI agents that operate on behalf of a user to achieve goals. AI chatbots offer 24/7 instant support, significantly reducing operational costs and improving customer satisfaction through personalized, immediate interactions. They increase efficiency by automating repetitive tasks, scaling to handle high volume without extra staff, and providing consistent, accurate information. These tools enhance user experiences across various platforms by offering instant, 24/7 service and personalized, context-aware interactions. Unlike human agents, chatbots operate around the clock, allowing for immediate, real-time responses to customer inquiries, which reduces wait times and improves satisfaction. AI chatbots reduce operational costs by automating routine tasks and managing high-volume, repetitive inquiries, freeing up human staff for more complex issues. AI chatbots reduce operational costs by automating routine tasks and managing high-volume, repetitive inquiries, freeing up human staff for more complex issues. AI chatbots reduce operational costs by automating routine tasks and managing high-volume, repetitive inquiries, freeing up human staff for more complex issues. Chatbots gather valuable user data and insights, which can be analyzed to improve products, services, and future marketing strategies.

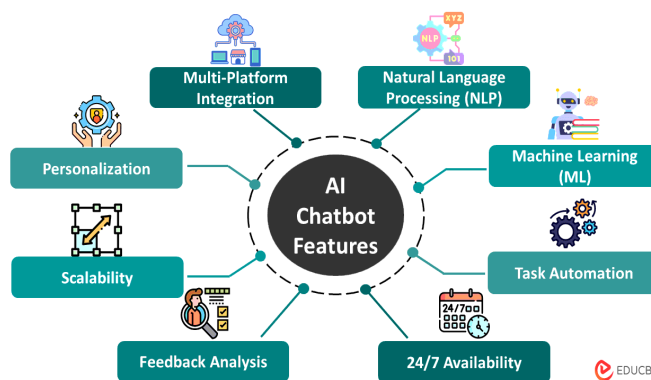


Fig. 1. AI chatbot features

They can support multiple languages, enable global service and ensure consistent, standardized information is provided, minimizing human error. Chatbots provide 24/7 instant customer support, reduce operational costs, and handle multiple queries simultaneously, improving efficiency and user experience. However, they struggle with complex, nuanced, or emotional queries, lack human empathy, and require significant, costly, and ongoing maintenance to remain effective. AI chatbots provide significant benefits to businesses by offering 24/7 customer support, drastically reducing operational costs, and increasing efficiency through automation. They enhance user engagement with personalized experiences, handle high-volume inquiries simultaneously, and boost sales through instant, data-driven interactions. Unlike human agents, chatbots operate around the clock, providing immediate responses to customer inquiries, which improves satisfaction and reduces wait times. AI chatbots lower expenses by handling 60% to 80% of inquiries, reducing the need for large, 24/7 customer service teams. They effortlessly scale to manage thousands of conversations simultaneously, especially during peak traffic. AI analyzes customer data to deliver personalized recommendations and, in some cases, can interpret emotional cues or regional dialects to tailor responses, increasing loyalty. By automating repetitive tasks and FAQs, chatbots allow

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human agents to focus on complex, high-value queries. They also assist with internal tasks like scheduling, data collection, and on boarding. Chatbots collect and analyse customer interaction data, providing valuable insights into consumer behaviour, preferences, and common pain points. Chatbots not only respond quickly but also anticipate customer needs, deliver useful messages and recommend new products. AI analyzes customer interactions to provide recommendations and suggest next steps. Higher customer satisfaction can increase your customer value. AI chatbots have evolved from simple 1960s rule-based scripts to sophisticated 2020s generative AI models. Key milestones include ELIZA (1966) and PARRY (1972) for early dialogue simulation, ALICE (1990s) for natural language processing, and the 2010s rise of virtual assistants like Siri, culminating in the 2022 launch of ChatGPT.

Integrating with search engine: Indexing, crawling and suggestive user interface

- In this section we will discuss about search engine, indexing, crawling and suggestive areas. There are different areas where user can focus while searching the queries. Below you can find out picture of “Srishti” AI chatbot.

