



**UNIVERSITY OF
PLYMOUTH**



PUSL2021 Computing Group Project (23/AY/AU/M)

Group Project

Project Proposal Submission

AI Powered Virtual Counseling Chat Bot

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01.Introduction

The value of mental health and emotional well-being cannot be emphasized in the present swiftly shifting digital landscape. The need for mental health care and therapy has never been stronger in our fast-paced, technologically driven world. The occurrence of stress, anxiety, and mental health concerns is increasing. Although there are therapies available for such problems around the world, many people are hesitant about engaging in them. People have apprehension that something will happen to their privacy or acquaintances and social status. Many people encounter struggles with these kinds of situations since they do not have somebody to talk to. To address this problem there is a need for readily available, high-quality mental health resources that has sparked the creation of creative solutions, one of them is the Counseling AI Chat Bot.

This cutting-edge technology heralds a new era in mental health care by giving people a convenient and private forum to talk about their emotional health, get advice, and find comfort in difficult times. The Counseling AI Chat Bot is intended to be a sympathetic, understanding, and nonjudgmental friend who can engage in deep dialogue, respond to questions with empathy, and offer insightful advice to individuals in need.

This counseling AI chat bot's name is Jason. Jason is common male name which comes from Greek. The meaning of Jason is healer because of that reason we thought to name this chat bot as Jason.

The brilliance of this AI-powered chat bot resides in its ability to be available 24 hours a day, seven days a week, ensuring that support is only a message away, no matter the time or place. It is a perfect answer for those who may feel awkward or stigmatized seeking traditional counseling because it provides a level of anonymity that might enable folks to open and discuss their concerns without fear of criticism.

This technology is always evolving, learning from each interaction, and adjusting over time to deliver more personalized help. It can provide coping skills, provide resources, and even escalate to human specialists when needed, ensuring that users receive the best possible care.

Our concept depicts a future in which individuals can find tranquility and guidance at their solace, regarding the digital era's new means of connecting and seeking help. The AI-Powered Online Counseling Platform will be a groundbreaking step towards democratizing access to mental health care by removing barriers such as stigma, limited availability, and cost restraints.

In an era where mental health issues are prevalent, the Counseling AI Chat Bot is a beacon of hope, providing a lifeline to individuals in need while also contributing to a more inclusive, accessible, and helpful mental health ecosystem. It represents the nexus of technology and compassion, working relentlessly to promote the emotional well-being of everyone who seeks its counsel.

02.Project Achievements

An AI chatbot for mental health support can be a helpful tool, especially for people who do not have easy access to conventional mental health services or who want a more discreet and practical method of getting treatment. Creating an AI chatbot for mental health support is a worthwhile project with many potential advantages. The use of AI chatbots to promote mental health is a worthy undertaking that might have a big impact on the lives of those who are dealing with mental health problems. For those who find it difficult to reveal their mental health difficulties to a healthcare practitioner owing to stigma, chatbots are also appropriate for offering mental health treatment. Lucas and colleagues found that veterans provided more symptoms of PTSD to a chatbot compared to anonymous and non-anonymized versions of a self-administered questionnaire. Users with lesser language, medical knowledge, and technical abilities can communicate with the chatbot in a relatively straightforward way because chatbots are often simple to use and interact with. Integrated chatbots can connect with users straightforwardly via verbal and nonverbal cues, as well as through demonstrating empathy, focus, and near approach. As a result, they can create a therapeutic relationship with patients. A study revealed that chatbots were simple to use for a variety of users, even those who were computer novices.

•**Accessibility is increased:** An AI chatbot for mental health support might make mental health resources and advice more available to a wider audience, including people who might be reluctant to ask for help in person or have limited access to mental health services.

•**Reduction of Shame:** The non-judgmental and anonymous personality of AI chatbots can assist in lessening the stigma attached to seeking support for mental health difficulties, so promoting greater openness and support.

•**User Engagement:** Creating an approachable and accessible chatbot that motivates people to ask for assistance and participate in conversations about their mental health can help to achieve high user engagement rates.

•**Configuration:** Putting in place algorithms that let the chatbot offer individualized assistance based on user input, considering specific demands and emotions.

•**Accuracy and Sensitivity:** Determining that the chatbot's conclusions are truthful, sympathetic, and attentive to users' mental health requirements while avoiding damaging or inappropriate replies.

•**Data Gathering and Analysis:** Policymakers and researchers can use the chatbot to gather anonymous data on psychological trends that are crucial for identifying and solving population-level mental health issues.

•**Crisis reaction:** Give the chatbot the tools it needs to efficiently manage crisis circumstances, offering rapid support and direction and, if necessary, linking users to emergency resources.

•**Positive Impact:** Track the chatbot's effects on users' mental health, including if they experience better moods, less stress, or more help-seeking behavior.

