SMART INDIA HACKATHON 2025

MindEase

- **Problem Statement ID – 25092**
- **Problem Statement Title- Development of a Digital Mental Health and Psychological Support System for Students in Higher Education**
- **Theme- MedTech / BioTech / HealthTech**
- **PS Category- Software**
- **Team Name - Codix**

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Proposed Solution

MindEase provides comprehensive mental health support for higher education students through an accessible digital platform. It features AI-guided psychological first aid, confidential counseling booking, regional language resources, moderated peer support forums and analytics. The platform addresses stigma through anonymity options while providing culturally relevant support through multilingual interfaces and regionally appropriate content.

How MindEase adresses the problem?

- 24/7 AI Chatbot: Provides immediate crisis tools & coping strategies to prevent escalation.
- Personalized Care Pathways: Uses clinical screenings & tracking to enable proactive support.
- Anonymous Safe Space: Offers stigma-free help through confidential booking & peer forums.

Key Features

- AI Psychological First Aid: LLM-powered chatbot for immediate crisis support & coping strategies.
- Confidential Booking: Anonymous scheduling for on-campus counselors & helplines.
- Regional Resource Hub: Psychoeducational content(videos, podcasts) in multiple Indian languages.
- Moderated Peer Support: Anonymous forums with trained volunteers & AI moderation.
- Integrated Screening: PHQ-9, GAD-7 and GHQ-12 assessments with progress tracking.
- Multilingual Support: Hindi, Marathi, English, Tamil and other regional languages.

Our USP

- ML based risk predictor using logistic regression & random forest models to proactively flag at-risk students.
- Real-time emotion detection via OpenCV & CNN for instant emotional state analysis during sessions.
- Secure OCR-based student ID authentication ensuring verified yet anonymous access.
- Live Counselor Sessions: Secure, confidential video/audio calls with professionals via WebRTC integration.

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TECHNICAL APPROACH

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Software stack components

AI Chatbot

LLM API is used for the AI Chatbot. It provides conversational AI capabilities.

Frontend

React.js is used for the frontend. It handles the user interface.