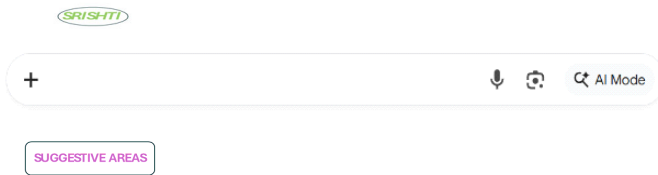


Fig. 2. Srishti AI Chatbot

Search engine indexing is a complex dance between your website and search engines like Google. Search engines use sophisticated programs called web crawlers to discover and analyze web content. This information is then meticulously stored in a massive database known as the search index. When someone searches for something online, the search engine consults its index to deliver the most relevant and helpful results. Search engine indexing is the process of crawling, analyzing, and storing web page data in a massive database (the index) to facilitate fast, relevant search results. After discovering pages via bots, engines parse content to understand context, identify canonical versions, and store information for ranking. Crawling refers to following the links on a page to new pages, and continuing to find and follow links on new pages to other new pages. A web crawler is a software program that follows all the links on a page, leading to new pages, and continues that process until it has no more new links or pages to crawl. A web crawler, or spider, is a type of bot that is often operated by search engine providers like Google and Bing, and AI model providers like OpenAI, Meta, and others. They perform many different tasks, including indexing websites for search and scraping content for AI model training and operation. A web crawler, spider, or search engine bot is a software program that accesses, downloads, and/or indexes content from all over the Internet. Web crawler operators may seek to learn what (almost) every webpage on the web is about, so that the information can be retrieved when it's needed. Search engine operators may use these bots to find relevant pages to display in search results. The bots are called "web crawlers" because crawling is the technical term for automatically accessing a website and obtaining data via a software program.

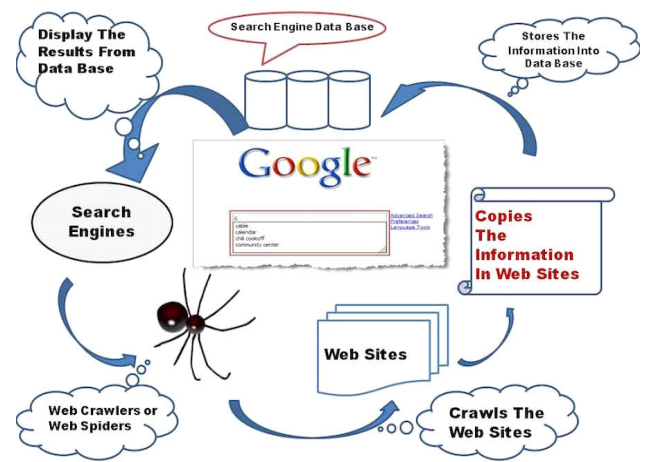


Fig. 3. Web Spider Crawler for Google

A web crawler, also known as a spider, is an automated program or bot predominantly used by search engines like Google and Bing to explore and catalog web content across the Internet. Its primary functions are to gather content of nearly every webpage and to facilitate retrieval of that content in search results. AI web crawlers are a separate, but related, type of crawler bot. They access content on the web either to help train large language models (LLMs), or to help AI assistants provide information to users. Many search providers also operate AI crawlers.

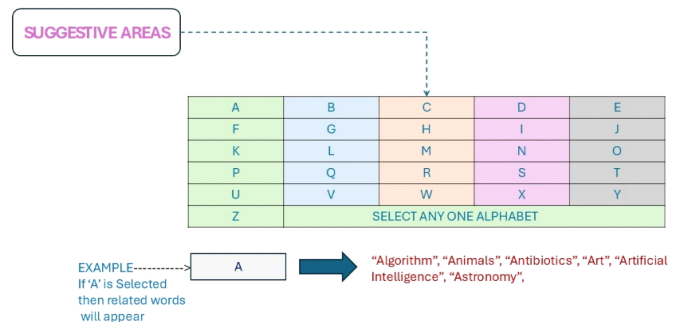


Fig. 4. Suggestive areas (A-Z)

