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- **Problem Statement ID – SIH25253**
- **Problem Statement Title - *AI based analysis and performance indicators based on historical data for academic institutions approval processes at UGC and AICTE.***
- **Theme- Smart Education**
- **PS Category- Software**
- **Team ID- 76020**
- **Team Name- D- Generation X**

D-Generation X

AI based analysis and performance indicators based on historical data for academic institutions approval processes at UGC and AICTE

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What is the Problem?

- Delays in approvals and accreditations
- Inconsistent evaluations due to varying assessments
- Lack of transparency in institution comparison
- Difficulty in detecting anomalies(inflated Faculty members, manipulated placement data, fake compliance reports
- No clear performance benchmarks for scope of improvements

Proposed Solution

- Data collection and analytics:Gather institutional data and use AI/ML for scoring, predictions, and anomaly detection
- Approval Readiness Index:Combine KPI's into single index(faculty, research, placement, infrastructure)
- Decision support and interfaces:Dashboards for regulators and institutions, web/mobile portals with multilingual support
- Impact: Faster, transparent approvals with clear feedback and increased student trust

Uniqueness and Innovation

•AI-powered evaluation ensures transparent, data-driven, and consistent approval for institutions.
•Integrated explainable AI and fraud detection build trust and integrity into every assessment.
•Predictive and actionable insights empower institutions with clear recommendations for continuous improvement.

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TECHNICAL APPROACH

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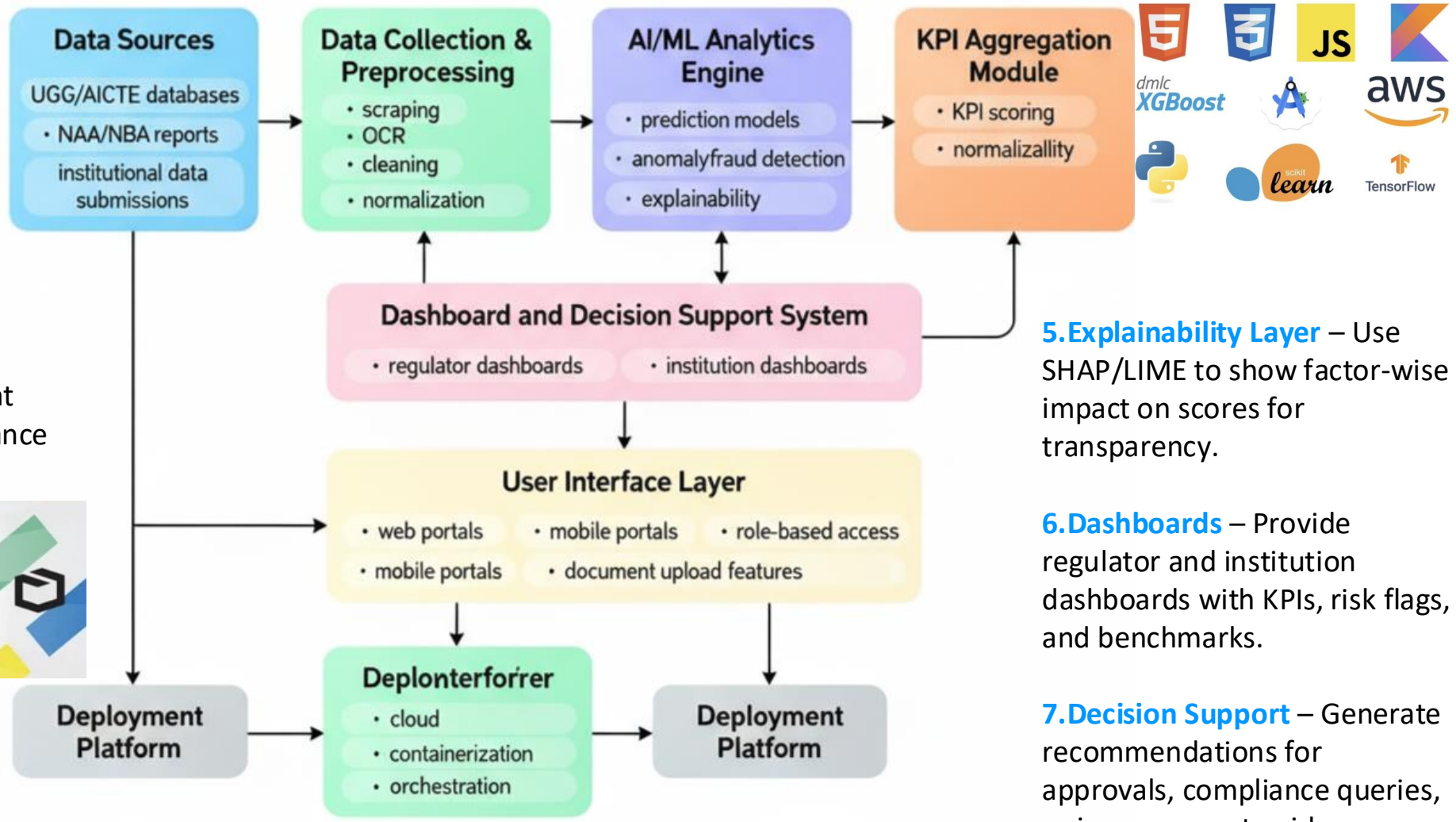
Architectural Design



