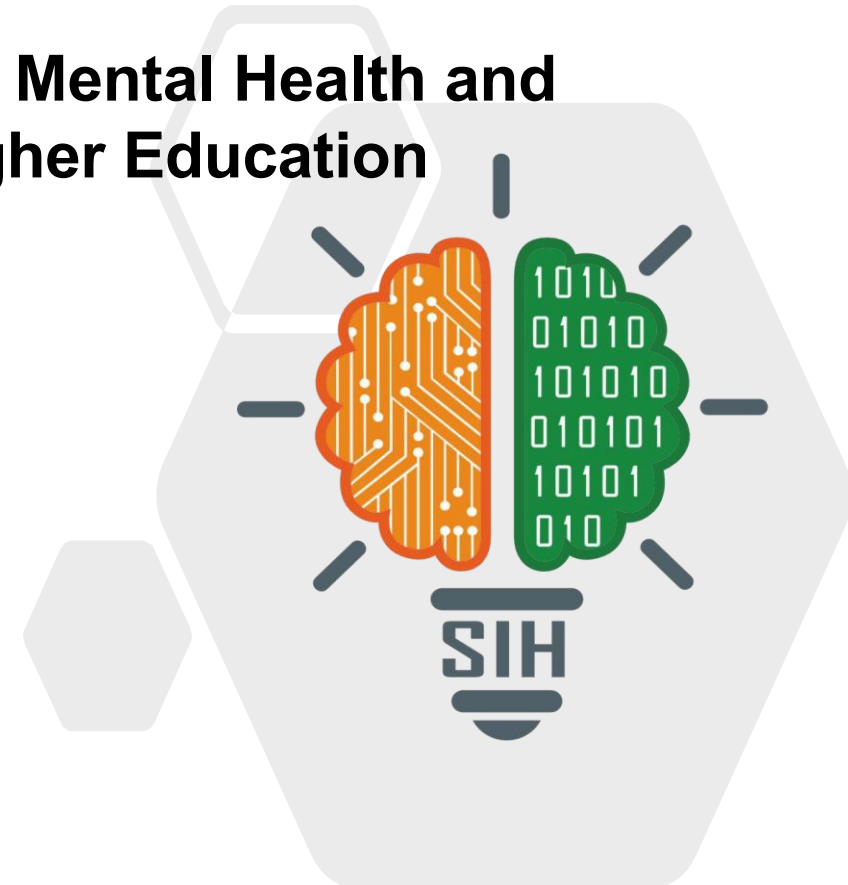# SMART INDIA HACKATHON 2025

TITLE PAGE

- **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 ID- Tuastra**

- **Team Name - Tuastra**

IDEA TITLE

❖ Proposed Solution (Describe your Idea/Solution/Prototype)
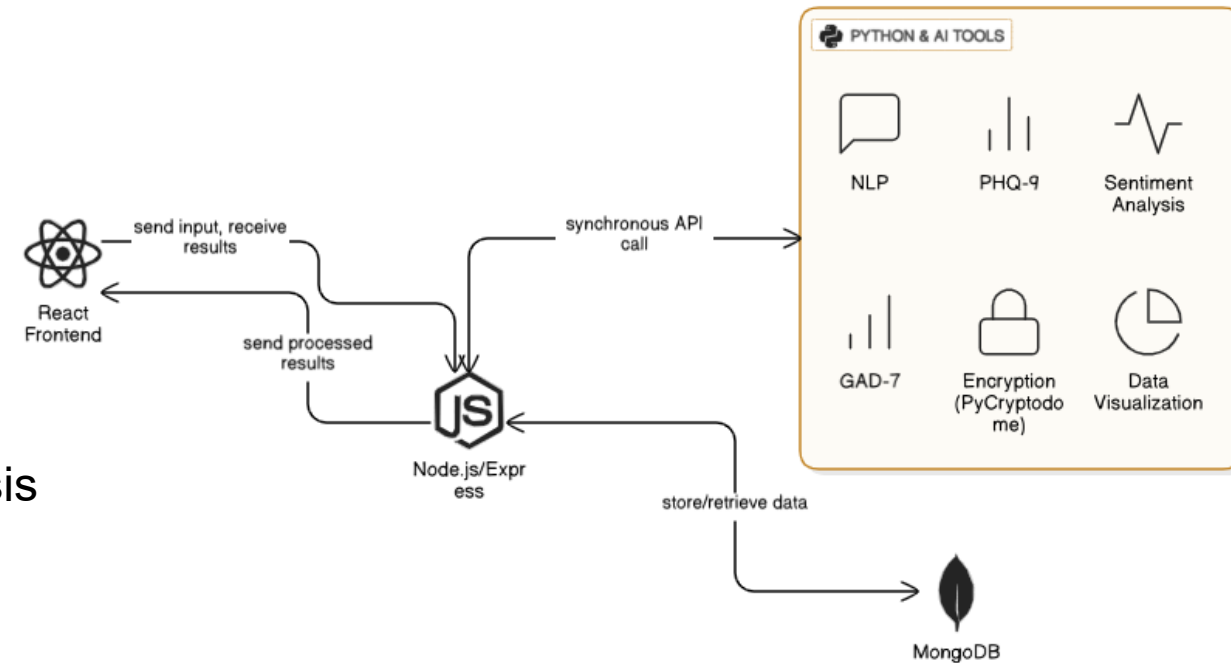
Proposed Solution