In the above fig 4.0, we can visualize how a user can click the “Suggestive Areas” button. When that button is clicked, we can visualize A-Z options. The user can click on any option and can get further options which user can choose. The chosen word by user will be crawled and its information will be displayed in detailed. We have figured out more than 100 suggestive areas (from A-Z). Some of the suggestive areas are “Algorithm”, “Animals”, “Antibiotics”, “Art”, “Artificial Intelligence”, “Astronomy”, “Biology”, “Blood”, “Book”, “Business”, “Bomb”, “Cancer”, “Chemistry”, “Children”, “Civilization”, “Coding”, “Cognition”, “Colors”, “Culture”, “Diabetes”, “Discovery”, “Diseases”, “Drug”, “Design”, “Diet”, “Earth”, “Economy”, “Education”, “Electronics”, “Electricity”, “Energy”, “Engineering”, “Experiment”, “Ethics”, “Entrepreneur”, “Family”, “Fashion”, “Food”, “Forest”, “Fruit”, “Game”, “Gender”, “Geography”, “Growth”, “Graphics”, “Hacking”, “Hair”, “Head”, “Health”, “Healthcare”, “Heart”, “Heritage”, “History”, “Holiday”, “Home”, “Ice”, “Idea”, “Illegal”, “Industry”, “Internet”, “Intelligence”, “Injection”, “Innovation”, “Job”, “Journey”, “Jewel”, “Judge”, “Joy”, “Keypad”, “Kitchen”, “Key”, “King”, “Kick”, “Keyboard”, “keyword”, “Knowledge”, “Law”, “Learning”, “Library”, “Linguistics”, “Language”, “Machine”,

“Medicine”, “Media”, “Mathematics”, “Money”, “Mobile”, “Music”, “Nature”, “Nobel”, “News”, “Network”, “Office”, “Obesity”, “Operation”, “Organ”, “Organization”, “Password”, “Philosophy”, “Phone”, “Planet”, “Plant”, “Power”, “Programming”, “Product”, “Radio”, “Research”, “Robot”, “Resources”, “Rock”, “Safety”, “Satellite”, “School”, “Sense”, “Scientist”, “Software”, “Technology”, “Training”, “Temperature”, “Television”, “Treatment”, “User”, “University”, “Universe”, “Umbrella”, “Umpire”, “Vegetable”, “Vision”, “Vitamin”, “War”, “Words”, “Worry”, “World”, “Writing”, “X-ray”, “Xerox”, “Xmas”, “XML”, “Yellow”, “Yes”, “Youth”, “Year”, “Zebra”, “Zip”, “Zeal”, “Zero”.

AI Suggestor

The idea is to build an AI chat bot. This will require three pillars holding together tightly to make it meaningful when it needs to represent context. Relevance is the keyword here and to generate or rank suggestions based on a model, it can directly use a straightforward Small/Large Language Model (S/L LM) or a simpler ranking algorithm, and this is the first pillar. Context based suggestions is the second pillar that where parameters like user profile, recent actions, current screen text and a lot of other criteria that denote the different cognitive behavior of the user. Critically they are all made as a map so that they can find similar objects, and that is how the system draws relevance. The third pillar is different types of contextual signals, static ones like the user ID device preferences, etc. and dynamic ones which would be the current page, last in actions, active query, time of day, session Path, cookies from different websites, historical relevance of the current topic. With this the AI suggestor in the proposed AI chatbot will be able to build a context before providing an answer. Then the actual content, which is natural language description of the happening, meta data, docs, code, other data from different possibilities, etc. will be formed as a prompt and it is in turn used to get realistic and more accurate and efficient response.

The realism (minimized hallucination) comes from the different events and then feeding them back to the algorithm so that it can provide realistic results using multiple signals, not just the last message, but also current context, clear linkage, and keeping a clean schema. A clean scheme here is the collection of happenings as part of the data exchange for every event, repercussions or consequences based on the event and having them as part of the larger scheme of things sticking to the matter for that event. In this AI chatbot, an event is the occurrence of the entire cycle of asking a question and getting an answer. The request to the chatbot, the process of getting the required inputs based on the question/request and then getting the response will be considered an event.

Step 1 is to build the context by collecting the user data and the current sessions context where the basis of the entire context building starts. The next step 2 is the processing of this built context, where the past data of the user, along with the relevant topic data is constructed intelligently. Step3 is to understand the response and deliver it to the user. While the step 4 which is capturing user interactions, it provides the learnings back to step 2 which in turn refines and retunes the search. The recommendation will adhere to the construction logic, combining the old and new data. In this way, the AI chatbot will be assisted with a suggestor.