1.Data Collection – Gather historical institutional data from UGC/AICTE submissions, NAAC/NBA reports, research/placement databases.

2.Preprocessing & Validation – Clean, normalize, and validate data; detect anomalies or fraud in submissions.

3.Feature Engineering – Derive KPIs like Faculty Index, Research Index, Placement Score, Infrastructure Adequacy, Compliance History.

4.AI/ML Modeling –

- Classification for approval readiness.
- Regression for KPI prediction.
- LSTM for performance trend forecasting.
- Anomaly detection for fraud.

5.Explainability Layer – Use SHAP/LIME to show factor-wise impact on scores for transparency.

6.Dashboards – Provide regulator and institution dashboards with KPIs, risk flags, and benchmarks.

7.Decision Support – Generate recommendations for approvals, compliance queries, or improvement guidance.

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FEASIBILITY AND VIABILITY

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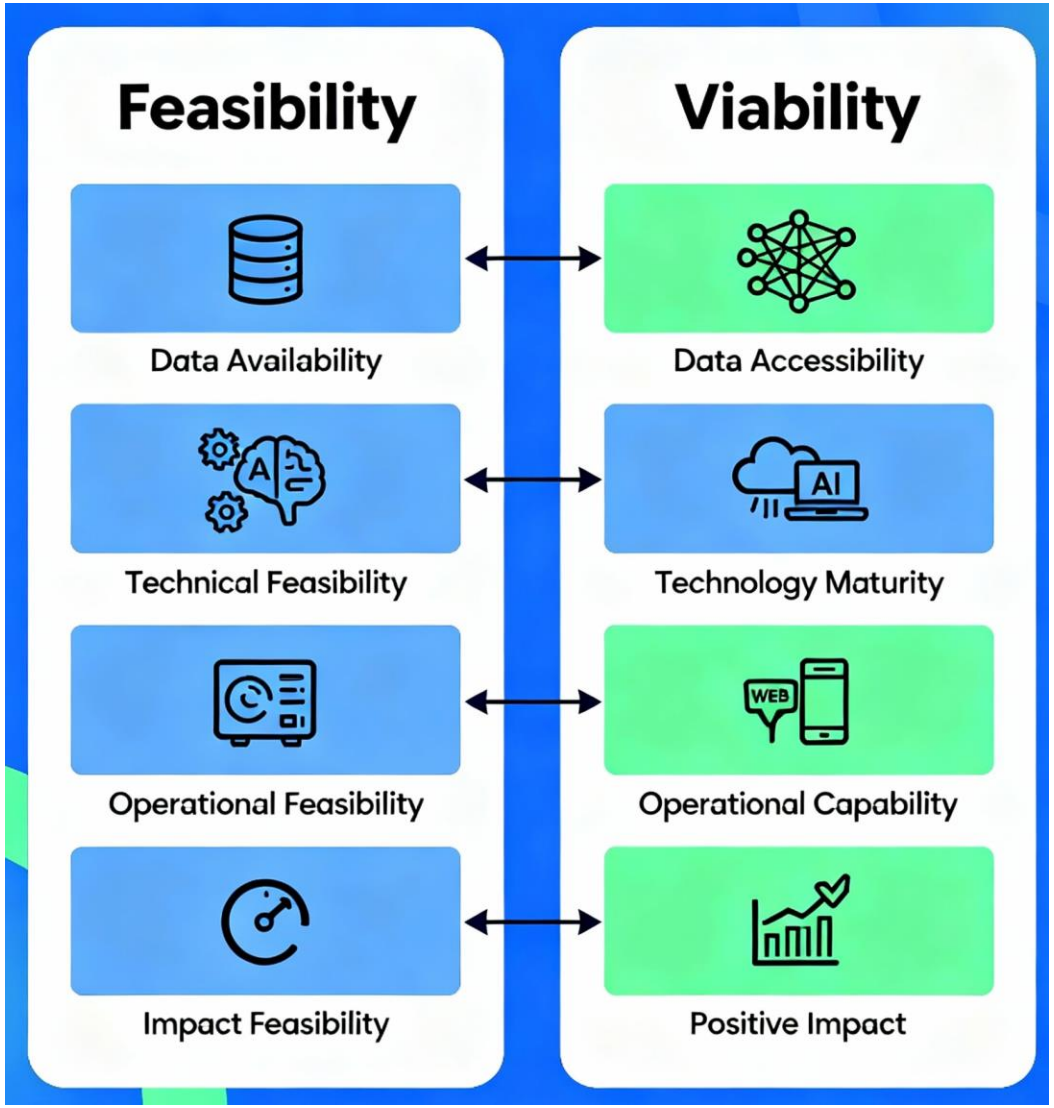
Technical Feasibility: AI/ML algorithms for scoring, dropout prediction, fraud detection, and KPI computation are well-established and implementable with Python, R, or cloud AI platforms.

