Predictive Analysis of Student Grades and Career System

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Abstract: *A data-driven strategy called Predictive Analysis of Student Grades and Career System aims to improve academic success for students and support wise career choices. This approach makes use of past academic performance data, as well as other important variables, to produce insights and forecasts about each student's performance and possible career trajectories. The technology delivers important insights into factors influencing student progress, detects at-risk individuals, and provides individualized support by utilizing cutting-edge algorithms and statistical models.*

Data gathering, preprocessing, feature selection, model development, and training are only a few of the system's crucial parts. It makes use of a variety of data sources, including academic transcripts, test scores, extracurricular involvement, and surveys of career interests. The system makes sure that the supplied data is relevant and of high quality to enable precise predictions through thorough feature engineering and data pretreatment.

Based on the unique properties of the dataset, the model-building process entails choosing the most suitable prediction models, such as decision trees, random forests, logistic regression, or neural networks. The internal parameters of these models are adjusted during the training process using past data to reduce prediction error and enhance performance. Using several test datasets, the model is evaluated and validated to determine its accuracy and generalizability.

The system's implementation makes it easy for users to access it, enabling students, teachers, and policymakers to enter pertinent student data and obtain career projections. The user interface makes forecasts, insights, and suggestions in an easy-to-understand format to help students make decisions about their futures in education and employment.

A viable approach to supporting students' academic journeys and helping with career planning is provided by the Predictive Analysis of Student Grades and Career System. Through the use of data-driven methodologies, the system equips stakeholders to take well-informed decisions, allocate resources efficiently, and create focused interventions that eventually enhance educational results and enable students to realize their full potential.

Keywords: naive bayes, linear regression, random forest, gradient boosting approach, xg boost, bayesian ridge regression, survey, svm, knn, j48, and student grade, career

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