Mental Health Recommendation and Consultation System: Detailed Overview

Our Mental Health Recommendation and Consultation System is designed as an interactive, AI-powered chatbot that listens empathetically to users' mental health concerns and provides personalized support based on symptom severity. When a user communicates their emotional state, symptoms, or worries, the system uses a trained Support Vector Machine (SVM) model to analyze the input and classify the mental health symptoms into three categories: mild, moderate, or severe. This classification is crucial to offer the right guidance and ensure appropriate care.

For users with **mild symptoms**, such as occasional feelings of sadness, slight anxiety, irritability, restlessness, or mild sleep disturbances, the chatbot offers actionable self-care tips. These recommendations include engaging in regular physical activity like daily walking or yoga to boost mood and energy, practicing mindfulness meditation or deep breathing exercises to alleviate stress, maintaining a balanced diet rich in fruits, vegetables, and whole grains to support brain health, ensuring consistent and quality sleep by following good sleep hygiene, avoiding excessive use of alcohol or recreational drugs, staying socially connected with friends and family to foster emotional support, journaling feelings to gain self-awareness, and pursuing hobbies or creative outlets that bring joy and distraction from negative thoughts.

When symptoms escalate to a **moderate level**, such as persistent low mood, frequent anxiety or panic attacks, social withdrawal, chronic fatigue, insomnia, decreased appetite, or difficulty concentrating, the chatbot acknowledges the increased complexity and suggests a combination of enhanced self-care and professional consultation. It encourages the user to seek mental health counseling or therapy, which may include cognitive-behavioral therapy (CBT) or other evidence-based practices. The system also advises consulting with healthcare providers who can evaluate the need for medication or further interventions. Throughout this phase, the chatbot continues to emphasize lifestyle modifications and emotional support strategies that complement professional treatment.

In cases where symptoms are identified as **severe**, which include suicidal ideation or attempts, hallucinations, delusions, extreme mood swings, inability to carry out daily responsibilities, or self-harm behaviors, the chatbot immediately prioritizes user safety by advising urgent professional help. It directs users to contact emergency services, crisis helplines, or nearby mental health facilities. The system's ability to detect these critical warning signs and respond with rapid guidance can be life-saving.

The backend model powering symptom classification is trained on validated mental health datasets, carefully labeled to reflect severity levels, allowing accurate interpretation of user inputs. By combining natural language processing with machine learning, the system understands nuanced descriptions of feelings and behaviors, improving its diagnostic sensitivity.

This integrated approach ensures that users receive empathetic, relevant, and timely advice: gentle guidance and practical tips for mild and moderate symptoms, and swift referral for severe

conditions. Ultimately, our system aims to reduce barriers to mental health care, promote early intervention, and support ongoing well-being for individuals facing diverse mental health challenges.