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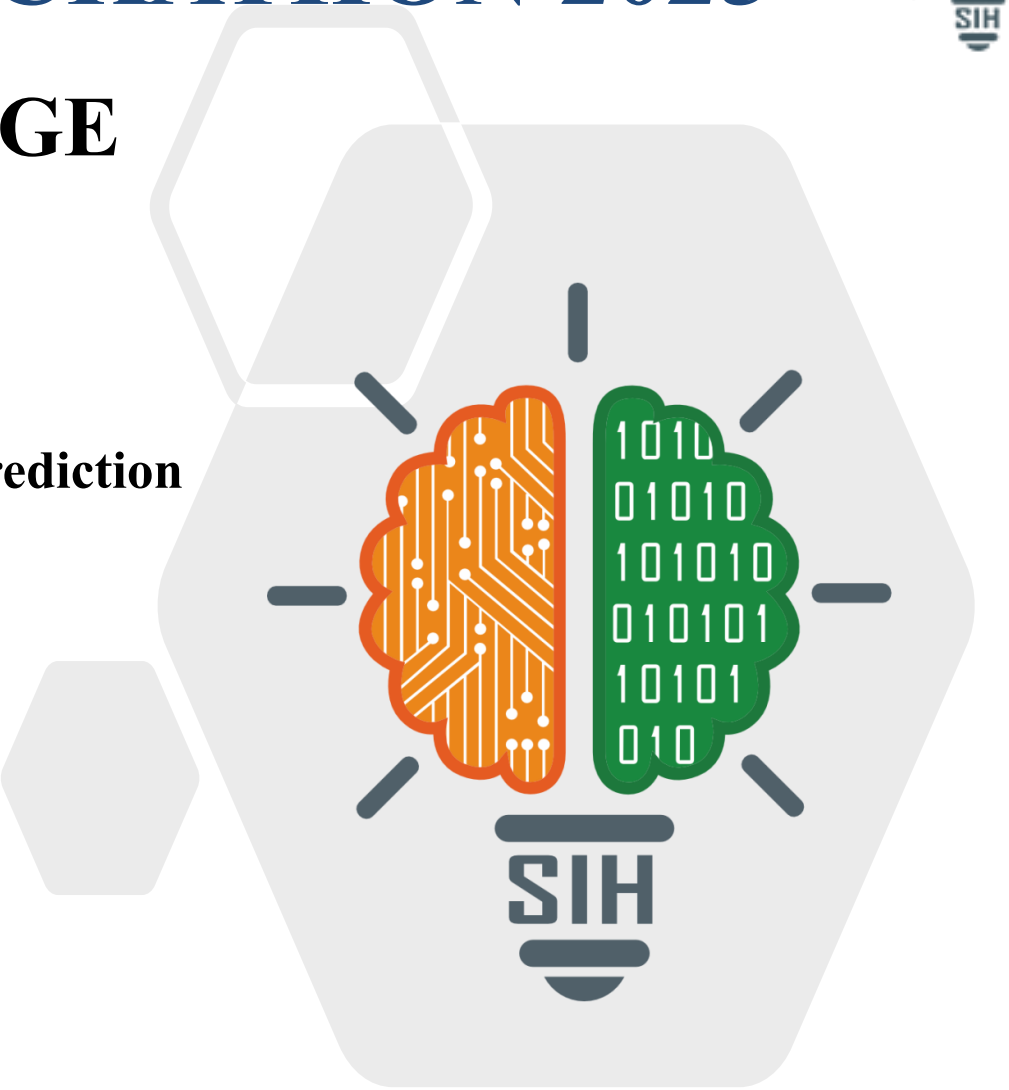
TITLE PAGE

- **Problem Statement ID – SIH25102**
- **Problem Statement Title - AI-based drop-out prediction and counseling system**
- **Theme- Smart Automation**
- **PS Category- Software**
- **Team ID -**
- **Team Name - Binary Busters**



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AI-based Drop-out Prediction and Counseling System

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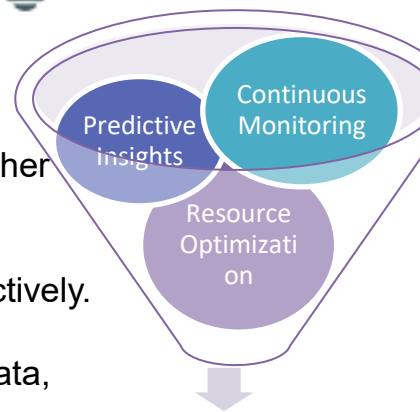
Proposed Solution

- AI model predicts students at risk of dropping out.
- Real-time dashboard + personalized counseling support
- Uses academic, behavioral & socio-economic data
- Provides automated alerts, chatbot support, and mentor guidance.
- Ensures privacy & scalability across institutions.

