**Graduate Admission Prediction**

Abstract:

Applying for higher education programs can be highly competitive, with multiple factors influencing a student's chances of admission. This project implements a Graduate Admission Prediction System that estimates the probability of an applicant being admitted to a university based on various academic and demographic attributes.

The system leverages machine learning models trained on datasets containing information such as GRE scores, TOEFL scores, undergraduate GPA, research experience, and university rankings. Techniques such as linear regression, decision trees, random forests, and deep learning models are applied to analyze the importance of each factor and improve prediction accuracy.

A major advantage of this system is its ability to help students strategize their applications by identifying their strengths and weaknesses in the admission process. Additionally, universities can utilize this system for preliminary applicant screening, making the admissions process more efficient and data-driven.

Pre-requisites:

Software & Libraries:

* Python (≥ 3.7)
* Jupyter Notebook / Google Colab
* Machine Learning Algorithms:
  + Scikit-learn (Linear Regression, Decision Trees, SVM, Random Forest)
  + XGBoost / CatBoost
* Data Processing & Handling:
  + Pandas
  + NumPy
* Model Evaluation Metrics:
  + Mean Absolute Error (MAE), RMSE, R² Score
* Visualization:
  + Matplotlib
  + Seaborn

Hardware Requirements:

* Minimum: 4GB RAM, Dual-core CPU
* Recommended: 8GB+ RAM, GPU (if deep learning is incorporated)