



Product Requirements Document

SentriAI: Early Dropout Prediction

Executive Summary

SentriAI is an AI-driven system designed to predict and mitigate early student dropout rates in educational institutions. This PRD outlines the product vision, goals, target users, features, and requirements for the Minimum Viable Product (MVP). By leveraging machine learning, SentriAI identifies at-risk students, enabling proactive interventions and improving overall student retention.

Product Overview

Vision:

Reduce student dropout rates through predictive analytics and targeted support.

SentriAI analyzes student data (academic performance, attendance, engagement, etc.) to predict the likelihood of dropout. The system provides a user-friendly dashboard with risk scores, alerts, and recommended interventions. This enables educators and administrators to proactively address student needs and prevent dropout.

Mission:

Provide educators with actionable insights to identify and assist at-risk students.

Problem Statement

High student dropout rates negatively impact educational institutions by reducing funding, damaging reputation, and hindering overall student success. Identifying at-risk students early is crucial, but current methods often rely on lagging indicators and manual processes, leading to delayed interventions. SentriAI addresses this by:

- Providing **early** and **accurate** dropout predictions.
- Automating the identification of at-risk students.
- Facilitating **proactive** interventions and support.

Goals & Success Metrics

Goals:

- Reduce student dropout rates.
- Improve student retention.
- Increase student engagement.

SentriAI's success will be measured by its ability to demonstrably reduce dropout rates, accurately predict at-risk students, and facilitate effective interventions. Regular monitoring of KPIs, coupled with user feedback, will drive continuous improvement and ensure alignment with institutional goals.

Key Performance Indicators (KPIs):

- Dropout rate reduction (%).
- Prediction accuracy (%).
- Intervention effectiveness (%).

Target Users

- **Educators:** Teachers, professors, and instructors who interact directly with students.
- **Administrators:** Deans, department heads, and other administrative staff.
- **Counselors:** Academic and personal counselors providing student support.

User Persona

Name: Professor Anya Sharma

Role: University Professor

Goals:

- Help students succeed.
- Identify struggling students early.
- Improve student engagement.

Professor Sharma needs a tool that can quickly and easily identify students who are at risk of dropping out. She wants to be able to see a clear overview of student performance and engagement, and to receive alerts when a student's risk score increases. She also needs suggestions for interventions that she can implement to support struggling students. SentriAI addresses this by providing a user-friendly dashboard with risk scores, alerts, and recommended interventions.

Pain Points:

- Limited time for individual student support.
- Difficulty identifying at-risk students proactively.
- Lack of data-driven insights.

Scope of the MVP

The MVP will focus on core features necessary for early dropout prediction and intervention:

- **Data Integration:** Securely connect to student information systems (SIS) and learning management systems (LMS).
- **Predictive Modeling:** Develop and implement a machine learning model to predict dropout risk.
- **Dashboard:** Provide a user-friendly dashboard with risk scores, alerts, and student profiles.
- **Intervention Recommendations:** Suggest evidence-based interventions based on student risk factors.

The MVP will be piloted with a select group of students and faculty to gather feedback and refine the system.

Core Features & Requirements

Feature	Description	Priority	Status
Data Integration	Securely integrates with SIS & LMS systems.	High	Planned
Risk Score Calculation	Calculates a dropout risk score for each student based on various factors.	High	Planned
Dashboard Visualization	Presents student risk scores and related data in a user-friendly dashboard.	High	Planned
Alert System	Alerts educators when a student's risk score increases significantly.	Medium	Planned
Intervention Recommendations	Suggests targeted interventions based on individual student risk factors.	Medium	Planned
Reporting & Analytics	Provides reports and analytics on dropout trends and intervention effectiveness.	Low	Planned

Next Steps

- Secure stakeholder approval for the PRD.
- Finalize the MVP feature set.
- Begin development of the data integration and predictive modeling components.
- Design the user interface for the dashboard.
- Plan the pilot program and identify participating students and faculty.

Team Members

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