How it addresses the problem

- Detects students at risk of dropping out through AI-based analysis of attendance, grades, parental background and other factors.
- Helps educators focus resources on high-risk students effectively.
- It facilitates the large-scale collection of diverse statistical data, supporting external research for improved policy-making.
- Supports institutions in reducing dropout rates and improving overall academic success.



Innovation and uniqueness of the solution

- In terms of dropout rates for higher secondary schools in India, is 6.7%.
- First system to combine AI prediction with personalized counseling and Feedback.
- The first platform to unify data from a thousand schools across multiple boards and states for pattern recognition.

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TECHNICAL APPROACH

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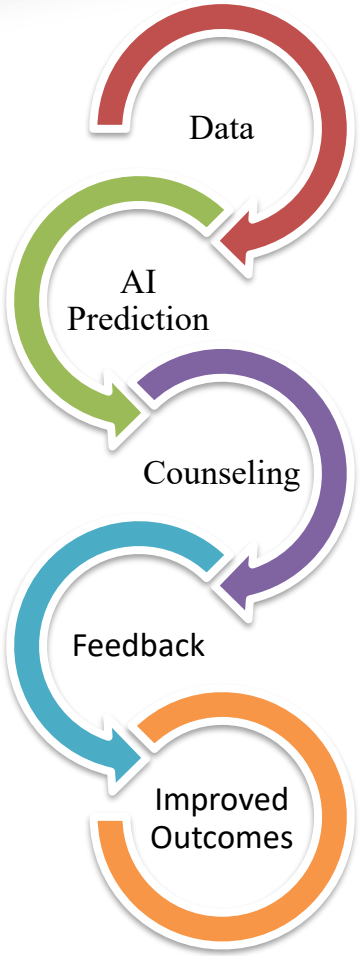
Process Flowchart



Technologies to be used

- Data Collection: Collected uniformly formatted data directly from schools and government institutions via our web portal.
- Data Handling: MySQL / MongoDB for student records.
- AI/ML Frameworks: Python (Pandas, MatplotLib, NumPy, Scikit-learn, PyTorch).
- Counseling Support: Chatbots (Dialogflow / Rasa) for personalized guidance.
- Dashboard & Interface: React + Django/Flask for real-time monitoring.
- Deployment: Cloud platforms (AWS / Azure / GCP).
- Security: Built on encryption, strict access controls, and data minimization, guaranteeing student data is never shared.

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FEASIBILITY AND VIABILITY

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ANALYSIS OF THE FEASIBILITY OF THE IDEA

Technical
Predictive power of educational data, a robust tech stack, and a realistic data pipeline.

Economic
Built on open-source technology, the platform ensures minimal and predictable hosting

Operational
Designed to integrate seamlessly and augment human experts.

Legal/Ethical and Security
Proactive measures for privacy, fairness, and transparency.

This solution is not only a technological possibility but also a practical, responsible, and sustainable tool for educational institutions.

CHALLENGES RISKS AND IT'S SOLUTIONS

Data Availability & Quality	Synthetic Data Prototyping
Model Bias & Fairness	Continuous Bias Auditing
User Adoption & Trust	Explainable AI Insights
False Positives & Negatives	Human-in-the-Loop Validation
Data Privacy & Security	Encryption, Access Control, Isolation

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IMPACT AND BENEFITS

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POTENTIAL IMPACT ON THE OVERALL EDUCATION SYSTEM

- **Data-Informed Reform 📊 :**

Identifies at-risk courses and curricular enabling data-driven reforms to teaching methods and program design.

