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College Admission Prediction using Machine Learning

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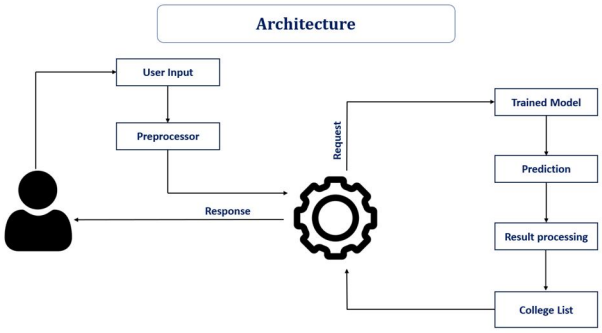
Abstract: ***Students struggle mightily to get accepted into the college of their choice. The present engineering admission process is little challenging when it comes to picking the right college based on test results and areas of interest. The candidates' ability to complete the application form accurately depends on their selection, which may differ depending on their academic performance and entrance exam results. Numerous colleges provide a variety of engineering courses. Students find it difficult to arrange and list the appropriate institutions of their choice for courses based on their performance score. The historical college cut-off data used by the college admission predictor to determine the most likely colleges.***
Keywords: College, Admission ,Predictor

I. INTRODUCTION

The level of industry competition has risen dramatically in recent years. The heightened rivalry has also contributed to problems like unemployment and a high demand for recently developed talents. It becomes imperative for a student to be admitted to and receive instruction from the best possible institute in such a cutthroat climate. This would assist the students in honing their abilities in accordance with the demands of the industry and finding a suitable job[1].

Thus, a student's future is greatly influenced by their ability to get accepted into the greatest college. Even if the admissions process for engineering programs has gotten simpler, there are still some risk variables involved that are difficult for the student to understand. The common entrance test (CET) is the basis for admission to engineering colleges in Maharashtra or any other state. More than 1.5 lakh seats are to be distributed among more than 200 engineering colleges and more than 35 different engineering branches for students from a variety of categories, including open, home university, outside home university, and reserved category. As a result, the issue gets more complicated, and students find it difficult to determine which universities they will likely be admitted to [2].

Based on their academic performance and preferences, the candidates must compile a list of about 15-20 universities that are the most appropriate for them. However, the selection of colleges to be included in the admissions process should be carefully thought out, as a poor choice would lead to poor college allocation. Students frequently make the erroneous college selections that position them in underqualified colleges as societal pressure and competition with other candidates increase.



Architecture Diagram

In order to compile a useful list, the applicants must conduct internet research using websites or mobile applications.applications sent to each selected college separately. Then, have a look at the cutoff for the previous year, and then select from a list of shortlisted candidates according to the colleges for which they are eligible.

We came here to relieve the strain on the students, and we developed a computer-aided method that aims to automate this process and remove the risk deterrent of checking how many top-tier universities they are enrolled in. The tool asks users for their academic standing before predicting the best college for them based on their selected course, geography, and college exclusion.
The technology also provides a list of institutions based on the aforementioned factors, which will assist students in narrowing down their options and more accurately completing their admissions applications[2].

II. RELATED WORK

1) *Paper 1.- ENGINEERING & TECHNOLOGY ADMISSION ANALYSIS AND PREDICTION by Sachin Bhimrao Bhoite and Ajit More (2020).*

Summary : The objective is to predict whether a student will get an admission or not at the desired Institute & also the rank wise list of possible colleges where they will get admission. So it's majorly a classification problem. Algorithms used were Logistic Regression, Decision Tree Classifier, Random Forest Classifier & Support Vector Machine Supervised Machine Learning Algorithms [1].

Sr. No	Algorithm	Accuracy
1	Logistic Regression	0.177343
2	Support Vector Machine (SVC)	0.168846
3	Decision Tree Classifier	1.000000
4	Random Forest Classifier	0.998426

2) *Paper 2.- Prediction for University Admission using Machine Learning*

Summary – This paper presents a machine learning model aimed at assisting students in assessing their likelihood of gaining admission to universities, particularly in the United States. The study employs various machine learning algorithms, including K-Nearest Neighbors (KNN), Linear Regression, Ridge Regression, and Random Forest, to predict students' chances of university admission based on their profiles. These algorithms were applied to data related to GRE scores, TOEFL scores, research experience, and other factors [6].

Sr.No.	Algorithm	Accuracy
1	Linear Regression	0.79
2	Ridge Regression	0.78
3	Random Forest	0.77
4	KNN	0.72

3) *Paper 3.-Graduate Admission Prediction Using Machine Learning*

Summary – This paper addresses the problem of predicting a student's chances of being admitted to a master's program in universities. The authors employ several machine learning algorithms, including Multiple Linear Regression, K-Nearest Neighbors, Random Forest, and Multilayer Perceptron, to make these predictions. They utilize a dataset containing various independent variables such as GRE scores, TOEFL scores, university ratings, statement of purpose, letters of recommendation, undergraduate GPA, and research experience, with the dependent variable being the chance of admission [10].