Operational Feasibility: Dashboards, web/mobile portals, and multilingual support can be built with standard frameworks (React, Django/Flask, Flutter) and integrated with document parsing tools.

Impact Feasibility: Automating approvals and providing actionable feedback is realistic, with measurable benefits in speed, transparency, and decision-making for regulators and institutions.



Data Availability: Institutional data from UGC, AICTE, NAAC, NBA, and reports is accessible, though may require scraping, OCR, or API integration.

Mature AI/ML algorithms for scoring, prediction, anomaly detection, and KPI computation are well supported by open-source libraries and cloud platforms, ensuring practical and efficient implementation.

Positive Impact: Automating approvals and risk assessments improves regulatory efficiency, accuracy, and transparency, enabling faster decisions and better feedback for institutions.

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IMPACT AND BENEFITS

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BENEFITS

Regulators:Enhanced efficiency in approval processes, improved accuracy in compliance monitoring, and increased transparency leading to more informed decision-making

Students and Parents: Greater trust in institutional quality and regulatory oversight, supporting informed choices

Institutions: Faster, clearer feedback on performance and compliance, enabling timely improvements and better outcome

Policymakers: Access to reliable aggregated data for policy formulation and educational planning

SOCIAL BENEFITS: Transparency, accountability, equal information access, better educational outcomes

ECONOMIC BENEFITS:growth In regulation and institution efficiency, reduced manual costs, improved employability alignment

ENVIRONMENTAL BENEFITS: Cuts paper use, lowers carbon footprint, reduces resource use

GOVERNANCE BENEFITS: leads data-driven policies, adaptive regulatory frameworks

IMPACT

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RESEARCH AND REFERENCES

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- **Quality Assurance and Academic Integrity in Higher Education in India** (2023):**Directly addresses challenges of transparency, malpractice, and QA in Indian higher education.**
- **Fraud in Higher Education: A System for Detection and Prevention** (de Souza-Daw & Ross, 2021):**Framework for fraud/anomaly detection in accreditation & compliance; aligns with your fraud-flag component.**
- **From Data to Decision: Machine Learning and Explainable AI in Student Dropout Prediction** (2024): **Survey of ML + Explainable AI methods in dropout prediction; good foundation for scoring & KPIs.**
- **Student Dropout Prediction through Machine Learning Optimization** (*Scientific Reports*, 2025):**Latest ML optimization techniques for dropout/failure prediction; strengthens technical feasibility of your model.**