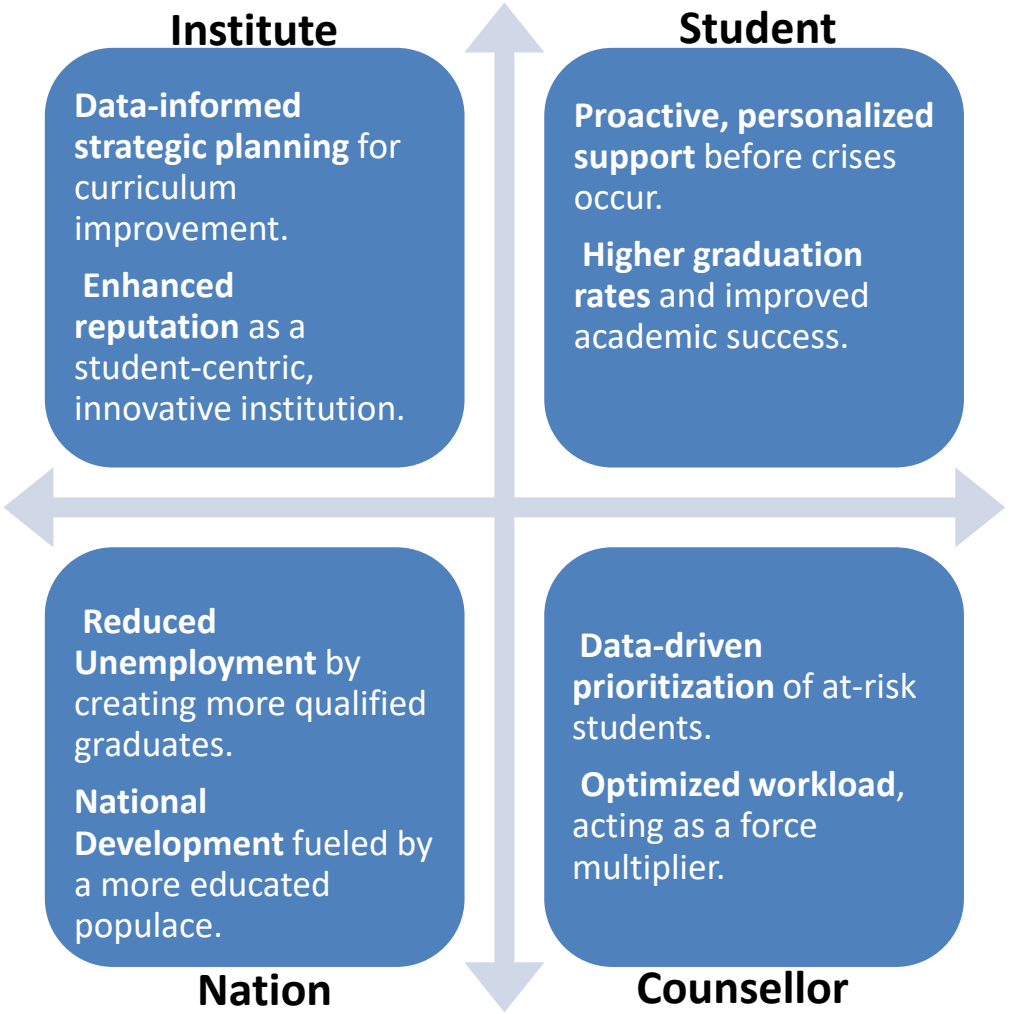
- **Resource Optimization ⚙️ :**

Allows institutions to strategically allocate resources to students who need them most.

- **Setting a New Standard 🚀 :**

Establishes a national model for the responsible and effective use of AI in education.

BENEFITS OF AI-BASED DROPOUT SYSTEM



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RESEARCH AND REFERENCES

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RESEARCH

- **Articles**

  i. India's 2025 School Dropout Rates: State-wise Analysis

  ii. The School Dropout Rate: A Pressing Issue Requiring Immediate Attention

- **Student Dropout Factors:**

  Tinto, V. (1975). Dropout from Higher Education: A Theoretical Synthesis of Recent Research. *Review of Educational Research*.
  Provides the theoretical framework for understanding the social and academic integration factors leading to dropout.

REFERENCES

- **Articles**

  i. AI-Powered Dropout Prediction in India: Case Studies from Kerala and Bihar

- **Technology & Framework References**

  i. Libraries & Tools: Scikit-learn, TensorFlow/PyTorch, SHAP/LIME for explainability.
  ii. Data Privacy Standards: References to India's Digital Personal Data Protection Act (DPDPA), 2023.
  iii. Technical Architecture: Based on cloud-native (AWS/Azure) and MLOps principles.