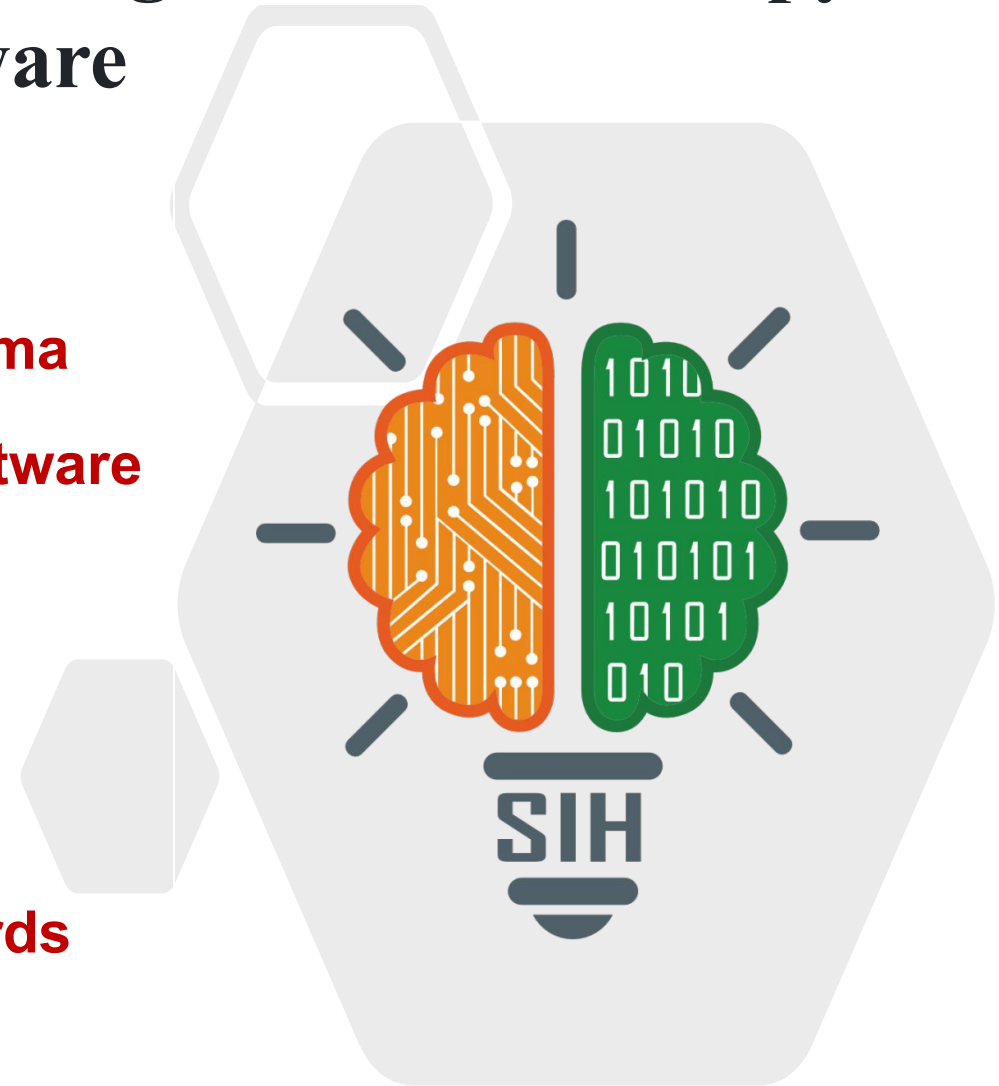# SMART INDIA HACKATHON 2025

AyurSutra- Panchakarma Patient Management and therapy scheduling Software

- **Problem Statement ID – SIH25023**

- **Problem Statement Title- AyurSutra- Panchakarma Patient Management and therapy scheduling Software**

