

Predictive Analysis for Student Dropout Using Machine Learning

SDG Level - 4

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The Student Dropout Crisis

Staggering Numbers

30-40% of college students dropout before graduation.

Urgent Need

Early identification of at-risk students is critical for timely intervention.

The Power of Early Prediction

ⓘ First-Year Warning Signs

Most dropouts exhibit clear indicators during their initial year.

ⓘ Targeted Support

Enables universities to provide precise and effective interventions.

1

Identify Key Influencing Factors

Analyze diverse student data sets to uncover the primary drivers and correlations behind student dropout.

2

Develop a Robust Predictive Model

Construct and validate a machine learning model capable of accurately classifying students as "at risk" or "not at risk."

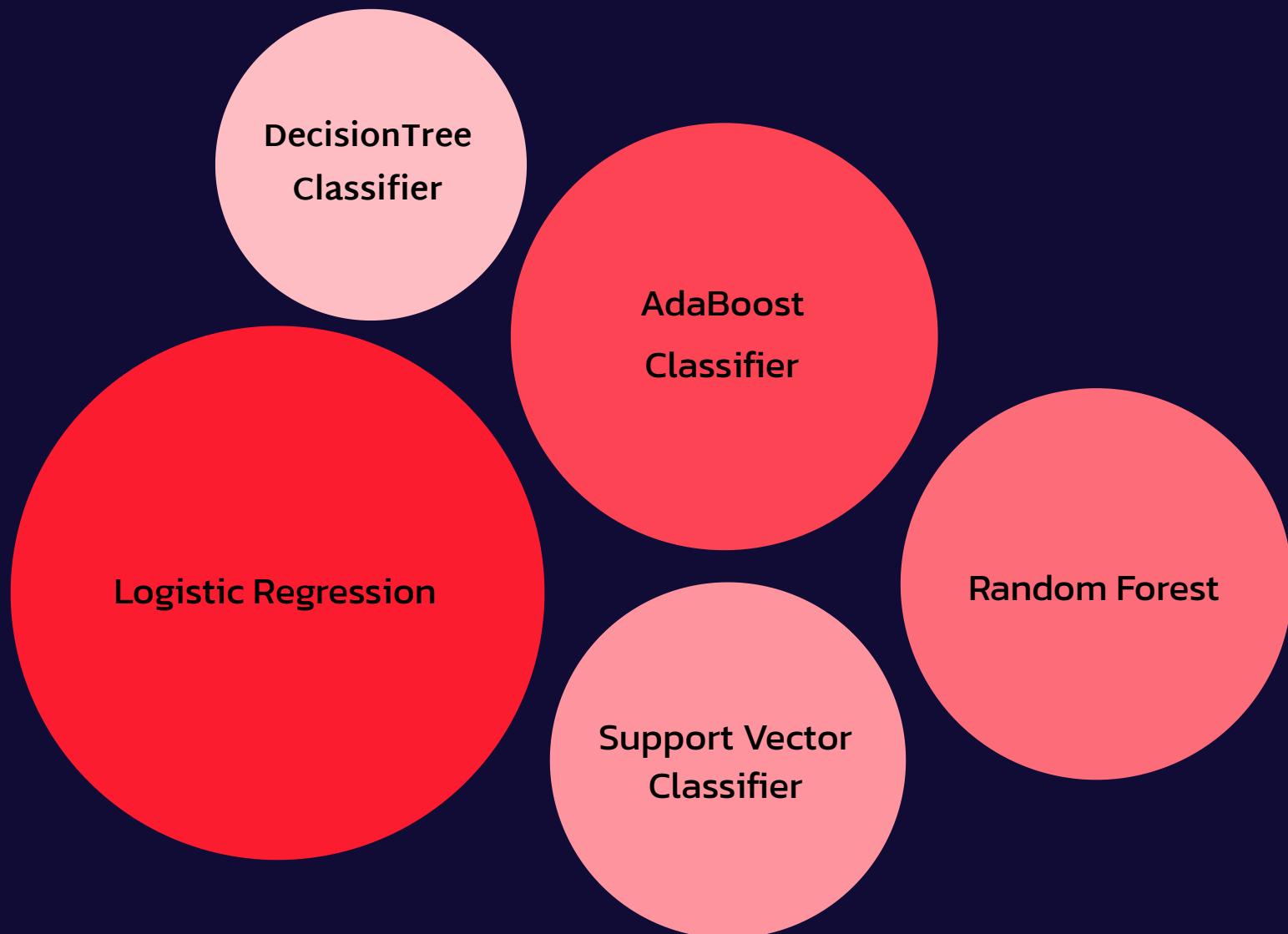
3

Empower Proactive Intervention

Provide educators and administrators with actionable insights to inform decision-making and implement targeted support strategies.

Machine Learning Model Selection

We evaluated several machine learning algorithms to determine the best fit for predicting student dropout, focusing on accuracy, interpretability, and efficiency.



Visualizing Predictive Insights

After selecting the optimal machine learning model, the next critical step is to translate its predictions into actionable insights through effective visualization. Frontend technologies play a pivotal role in creating intuitive, interactive interfaces that empower stakeholders to understand and utilize the model's output for timely intervention.



Interactive Dashboards

Transform complex predictive data into intuitive, interactive dashboards, allowing users to explore trends and identify at-risk students dynamically.



Real-time Monitoring

Implement real-time data feeds and visualizations to provide immediate updates on student performance and risk levels, enabling timely interventions.



User-Friendly Interface

Design accessible and intuitive user interfaces that simplify data interpretation for educators and administrators, regardless of their technical expertise.



Actionable Insights

Present findings clearly and concisely, highlighting key factors contributing to dropout risk, to guide targeted support strategies and decision-making.

A vertical column on the left side of the image features a close-up, abstract photograph of a flower's petals. The petals are a deep, vibrant purple color, with intricate, wavy patterns and fine, radiating lines that suggest a microscopic view or a highly detailed digital rendering. The lighting is dramatic, with strong highlights and shadows that emphasize the texture and depth of the petals.

Thank You