- **Anonymous, AI-assisted support system** blends NLP-driven triage, encrypted interactions, and tiered escalation (AI → peer → professional) for a smarter and safer mental health journey.

- **Culturally intelligent engagement** delivers content and peer support tuned to local languages, student contexts, and stigma patterns, making the platform feel relevant and trustworthy.
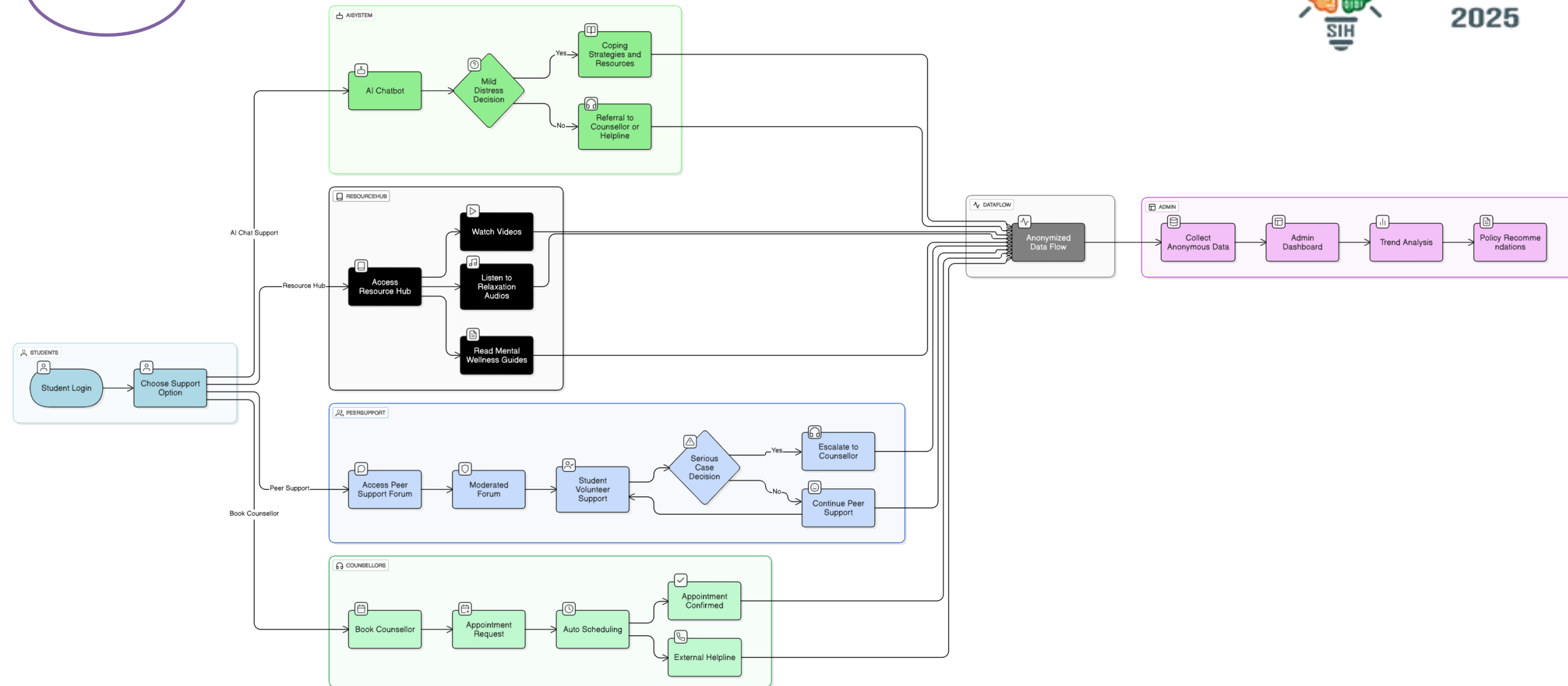
Innovation & Uniqueness

