### **TOPIC 6: AI-Powered Mental Health Monitoring System**

The AI-Powered Mental Health Monitoring System is designed to help users track their daily emotional well-being and detect early signs of stress, anxiety, or depression. Users log their moods, sleep hours, stress levels, and personal notes daily, which are then analyzed by AI models. The system applies Natural Language Processing (NLP) to analyze journal entries and identify patterns that may indicate potential mental health risks. It also integrates with counsellors for professional guidance and allows scheduling sessions for timely intervention. By combining user self-monitoring with AI-driven insights and professional support, the system promotes early detection, preventive care, and better mental health management.

**FEATURES (with details):**

1. **Daily Mood & Stress Logging**

Users can record their mood, sleep hours, stress levels, and daily notes in an easy-to-use interface. This consistent self-monitoring builds a behavioural dataset over time, which becomes the foundation for AI analysis. Regular logging increases awareness and helps users recognize patterns in their lifestyle that affect mental health.

* Design the DailyLogs table with mood, stress, sleep hours, and notes.
* Build a mobile/web interface for easy daily input.
* Implement reminders to encourage consistent logging.

1. **AI-Based Journal & Mood Analysis**

Using NLP and sentiment analysis, the system interprets user-written notes to detect emotional tone, stress levels, and possible signs of anxiety or depression. AI also combines structured data (mood/stress ratings, sleep) with unstructured text to produce a risk score. This enables early detection of mental health issues before they escalate.

* Use NLP (sentiment analysis, topic modelling) on notes.
* Train ML models to predict stress/anxiety/depression risk.
* Link predictions to the AI\_Analysis table with risk level.

1. **Personalized Mental Health Recommendations**

Based on AI analysis and user history, the system suggests personalized recommendations such as relaxation exercises, mindfulness practices, or lifestyle adjustments. For high-risk users, it can suggest connecting with a counsellor immediately. Over time, the system adapts to the user’s patterns, providing increasingly accurate and relevant guidance.

* Build a recommendation engine using AI analysis + user history.
* Suggest coping exercises, mindfulness, and lifestyle adjustments.
* Integrate feedback loop to refine recommendations.

1. **Counsellor & Session Management**

Users can connect with professional counsellors for therapy sessions. The system manages counsellor profiles, schedules, and availability, while allowing users to book and track appointments. Post-session feedback is recorded to improve future recommendations. This integration ensures that technology and human expertise work together for effective care.

* Design Counsellors and Session tables.
* Allow users to book/reschedule sessions with availability checks.
* Collect session feedback to improve AI suggestions.

1. **AI Risk Prediction Dashboard**

The system generates a dashboard for both users and counsellors, displaying trends in mood, stress levels, and predicted risks over time. Counsellors can view AI-driven insights into their patients’ behaviour patterns, making sessions more effective. Users also gain visual awareness of how their mental health evolves daily, weekly, or monthly.

* Create visual graphs/charts of user trends (mood, stress, sleep).
* Show risk levels over time with AI insights.
* Build counsellor dashboards for patient monitoring.

1. **Crisis Detection & Emergency Support**

If the AI detects alarming signs (e.g., suicidal thoughts, extreme stress spikes), the system triggers alerts. Users may receive immediate coping resources, emergency hotline numbers, or automatic notifications to assigned counsellors. This ensures timely intervention in critical situations, potentially saving lives.

* Define AI rules for high-risk indicators (e.g., suicidal keywords).
* Connect the system with hotlines and local emergency contacts.
* Implement alert notifications for users + counsellors.