Predictive Analysis of Graduate Admissions

Using Machine Learning Techniques

Introduction :

Graduate school admissions are a pivotal phase for students aspiring to advance their academic journey. With diverse criteria like standardized test scores, academic performance, and research experience influencing the selection process, understanding these factors is essential. Leveraging machine learning techniques, this project aims to predict admission probabilities using data-driven approaches, assisting applicants in aligning their profiles with university expectations.

Problem Statement :

Graduate school admissions rely on multiple parameters, making the process complex and often opaque. Evaluating large-scale applications manually can result in subjective biases and inconsistencies. The challenge lies in accurately determining the weight of each criterion and forecasting admission outcomes..
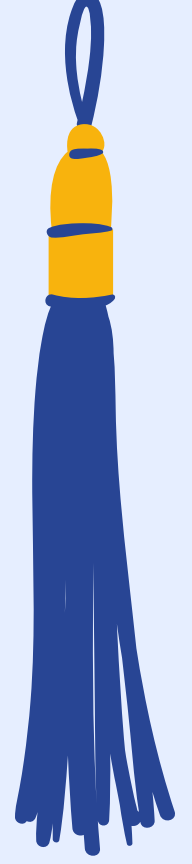
This project aims to address these challenges by:

1. Building models that predict admission chances with precision.
2. Identifying key factors contributing to successful applications.
3. Providing a tool that aids applicants in optimizing their profiles.

Goals :

1. Developing Predictive Models: Utilize machine learning techniques such as Decision Trees, Random Forest, and Neural Networks to predict the probability of admission based on applicant data.

2. Feature Importance Analysis: Determine the significance of variables like GRE scores, TOEFL scores, CGPA, and research experience in admissions decisions.

3. User-Centric Insights: Create actionable insights for applicants to strengthen their chances of acceptance.

Related Work :

1. Several studies have examined the correlation between standardized test scores and graduate admissions. Research demonstrates that GRE scores and CGPA are strong predictors of academic success.

https://digitalcommons.fiu.edu/etd/797/

2. This paper provides a comparative analysis of different machine learning models used to predict graduate school admissions, evaluating techniques such as Random Forest, Logistic Regression, and K-Nearest Neighbors (KNN).

https://link.springer.com/chapter/10.1007/978-3-030-80475-6_17

3. This study investigates the use of Neural Networks (NN) to predict admissions to graduate programs by analysing applicant data including academic performance and recommendation letters.

https://ieeexplore.ieee.org/abstract/document/9397988

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