- Combines AI triage, peer support, and professional counselling in one secure platform.

- **Culturally tuned NLP** understands regional idioms, stigma contexts, and supports multiple languages beyond simple translation

- Gamified Self-Tracking & Feedback

TECHNICAL APPROACH

- **Frontend:** React + Tailwind (responsive, accessible UI)

- **Backend:** Node.js + Express (API & server logic)

- **Database & Security:** MongoDB (user/session storage) + PyCryptodome (encryption & anonymization)

- **Authentication & Access Control:** JWT / OAuth2, bcrypt (password hashing), role-based access

- **AI Engine:** NLP-powered chatbot (sentiment analysis + intent detection)

- **Assessment Tools:** Automated PHQ-9 & GAD-7 integration

- **Communication Layer:** Secure chat (real-time messaging with WebSockets), Video call integration (WebRTC / Twilio / Agora SDK)

- **Data Analytics & Visualization:** Pandas, NumPy, Matplotlib, Seaborn (trend reporting & dashboards)

WORKFLOW CHART

Tuastra

SMART INDIA HACKATHON 2025

AISYSTEM
- AI Chatbot → Mild Distress Decision
  - Yes → Coping Strategies and Resources
  - No → Referral to Counsellor or Helpline

RESOURCEHUB
- Access Resource Hub
  - Watch Videos
  - Listen to Relaxation Audios
  - Read Mental Wellness Guides

STUDENTS
- Student Login → Choose Support Option
  - AI Chat Support
  - Resource Hub
  - Peer Support
  - Book Counsellor

PEERSUPPORT
- Access Peer Support Forum → Moderated Forum → Student Volunteer Support → Serious Case Decision
  - Yes → Escalate to Counsellor
  - No → Continue Peer Support

COUNSELLORS
- Book Counsellor → Appointment Request → Auto Scheduling
  - Appointment Confirmed
  - External Helpline

DATAFLOW
- Anonymized Data Flow

ADMIN
- Collect Anonymous Data → Admin Dashboard → Trend Analysis → Policy Recommendations

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- **Feasibility:** Can be built using existing frameworks, secure backends, databases, and AI tools, but requires strong institutional support. Needs high-quality content, trained peer moderators, and active counselling center involvement.

- **Challenges & Strategies:** The main challenges are tackling stigma, ensuring adoption, and safeguarding sensitive data. We address this with <u>anonymity, secure encryption, and peer-led engagement</u>. Content quality is upheld through moderation and expert validation, while counsellor workload is balanced using AI triage. <u>Surveys across colleges</u> confirmed the strong need and relevance of this tool, supporting long-term institutional adoption.

IMPACT AND BENEFITS

- **Potential Impact:** Improves mental health awareness and support among students. Encourages peer engagement and timely professional intervention.

- **Benefits:**

  Social: reduces stigma, fosters a supportive community, and provides a safer, moderated alternative compared to platforms like   Reddit.

  Economic/Environmental: lowers long-term healthcare costs and promotes efficient use of resources.

RESEARCH AND REFERENCES

- Google Form Link: Circulated across multiple colleges for wide participation and feedback.

- World Health Organization. (2023). *Mental health and well-being of students*.

- American Psychological Association. (2022). *Counseling in higher education*.

- University of GlasGlow.Global Mental Health

- London Assembly. Supporting Mental Health