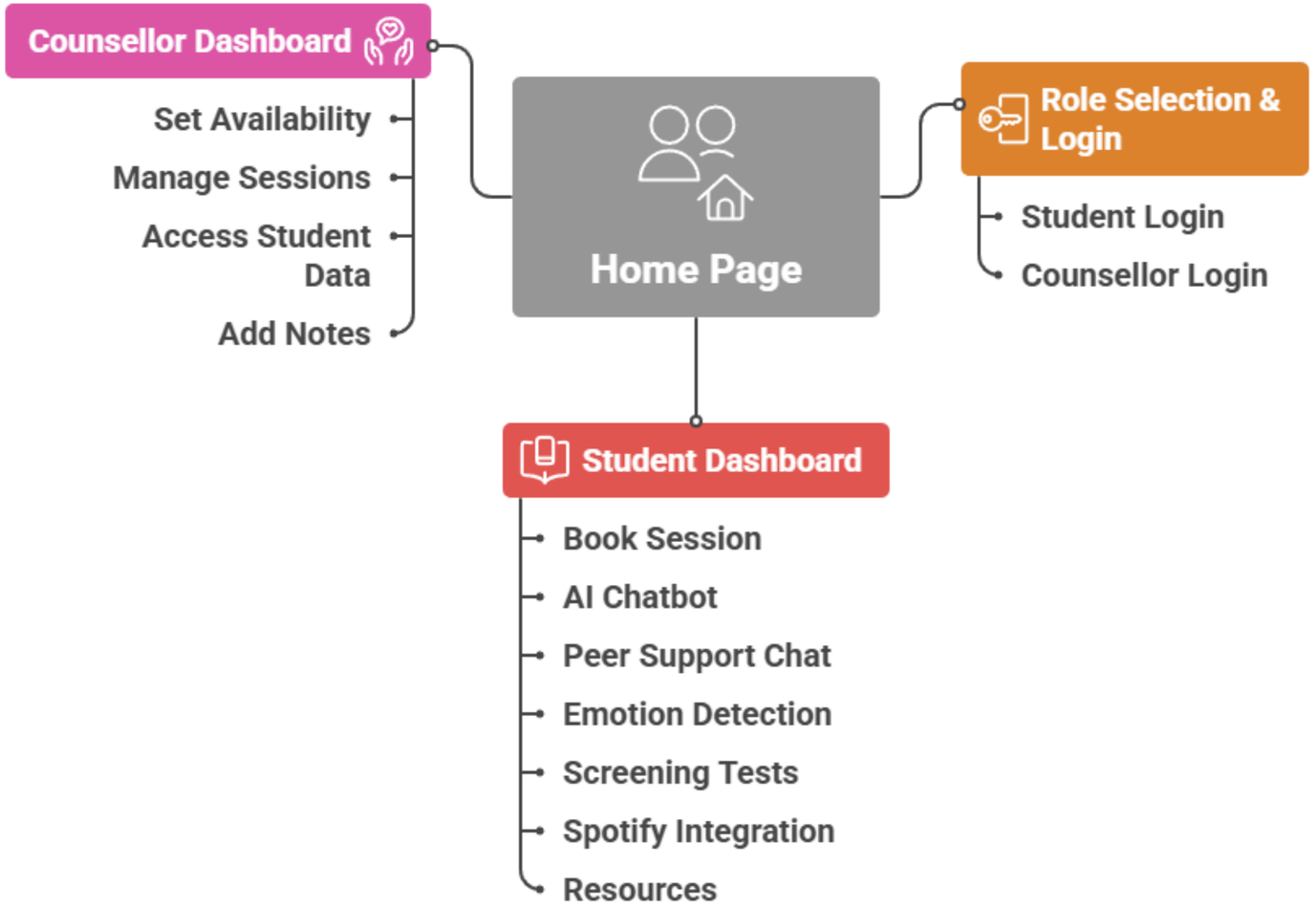
Database

MongoDB is used as the database. It stores the application data.

Backend

Node.js (Express) and Fast API are used for the backend. They handle server-side logic.

Mental Health Web App User Flow



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FEASIBILITY AND VIABILITY

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Feasibility Analysis:

- Technical: Viable with current tech. Needs secure video (WebRTC), AI, encryption and data compliance.
- Economic: Sustainable via institutional licenses & grants. Covers servers, counselors, content.
- Operational: Requires counseling partnerships, multilingual support, 24/7 moderation.
- Legal: Must comply with mental health data regulations and AI ethics.
- Market: High demand; >60% students need support. Lacks cultural adaptation.

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02

Potential challenges and Risks:

- Stigma & Privacy: Student hesitation due to social stigma and data concerns.
- AI Safety Risk: Potential chatbot errors in crises needing strong backup protocols.
- Digital Access: Rural barriers due to poor connectivity and device limitations.
- Language Complexity: Difficulties in creating validated multi-language resources.
- Counselor Shortage: High demand could overextend existing support systems.
- Legal Complexity: Challenging compliance with multi-region teletherapy laws.

Strategies

- Stigma Reduction: Ensure anonymity features and promote via student influencers.
- Clinical Safety: Implement strict AI guardrails, human-in-the-loop monitoring, and crisis keyword detection.
- Academic Integration: Partner with faculty to embed mental wellness check-ins and resource prompts within existing learning management systems
- Scalable Support: Train peer volunteers and use tiered support models (AI → peer → professional).
- Campus Ambassadors: Leverage student volunteers to promote awareness and reduce stigma through peer-to-peer outreach.

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IMPACT AND BENEFITS

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Impact

- Improved Student Well-being: Provides immediate, accessible support to reduce anxiety, depression, and academic stress.
- Early Intervention: AI-driven tools identify at-risk students early, enabling timely support before issues escalate.
- Reduced Stigma: Anonymous access and peer support normalize mental health conversations on campus.
- Institutional Awareness: Data insights help administrators understand mental health trends and allocate resources effectively.

Benefits

Psychological

- **24/7 AI chat & crisis tools**
- **Personalized screening & tracking**
- **Culturally relevant resources**

Academic

- **Boosts focus & academic performance**
- **Reduces dropout rates through early support**

Social

- **Builds supportive peer networks**
- **Encourages help-seeking via anonymous access**

Institutional

- **Data-driven resource optimization**
- **Evidence-based policy making**
- **Trend analysis for early intervention**

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RESEARCH AND REFERENCES

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- Mental Health App Development
- WebRTC for Video Counseling
- AI/ML for Mental Health Chatbots
- PHQ-9 & GAD-7 Implementation
- GDPR/HIPAA Compliance in Healthcare Apps
- Multilingual App Internationalization
- Crisis Detection Algorithms
- Mental Health APIs (e.g., Twilio, AWS Comprehend)