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Prediction Probability of Getting an Admission into University using Machine Learning

Dipak Kalaskar[1], Pallavi Singnath[2], Rutuja Pathak[3], Sandesh Rajurkar[4]
Students, Department of Computer Engineering[1,2,3,4]
Sinhgad Institute of Technology, Lonavala, Maharashtra, India

Abstract: *The present conditions, students regularly have difficulty finding a fitting institution to pursue higher studies based on their profile. There are some organizations that manage counseling and online applications for university approval, but these require high consulting fees and online applications are not accurate. So, the aim of this research is to develop a model that predict the percentage of In chances into the university accurately. The model also provides a score analysis and estimates probability based on historical data so students know if their profile is good. The proposed model uses linear and random forest algorithms, but the cat boost algorithm provides the most accurate results.*

Keywords: Computer Vision, Machine Learning, Classification

I. INTRODUCTION

The university admission process is one of the most important and difficult processes in education Thousands of students a pply to colleges each year, and admissions offices must each application to determine which students will be accepted.
The selection process usually depends on many factors such as education, activities, personal ability and test scores. Howe ver, the admissions process is not always transparent, and many students may not be sure whether they are accepted. To so lve this problem, the University Admission Estimation Project aims to use machine learning algorithms to predict the prob ability of being admitted to a college or university based on information requests.

II. LITERATURE SURVEY

Paper Name: A University Admission Prediction System using Stacked Ensemble Learning
Author: Sashank Sridhar ,SiddarthMootha, Santosh Kolagati-Department of Computer Science And Engineering, Anna University, Chennai,India
Abstract: The university admission process is one of the most important and difficult processes in education. Thousands of students apply to colleges each year, and admissions offices must review each application to determine which students wil l be accepted.
The selection process usually depends on many factors such as education, activities, personal ability and test scores. Howe ver, the admissions process is not always transparent, and many students may not be sure whether they are accepted. To so lve this problem, the University Admission Estimation Project aims to use machine learning algorithms to predict the prob ability of being admitted to a college or university based on information requests.

Paper Name: College Admission Prediction using Ensemble Machine Learning Models
Author: Vandit Manish Jain1, Rihaan Satia2
Abstract: This paper aims to build a model that can help students to pick the right universities based on their profiles. We can judge across a wide variety of domains that include MS (international), M.Tech (India) and MBA (India and International). For the accurate predictions we plan on training a machine learning model in order to provide results. This file contains information about student enrollment and school details, including fields that detail whether the request was good or bad. Various algorithms have been used i.e. Ensemble Machine Learning and the predictions have been compared using key performance indicators (KPIs). The model performing the best is then used to evaluate the dependent variable i.e. The chances of admit to a university.

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The probability of entering a foreign country is a variable between 0 and 1, which is equal to the predicted probability of e ntering a university. We also aim to create a portal which filters and then provides a list of universities that fall into range.

Paper Name: Gradute Admission Prediction Using Machine Learning
Author: Sara Aljasmi Department of Computer Engineering, Ali Bou Nassif Department of Computer Engineering.
Abstract
:Student enrollment is very important in schools. This article presents a machine learning model to predict a student's chan ces of earning a master's degree. This will help students know in advance if they have a chance of being accepted. Machin e learning models are Multilinear, k-
Neighbors, Random Forest, and Multilayer Perceptron. Experiments show that the multilayer perceptron model outperfor ms other models.
Random Forest algorithm is one of the most popular and powerful machine learning algorithms that can perform both regr ession and classification functions. The algorithm creates forests in the number of reading queues. Therefore, the more inf ormation there is, the more accurate and powerful the results. The random forest method can handle larger sizes of large d ata without having to fit the pattern. Additionally, it can check for missing values and maintain accuracy for missing data.

Paper Name: Prediction of the admission lines of college entrance examination based on machine learning
Author: Zhenru Wang, YijieShi:-Satate Key Laboratory of Networking and Switching Technology, Bei Jing, china.
Abstract:
Accurate estimation of university entrance exam scores is very important for applicants and candidates who analyze their u niversity admissions. Currently, the estimation of CEE scores is mainly based on statistical data, probability models and so me weighted mix models. Because part of the usage is too small to generate college entrance exam model estimation, the e rror is large, so the usage cost is very small. This article uses machine learning technique to examine and predict school en trance schedules. This article specifically uses the Adaboost algorithm for learning and prediction, which is part of learnin g. Finally, the results of the model outperforming the current estimates are presented.

Paper Name: Predicting Student University Admission Using Logistic Regression.
Author: Sharan Kumar Paratala Rajagopal Senior Manager, Capgemini America Inc., Dallas, USA
Abstract: The main aim is to discuss students' higher education prospects. based on numerous factors and using logistic regression. Many prospective students apply for Master's programs.Admission decisions are made to certain colleges or degreeprogram. The independent variables in this study will be measured to estimate. The search and analysis of the data, if successful, will allow the estimation of samples to allow the applicant's evaluation process to master's program to work better, which will provide access to qualified candidates. Student admission for the Master's degree program consists of different criteria/scores which is taken into consideration before admitting the student to the degree program. This process is elaborative and requires lot of thought processing and analysis by the selection committee before Select qualified candidates for postgraduate study.

Paper Name: College Admission Predictor and Smart List Generator
Author: Kiran Kumari, Meet Kataria, Viral Limbani, Rahul Soni
Abstract:
Students face many challenges when entering the university of their choice. Choosing a college based on grades and intere sts, the current engineering admissions process is neither difficult nor easy. Depending on the university entrance exam res ults and academic performance, the right choice is very important for candidates who will apply. Many universities offer a variety of engineering courses. For this reason, it is difficult for students to plan and write the courses of the university the y choose according to their grades.
The CAPSLG system has a smart list generator that works with the help of university experts to assist students in the admi ssions process. College Admission Predictor uses past college admissions data to help students predict most colleges. The system analyzes students' academic performance, resume and university admission criteria. Based on this, it estimates the

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probability of students enrolled in college at the university. The Smart List Builder allows students to create a list of colleg es that must be completed at the time of admission.
The system will also receive user feedback that will aid evaluation and improve performance.