- Establishing a procedure for continuing development and improvement, taking user input and updates into consideration to adapt to changing mental health demands.
- Due to the lack of high-quality human engagement that face-to-face interactions with healthcare practitioners give, most computerized therapies, despite being helpful in improving mental health, are characterized by high dropout rates and poor adherence.

By engaging with users in a way that is intuitive, human-like, and amusing, chatbots have the potential to replace these treatments as a viable option and increase user adherence. While AI chatbots have numerous advantages, they cannot take the place of qualified mental health care. They ought to be viewed as an addition to current offerings. The creation and use of mental health chatbots must carefully evaluate ethical issues, privacy concerns, data security, and the necessity of human involvement in more serious situations. The success of an AI chatbot project for mental health assistance will be judged by how effectively it contributes to users' well-being and how well it can offer timely, efficient, and accessible support for mental health issues. To achieve these results, regular review, criticism, and improvement is necessary. the AI level of the chatbot, its user interface, moral considerations, the participation of mental health professionals, and continuing user input and improvement. It's crucial to take the utmost care and responsibility when developing a chatbot for mental health, giving the user's welfare and safety a top priority.

03.Target Users

An AI chatbot for mental health can provide a non-judgmental and private space for individuals who are reluctant to attend traditional counseling, allowing them to express their feelings and concerns more comfortably. Caregivers and support networks can use the AI chatbot to gather information, tips, and resources to better understand and support their loved ones who are dealing with mental health challenges. For individuals in immediate crisis situations, an AI chatbot can provide essential information, resources, and contacts for crisis hotlines and emergency services, ensuring they get the help they need quickly.

Those who are struggling with mental health concerns but may be reluctant to seek out conventional counseling.

- School Students Preparing for an exam
- Individuals with chronic illness

Those with limited access to counseling services live in distant or underdeveloped locations.

- People facing major life transition

Those who seek seclusion and anonymity when speaking about sensitive topics.

- Trauma survivors
- Children who have lost their parent's love
- Lovers lost in love

Searching for resources and information are caregivers and support systems.

- University Students who have a lot of assignments to do
- Unemployed Graduates
- People who have lost their jobs
- Working Professionals
- Caregivers

04. Technology Stack

The Virtual Counseling Bot will be developed utilizing the following technologies:

- Natural Language Processing (NLP) and Natural Language Understanding (NLU), which comprehends and produces replies that resemble those of a person.
- Machine learning for long-term personalization and enhancement.
- Robust and expandable cloud infrastructure to guarantee round-the-clock accessibility.
- Data encryption and storage to safeguard user information and preserve privacy.
- Python or C# frameworks

Application features and description

- **Admin Login:** Admin can login by using their ID and Username
- **User Sign In:** User can register by creating a user account
- **User Login:** User can login at any time by using their Username and ID
- **User Profile:** Showing User details and permit users to control their account settings, preferences, and profiles.
- **User Sign Out:** User can sign out and delete their account
- **Resource Library:** A database of researched responses, coping mechanisms, activities, tips, pictures, videos, and articles to help users manage their mental health.
- **User Chat History:** Only user can see their user chat history and figure out their mental health improvement
- **Chat Interface:** A user-friendly chat interface to facilitate communication with the bot and Assistance for text-based and, if feasible, voice-based communication.
- **Emotion Recognition and Empathetic Responses:** Capable of identifying and reacting to user emotions via text/voice tone analysis; also capable of offering users in distress sympathetic and encouraging responses.
- **Data Security and privacy:** The project will prioritize user data privacy (Strong encryption) and data security measures to protect user sensitive information.
- **Feedback:** To enable ongoing improvement, users can offer feedback on their interactions.

05.Conclusion

A chatbot is a computer program or artificial intelligence (AI) system created to mimic conversation with human users, particularly through text-based or voice-based interactions. Customer service, information retrieval, entertainment, and other uses for chatbots are just a few examples. Chatbots that function according to a predetermined set of rules and replies are known as "rule-based" chatbots. They can offer solutions or take actions based on keyword matching or straightforward logical conditions and adhere to a predetermined decision tree or script. Chatbots that are powered by artificial intelligence (AI) are more sophisticated and make use of NLP (natural language processing) techniques. By examining the user's input, they may comprehend it and provide responses that resemble those of humans. As they converse with more people and collect more data, AI chatbots can develop their responses over time. The creation of an AI chatbot to help mental health is a challenging but very valuable project. By giving those who are struggling with mental health issues accessible, private, and user-centered support, this project has the potential to have a positive effect. It is critical to stress that while AI chatbots can be a great resource, they should not take the place of qualified mental health care, and user privacy, data security, and ethical concerns must come first.

06.GANTT Chart

