



AI MODEL TO PREDICT STUDENT DROPOUT RISK

Group:09

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Introduction

- ✓ Student dropout is a serious problem in many schools and universities. Students often leave due to low grades, financial issues, or personal problems.
- ✓ Our project will develop an AI model to predict students at risk of dropping out. By analyzing data on attendance, grades, the system can help teachers and management take early action to reduce dropout rates.

Objectives

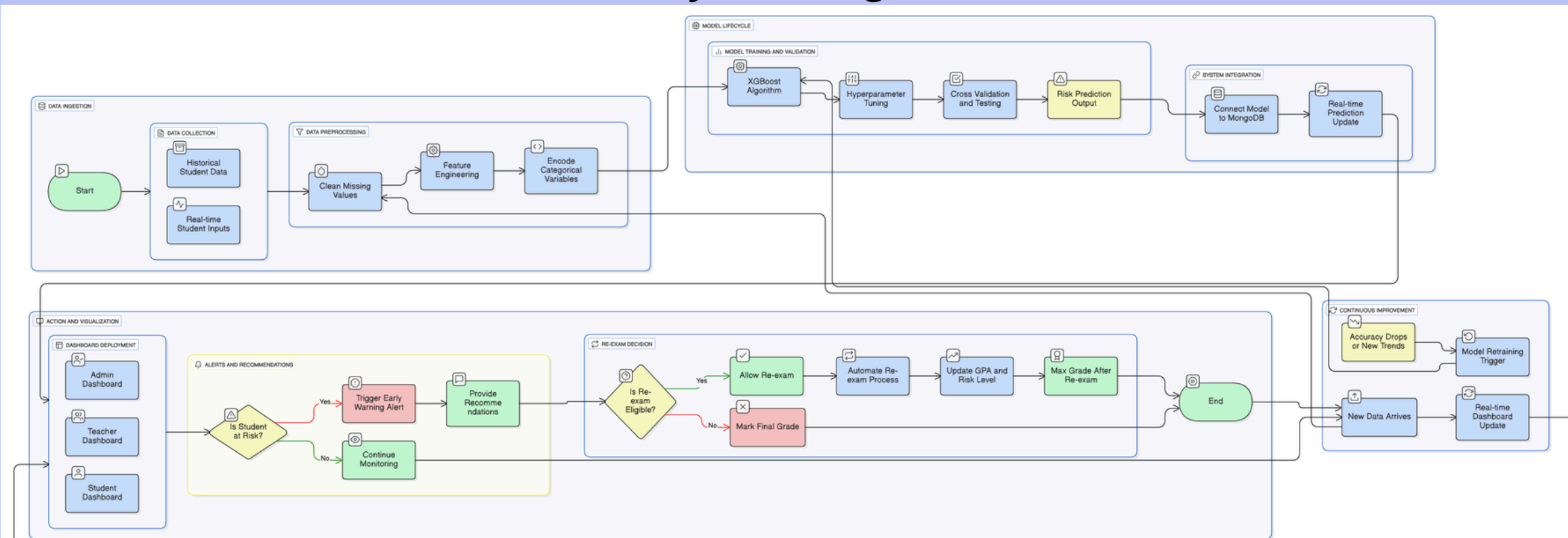
- ✓ Develop an accurate XGBoost prediction model (>85% accuracy).
- ✓ Implement an automated ABCDFI grading and GPA system.
- ✓ Build three specialized, real-time dashboards (Admin, Teacher, Student).



Research Question

What factors contribute to the quality and successful and failure of completion of student's study?

System Diagram



System Architecture

- Dataset: 4,424 student records from Kaggle/UCI.
- Model: XGBoost Classifier with hyperparameter tuning.
- Technical Stack: Python (Backend), MongoDB (Database), Streamlit (Frontend Dashboards).

Success Metrics

- Prediction Accuracy: >85%
- System Reliability: High Uptime
- Effective intervention targeting and streamlined processes.

Innovations

- **Real-Time Dashboard Integration:** MongoDB-connected dashboards providing instant risk level updates (High/Medium/Low).
- **Proactive Early-Warning System:** Continuous monitoring with automatic alert triggers.
- **Personalized Recommendation Engine:** Data-driven, actionable suggestions for at-risk students.
- **Comprehensive Academic Management:** Automated GPA calculation and re-examination eligibility tracking.

Academic Framework

- Grading Scale: A (4.0) to F (0.0), with I (Incomplete) for re-examination.
- Re-examination Criteria: Eligible if assignment, quiz, and mid-term averages $\geq 70\%$ but final exam $< 50\%$.
- Assessment Weighting: Assignments (40%), Quizzes (30%), Final Exam (30%).

Technical Deliverables

- Accurate prediction model (>85% accuracy).
- Three functional, specialized dashboards.
- Automated academic management & alert system.

Conclusion

- This project delivers a powerful AI-driven platform that transforms student retention strategies.
- By integrating predictive analytics with real-time dashboards and automated academic tools.
- it enables proactive interventions, empowering institutions, educators, and students to achieve greater academic success.

Expected Output

- AI model that predicts dropout risk levels.
- Real-time dashboard with live updates.
- Early-warning alert system for high-risk students.

Expected Benefits

- Early detection of students at risk.
- Better planning and support for students.
- Data-based decisions for management.
- Improved student success and retention.