III. METHODOLOGIES

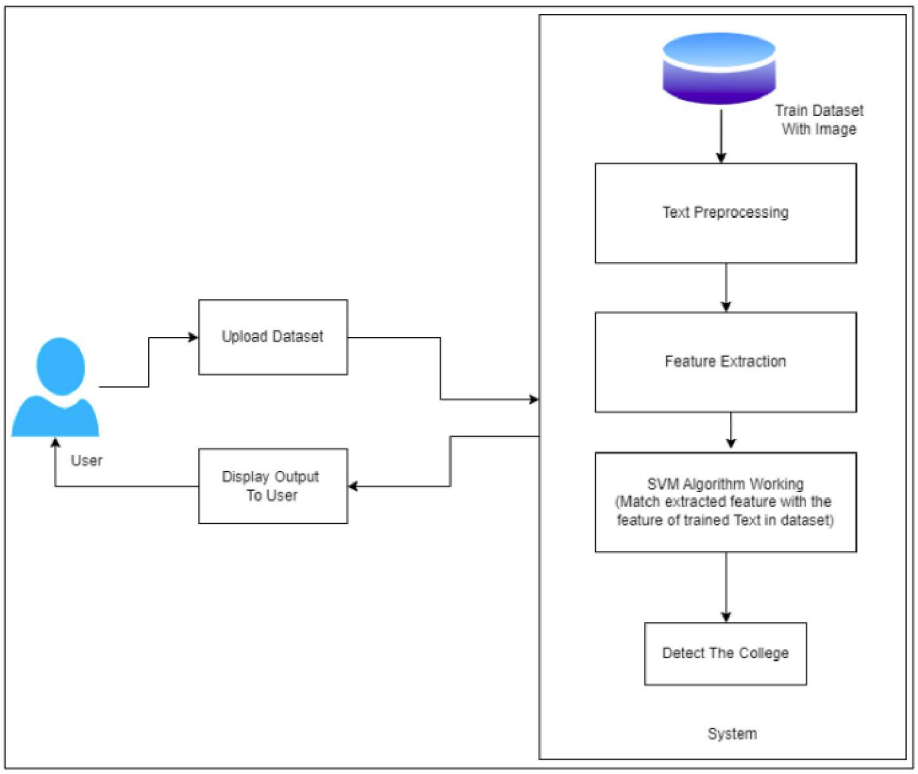

Fig. 1. System Architecture

1. Data Collection:
Gather a dataset that includes historical records of applicants and their admission outcomes. The dataset should contain relevant features such as test scores, GPA, letters of recommendation, extracurricular activities, etc. Ensure that the dataset is diverse and representative of the target population.

2. Data Preprocessing:
Perform data cleaning and preprocessing steps to ensure the quality and suitability of the data. This may involve handling missing values, normalizing or scaling numerical features, encoding categorical variables, and splitting the dataset into training and testing sets.

3. Feature Selection/Engineering:
Analyze the features in your dataset and select the most relevant ones for predicting admission probability. You may also create new features by combining or transforming existing ones if it enhances the predictive power of the model.

4. Model Selection:
Choose an appropriate machine learning algorithm that suits the problem at hand. For binary classification tasks like admission prediction, algorithms such as logistic regression, support vector machines (SVM), or random forests are commonly used. Consider the trade-offs between model complexity, interpretability, and performance**.**

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5. Model Training:
Split your dataset into a training set and a validation set. Use the training set to train your machine learning model on the available data. Adjust the model's hyperparameters (e.g., learning rate, regularization) to optimize its performance on the validation set. Employ techniques like cross-validation to mitigate overfitting and ensure generalizability.

6. Model Evaluation:
Evaluate the trained model's performance using appropriate evaluation metrics, such as accuracy, precision, recall, and F1 score. Additionally, utilize techniques like ROC curves and area under the curve (AUC) to assess the model's discriminatory power and calibration.

7. Prediction and Interpretation:
Once the model is trained and evaluated, you can use it to predict the probability of admission for new applicants. Feed the relevant features of the new applicant into the model, and it will provide a probability score indicating the likelihood of admission.

8. Model Refinement:
If the model's performance is not satisfactory, you may need to iterate and refine your approach. This could involve modifying feature selection, trying different algorithms, adjusting hyperparameters, or gathering more data to improve the model's predictive power.

IV. CONCLUSION AND FUTURE SCOPE

In conclusion, the college admission prediction system offers significant advantages over traditional admission processes, including improved decision-making, efficiency, fairness, predictive accuracy, scalability, and data analysis. However, the system also has some limitations, including data availability, algorithmic limitations, subjectivity of features, lack of transparency, overreliance on data, and ethical concerns.
The Future work in this area could focus on addressing these limitations and improving the accuracy and fairness of the system. This could include developing more sophisticated algorithms that can handle more complex data and account for a wider range of factors that impact admission decisions, improving data collection and analysis methods, and increasing transparency and accountability in the system. Additionally, future work could explore the potential of the system to support other aspects of the college admissions process, such as enrollment management, recruitment, financial aid, and program evaluation. By addressing these challenges and exploring new applications for the system, we can continue to improve the college admissions process and ensure that it is fair, transparent, and efficient for all applicants. An application can be designed and deployed for mobile devices, which would enable users to use their smartphones as handled devices for prediction and analysis of University and Students

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