- **Theme-MedTech/BioTech/HealthTech**

- **PS Category- Software**

- **Team ID-**

- **Team Name (Registered on portal)- NextGenNerds**

❖ <u>Proposed Solution</u>

Proposed Solution

- Automated therapy scheduling (patients and practitioners can book/edit sessions)
- Pre/post-procedure notification system (customizable via SMS/Email/App)
- Basic real-time session tracking dashboard (timeline/progress bar for each patient)
- Simple feedback loop (post-session symptom/comment form)
- Practitioner and patient profiles
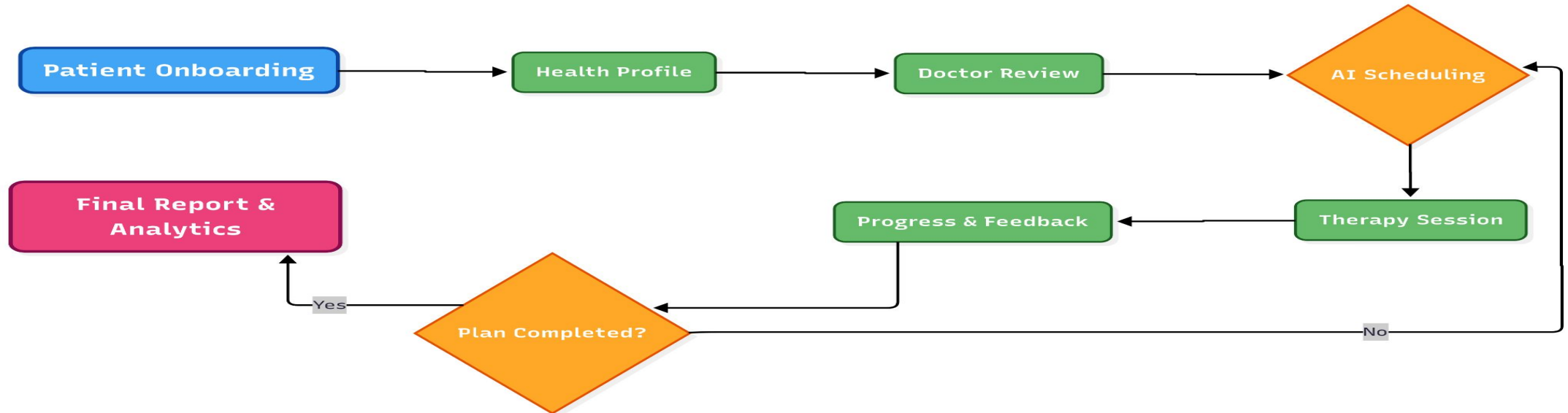- Core database and API backend for secure patient records and therapy plans

Innovation & Uniqueness

- **AI-Assisted Scheduling** – ML-based optimization of therapy sessions (practitioner load, duration, risk factors).
- **Gamification** – Progress bars & milestone badges to boost patient engagement.
- **Blockchain Security** – Immutable consent records & certified therapy standards.
- **Predictive Analytics** – Detects suboptimal recovery & personalizes notifications.

TECHNICAL APPROACH
TechStack and Flow Chart

- **Backend:** Node.js (Express) - robust, scalable, and developer-friendly.
- **Frontend:** React
- **Database:** MongoDB for flexible schemas (MERN).
- **Notifications**: Firebase Cloud Messaging / Twilio for SMS/email.
- **AI/ML**: Python (scikit-learn, TensorFlow) for future expansion.
- **Cloud**: AWS and Azure (deployment, scalability, secure patient data).
- **Visualization**: Chart.js and Plotly for dashboard graphs.

FEASIBILITY AND VIABILITY

❖ Feasibility

- **Technical**: MERN-based software, real-time therapy tracking & notifications are achievable with current healthcare IT infrastructure.
- **Operational**: Automated therapy scheduling & reminders streamline Panchakarma processes effectively.
- **Economic**: Reduces manual paperwork, scheduling errors, and missed appointments, making it cost-effective.
- **Legal & Ethical**: Ensures compliance with healthcare data privacy laws and HIPAA/GDPR standards.
- **Environmental**: Minimizes paper-based documentation by shifting to digital records.

❖ Viability

- **Technical**: Strong demand for digital Ayurveda solutions; scalable for clinics of all sizes.
- **Operational**: High user acceptance due to improved efficiency for both patients and practitioners.
- **Economic**: Long-term cost savings, higher clinic revenue, and better patient retention.
- **Legal & Ethical**: Builds trust by safeguarding sensitive health data.
- **Environmental**: Supports sustainability with long-term eco-friendly benefits.

IMPACT AND BENEFITS

❖ Impacts

- **50% fewer missed appointments** – AI-powered reminders keep patients on track.
- **Faster scheduling** – Automated booking system eliminates phone delays.
- **Better treatment outcomes** – Intelligent guidance ensures patients follow pre/post instructions.
- **Less paperwork** – Digital medical records save doctors' and staff time.
- **Improved communication** – Smart notifications enable smoother clinic-patient interaction.

❖ Benefits

- **Social uplift** – Makes Ayurveda accessible, modern, and preserves cultural heritage.
- **Economic growth** – 25% higher profitability, 40% admin cost savings, and market expansion.
- **Operational efficiency** – AI-driven workflows standardize treatment quality nationwide.
- **Environmental sustainability** – 100% paperless, reduced travel, lower carbon footprint.
- **Scalability** – Cloud + AI integration ensures growth across 50,000+ clinics.
- **Cultural Preservation** – Supports authentic, traditional Panchakarma protocols while making them accessible and scalable for modern users.

RESEARCH AND REFERENCES

SMART INDIA
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2025
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<u>Links of the reference and research work</u>

- **Panchakarma Treatment Steps & Duration** – Details on therapy procedures, phases, and patient care:
  https://dheemahiayur.com/panchakarma-ayurveda-treatment-steps-and-procedures/
- **Global & Indian Ayurveda Market Insights** – Market size, growth projections, and industry trends:
  https://www.ibef.org/news/ayurveda-products-market-in-india-to-reach-us-1627-billion-rs-12-trillion-by-fy28-report
- **AyurGrid Panchakarma Management Software** – Existing specialized software solutions for Panchakarma:
  https://ayurgrid.com
- **Clinicea Ayurveda EMR** – Ayurvedic clinic management platform with patient management & scheduling:
  https://clinicea.com/ayurveda
- **Patient Scheduling Challenges & Solutions in Healthcare** – Research on appointment automation and notifications:
  https://www.plusphysio.com/blog/8-patient-appointment-scheduling-challenges-and-their-solutions