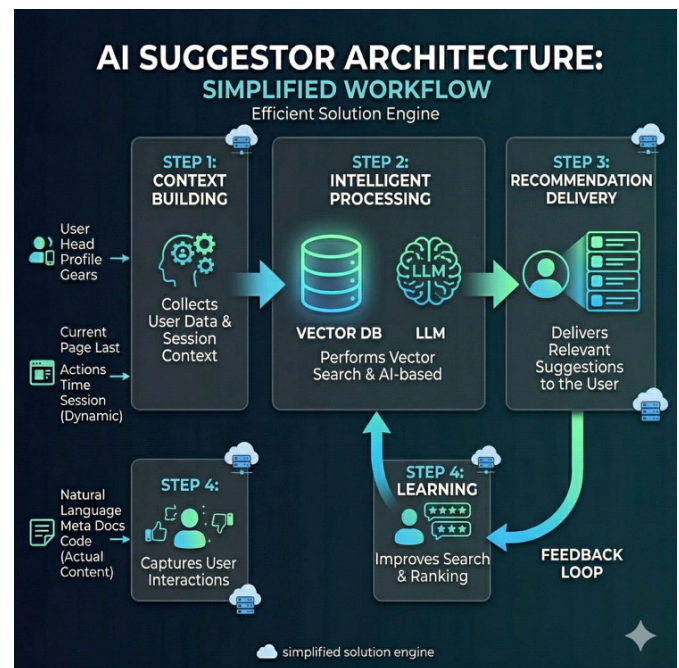


Fig. 5. AI Suggestor Architecture

To describe with an example: a target domain “suggest what to do next in my SaaS”. When SaaS is provided as a suggestion based on the user context in the conversation and adhere to the rule that this only works with the data fed. This can be backed by a wonderful Large Language Model, coupled with a vector Database for the query, to internally handle multiple events of the contextual signals and to draw relevance towards what is the current context of the user as well as current context of the problem that needs to be addressed as part of the event. So, the context is getting built as the words are typed, which becomes a suggestions engine. It needs to be refined where LLM injections are not present in-order to secure the user operations. Sticking to a smaller context will minimize latency, reduce hallucination, work on clearer context. All these aspects will become the icing on the cake for the AI chatbot. The feedback and learning loop will provide a very holistic perspective always prevailing a user’s context becoming a big addition to the AI chatbot. This AI chatbot also covers the cognition aspects of intelligence the AI chatbot machine can imbibe, making it extremely reliable. The important step would be to always rely on the current date for the user or the topic so that context is first built and then prompt is built. So, passing the prompt through multiple iterations with realistic data can start suggesting real prompts and then make it extremely real, meaningful, entirely context based for the user or with the rankings of other users’ data, which are very relevant to the current topic. So, this will be the right recipe for an AI chat bot. This can be extended to build an Agentic Bot.

AI Chatbot and cognition

In this section we will discuss about Cognition, AI, Cognitive AI and Cognition machine.

Cognition: Cognition refers to the mental processes involved in gaining knowledge and comprehension, including thinking, knowing, remembering, judging, and problem-solving. It encompasses all aspects of information processing, from perception and attention to language and memory, allowing individuals to understand and interact with their environment. Perception: Recognizing and interpreting sensory

information (e.g., identifying a familiar voice or recognizing a scent). Attention: Focusing on specific information while ignoring distractions (e.g., listening to a lecture in a noisy room). Memory: Storing and retrieving information (e.g., remembering a phone number or recalling a past event). Reasoning/Judgment: Making decisions and forming opinions (e.g., deciding which route to take to work). Problem-Solving: Developing strategies to overcome obstacles (e.g., fixing a broken item or solving a puzzle). Language: Understanding and using words to communicate.

Executive Function: Setting goals, planning, and shifting between tasks. "Cognition" is a term that sits at the intersection of philosophy, psychology, neuroscience, and artificial intelligence. While there's no single, universally agreed-upon definition, it's understood as the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses. Cognitive Neuroscience: Uses brain imaging techniques (like fMRI, EEG, PET scans) to map these mental processes to physical structures and networks in the brain. For example, neuroscience has shown that memory isn't in one place but is distributed across the hippocampus, cortex, and other regions. It includes things like Thinking, Learning, Memory, Perception (how you interpret what you see, hear, etc.), Problem-solving, and Decision-making Attention.