Sr.No.	Algorithm	MAE Value
1	Multi Linear Regression	0.0343
2	Random Forest	0.0363
3	KNN	0.0544
4	Multilayer Perceptron	0.0337

4) *Paper 4.- College Admission Predictor and Smart List Generator: by Kiran Kumari, Meet Kataria, Viral Limbani, Rahul Soni (2019)*

Summary – The objective is to predict whether a student will get an admission or not at the desired Institute & also the rank wise list of possible colleges where they will get admission. So it's majorly a classification problem. Algorithms used were Decision Tree Classifier, Random Forest Classifier & AdaBoost [2].

Sr.No.	Algorithm	Accuracy
1	Decision Tree	0.96296296296
2	Random Forest	0.97037037037
3	AdaBoost Score	0.97777777777

III. GAP ANALYSIS

Found out many algorithms that gave best accuracies among various research papers. However Decision tree and Linear Regression were two of the most accurate among them [1][2][6][10].

Sr.No.	Algorithm	Prediction Score
1	Decision Tree	1.000000
2	Linear Regression	0.79
3	KNN	0.544
4	Adaboost Score	0.9777777

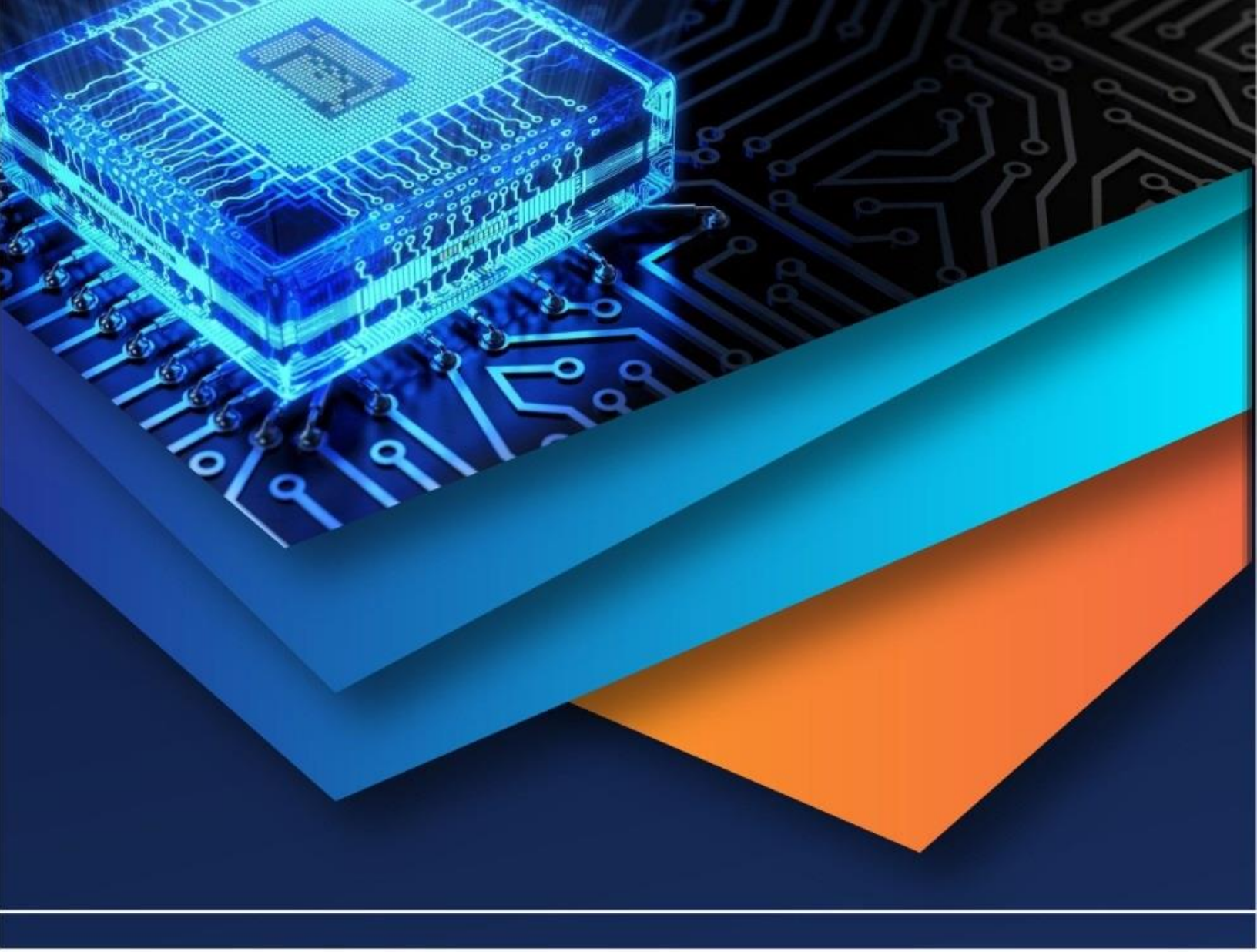
IV. RESULTS

Improved the accuracies of previous algorithms and tested the same on a dataset. Decision Tree was chosen as an ideal algorithm after comparing the accuracies of all algorithms. Likewise ,also altered the dataset and tested upon the same for comparing the results and all were found accurately.

Sr.No.	Algorithm	Improved Score
1	Decision Tree	1.000000
2	Linear Regression	0.99
3	KNN	0.96

REFERENCES

[1] Sachin Bhimrao Bhoite and Ajit More(2020) ENGINEERING & TECHNOLOGY ADMISSION ANALYSIS AND PREDICTION.
[2] Kumari, K., Kataria, M., Limbani, V., & Soni, R. (2019, April). CAPSLG: College Admission Predictor and Smart List Generator. In 2nd International Conference on Advances in Science & Technology (ICAST).
[3] HK, V. S., Neeraj, S., & Shashidhar, R. (2021). An Automated Prediction Model for College Admission System. Elementary Education Online, 20(6), 1172-1172
[4] Sivasangari, A., Shivani, V., Bindhu, Y., Deepa, D., & Vignesh, R. (2021, April). Prediction Probability of Getting an Admission into a University using Machine Learning. In 2021 5th International Conference on Computing Methodologies and Communication (ICCMC) (pp. 1706-1709). IEEE.
[5] Roa, A. M., Dharani, N., Raghava, A. S., Buvanambigai, J., & Sathish, K. (2018). College admission predictor. Journal of Network Communications and Emerging Technologies (JNCET), 8(4).