Artificial Intelligence: Artificial intelligence (AI) is the simulation of human intelligence by machines, enabling them to perform tasks like learning, reasoning, problem-solving, perception, and language understanding. These systems use algorithms and data to identify patterns, make predictions, and improve performance over time. Some key aspects of AI include Machine Learning: A core subset of AI where computers learn from data without being explicitly programmed. Generative AI: AI that can create new content, such as text or images (e.g., ChatGPT). Neural Networks: Computing systems inspired by the human brain that process complex information.

Natural Language Processing (NLP): Technology allowing machines to understand and generate human language. Computer Vision: Enabling machines to interpret and process visual data from the world. Artificial Intelligence (AI) is technology that allows computers to learn, reason, and

perform tasks that typically require human intelligence, such as recognizing speech, identifying images, or making decisions. Artificial Intelligence is the field of computer science dedicated to creating machines that can perform tasks requiring human-like intelligence things like learning, reasoning, problem-solving, perception, and understanding language. Below are the features of AI which we discuss in tabular format. It works by analyzing vast amounts of data to find patterns and predict outcomes, acting as a smart, automated tool rather than a physical robot. Artificial intelligence is classified by capability (Narrow, General, Super) and functionality (Reactive, Limited Memory, Theory of Mind, Self-Aware). Currently, all existing AI is Narrow/Weak AI (specialized tasks like ChatGPT, Siri). Future, theoretical types include Artificial General Intelligence (AGI) matching human intelligence and Artificial Super Intelligence (ASI) exceeding it.

Cognitive AI: Cognitive AI is a subset of artificial intelligence that mimics human thought processes perceiving, reasoning, learning, and understanding context to solve complex, unstructured problems. Cognitive AI is a subfield of artificial intelligence that aims to simulate human thought processes in a computational model. Rather than just achieving a correct output (like classifying an image or generating text), cognitive AI focuses on *how* the system arrives at that output emulating the architecture, mechanisms, and even the constraints of natural cognition. Cognitive AI is the branch of artificial intelligence that builds machines to think like minds do—using architectures inspired by human memory, attention, reasoning, and learning to create systems that are not only intelligent but also interpretable and explainable. Unlike narrow AI that follows strict rules, it uses machine learning, neural networks, and natural language processing to adapt, make decisions, and analyze text, audio, or images. The Key features of Cognitive AI include: -

- Context awareness (understands meaning, not just data)
- Natural interaction (can communicate like humans)
- Learning over time (improves with experience)
- Reasoning (makes informed decisions, not just predictions)

AI Cognitive Machine: There is a need to build a cognitive machine for AI Chatbot.

Table 1. Features of AI

Feature Category	AI Feature	Description
Natural Language	Text Generation	Creates human-like text (articles, emails, chats)
	Language Translation	Converts text between languages
	Sentiment Analysis	Detects emotions or opinions in text
	Chatbots	Conversational AI for customer support or assistance
Computer Vision	Image Recognition	Identifies objects, people, or scenes in images
	Facial Recognition	Detects and verifies human faces
	Object Detection	Locates multiple objects within an image/video
Speech & Audio	OCR (Text Extraction)	Reads text from images or scanned documents
	Speech Recognition	Converts spoken language into text
	Text-to-Speech	Converts text into natural-sounding speech
Machine Learning	Voice Assistants	Responds to voice commands
	Predictive Analytics	Forecasts trends based on historical data
	Recommendation Systems	Suggests products, content, or services
Robotics & Control	Anomaly Detection	Identifies unusual patterns or fraud
	Autonomous Navigation	Enables self-driving or pathfinding systems
Generative AI	Robotics Control	Controls machines and robotic systems
	Image Generation	Creates images from text prompts
	Video Generation	Produces videos using AI
	Code Generation	Writes or suggests programming code

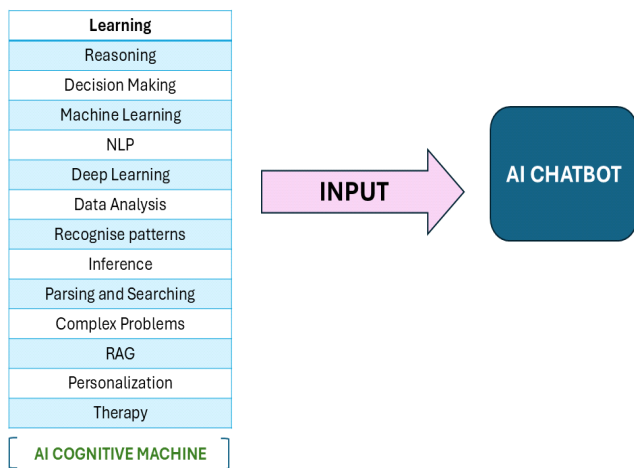


Fig. 6. AI Cognitive Machine input to AI chatbot

Cognitive learning is an active, mental-based approach to learning that focuses on understanding, processing, and retaining information rather than mere rote memorization. It emphasizes how knowledge is acquired, organized, and stored in the brain, fostering critical thinking, problem-solving, and the connection of new concepts to existing knowledge. Cognitive reasoning is the mental process of analyzing information, identifying patterns, and applying logic to solve complex problems, plan, or make decisions. It involves breaking down information into smaller, manageable components and is a key component of executive function and general mental ability. Cognitive interference refers to the disruption of mental processes such as memory, attention, or decision-making caused by competing thoughts, emotions, or external stimuli. It occurs when unwanted or irrelevant information intrudes on a task, leading to reduced performance quality, increased errors, and difficulty in information processing. Cognitive search is an AI-powered search technology that understands user intent, context, and relationships within data to deliver highly relevant results. It ingests structured and unstructured data from diverse sources, utilizing NLP and machine learning to analyze, index, and retrieve information, often transforming raw content into searchable knowledge. Cognitive decision-making is the mental process of selecting a course of action from multiple alternatives, combining perception, memory, and reasoning. It involves two core systems: fast, intuitive, emotional responses (System 1) and slow, analytical, logical reasoning (System 2), often influenced by cognitive biases and heuristics. Cognitive Machine Learning merges artificial intelligence with cognitive science to simulate human thought processes, moving beyond simple pattern recognition to reasoning, context understanding, and adaptability. By leveraging machine learning, neural networks, and natural language processing, these systems analyze unstructured data to assist in decision-making and emulate human-like intelligence. Cognitive therapy for an AI chatbot isn't a formal clinical method like it is in human psychology, but it refers to designing a chatbot using principles from Cognitive Behavioral Therapy (CBT) so it can help users manage thoughts, emotions, and behaviors. In humans, cognitive therapy focuses on identifying and changing negative or distorted thinking patterns. For AI chatbots, it means programming the system to:

- Recognize harmful or unhelpful thoughts in user messages
- Respond with supportive, structured guidance
- Help users reframe their thinking in a healthier way

A CBT-based AI chatbot typically:

- Identifies cognitive distortions
Example: "I always fail" → detecting overgeneralization.

- Challenges those thoughts

The chatbot might ask:

"Can you think of a time when things worked out differently?"

- Encourages reframing

It helps users replace negative thoughts with balanced ones.

- Suggests coping strategies

Such as journaling, breathing exercises, or problem-solving steps.

Some mental health apps using CBT-style chatbot techniques include:

- Woebot
- Wysa

In this we are teaching a chatbot to "think like a therapist" using CBT techniques to help users think more clearly and positively. CBT should focus on age groups, genders, individual mental health and maintain ethical standards. CBT should improve memory, attention, problem solving and improving cognitive skills.

Conclusion

Srishti is newly proposed sophisticated AI Chatbot. This new AI Chatbot will encompass new characteristics within. *Srishti* will be integrated with modern search engines and crawling mechanisms will be used to get proper results. It will also have new suggestion mechanism to search words with all alphabets. The AI Cognitive machine will ensure that AI Chatbot gets proper inputs like learning, reasoning, therapy etc. These inputs from AI cognitive machine will guarantee that *Srishti* performance and efficiency are increased many folds. *Srishti* should become a highly user friendly and informative AI Chatbot for users. *Srishti* can be built with specific front end and backend technologies. *Srishti* proposed model can be used by major AI Chatbots like ChatGPT, Gemini, DeepSeek etc.

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