[6] Golden, P., Mojesh, K., Devarapalli, L. M., Reddy, P. N. S., Rajesh, S., & Chawla, A. (2021). A Comparative Study on University Admission Predictions Using Machine Learning Techniques. Int. J. Sci. Res. Comput. Sci. Eng. Inf. Technol., 7, 537-548.
[7] Sonawane, H. (2017). Student admission predictor (Doctoral dissertation, Dublin, National College of Ireland).
[8] Prince Golden, Kasturi Mojesh, Lakshmi Mahadevi Deverapalli , Pabbidi Naga Suba Reddy. A Comparative Study on University Admission Predictions Using Machine Learning Techniques.
[9] Mengash, H. A. (2020). Using data mining techniques to predict student performance to support decision making in university admission systems. Ieee Access, 8, 55462-55470.
[10] Aljasmi, S., Nassif, A. B., Shahin, I., & Elnagar, A. (2020). Graduate admission prediction using machine learning. Int. J. Comput. Commun, 14, 79-83.
[11] Kabakchieva, D., Stefanova, K., & Kisimov, V. (2010, June). Analyzing university data for determining student profiles and predicting performance. In Educational Data Mining 2011.
[12] Slim, A., Hush, D., Ojah, T., & Babbitt, T. (2018). Predicting Student Enrollment Based on Student and College Characteristics. International Educational Data Mining Society.
[13] Nie, M., Yang, L., Sun, J., Su, H., Xia, H., Lian, D., & Yan, K. (2018). Advanced forecasting of career choices for college students based on campus big data. Frontiers of Computer Science, 12, 494-503.
[14] Roy, K. S., Roopkanth, K., Teja, V. U., Bhavana, V., & Priyanka, J. (2018). Student career prediction using advanced machine learning techniques. International Journal of Engineering & Technology, 7(2.20), 26-29.
[15] Wang, Z., & Shi, Y. (2016, October). Prediction of the admission lines of college entrance examination based on machine learning. In 2016 2nd IEEE International Conference on Computer and Communications (ICCC) (pp. 332-335). IEEE.
[16] Ragab, A. H. M., Mashat, A. F. S., & Khedra, A. M. (2012, November). HRSPCA: Hybrid recommender system for predicting college admission. In 2012 12th International conference on intelligent systems design and applications (ISDA) (pp. 107-113). IEEE.
[17] Higher Education in India — Shiksha https://www.shiksha.com
[18] Sklearn Sample Datasets https://scikit-learn.org/stable/modules/classes.html#modulesklearn.datasets



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