PREDICTING GRADUATE ADMISSIONS USING MACHINE LEARNING TECHNIQUES

AETI BHANU PRASAD[1], M.RAMCHANDER[2]

[1]*MCA IV Semester, Dept. of MCA, Chaitanya Bharathi Institute of Technology (A), Gandipet, Hyderabad – 500 075, India*
[2]*Assistant Professor, Dept. of MCA, Chaitanya Bharathi Institute of Technology (A), Gandipet, Hyderabad – 500 075, India.*
E-Mail : mramchander_mca@cbit.ac.in

ABSTRACT
Many students in today's educational environment seek to continue their education after completing an engineering or graduate degree programme. Some people are interested in higher education in the sense that they wish to complete their M. Tech through the GATE entrance exam or another admission exam for a school. Some students desire to pursue an MBA through the Common Admission Test (CAT) or through the entrance exam for their chosen educational institution, while others seek to pursue a master's degree at an international university. Higher education often implies we have numerous possibilities, including Canada, the United States, the United Kingdom, Germany, Italy, Australia, etc. Graduate Records Examination (GRE) and TOEFL/IELTS (Test of English as a Foreign Language/International English Language Testing System) scores are required of students who choose to pursue master's degrees overseas. One of the most important things students must think about is preparing their SOP (Statement of Purpose) and LOR (Letter of Recommendation) once they have taken the tests. If the student was applying for a scholarship, the LOR and SOP are crucial. The pupils must next decide which institutions they wish to attend or apply to; we cannot apply to all universities because doing so would incur significant application expenses. The student's lack of knowledge about the institution he could be admitted to is now a concern. There are certain internet blogs that may be helpful in these situations, but they are not always correct and don't take all the relevant elements into account. There are also some consulting firms that will demand a lot of our time and money and occasionally provide inaccurate information. Our objective is to create a machine learning model that will estimate a student's likelihood of admission to a certain university based on their test results and other relevant data.
Keywords : Machine learning, Graduate admissions, TOEFL, IELTS, CAT

1.0 INTRODUCTION

Your life depends greatly on the preparation you make. As a result, individuals preparing for careers in teaching frequently have several inquiries concerning the colleges to which they might apply and get admission, scholarships, and housing. Being accepted to their ideal institution is one of their key worries. Students continue to select well-known foreign colleges to receive their education, as can be shown. Furthermore, the majority of overseas graduates prioritise employment in the United States of America. For overseas students, the most prestigious universities provide a wide range of courses in every area, highly regarded educational and teaching programmes, and student subsidies. Over 4200 private and public universities and colleges in the United States enrol more than 10 million overseas students, according to estimates. India, Pakistan, Sri Lanka, Japan, China, and other Asian nations account for the majority of foreign students in the United States. In addition to America, they are also picking the UK, Germany, Italy, Australia, and Canada. In these nations, the number of persons seeking higher education is rising quickly. Due to a lack of available employment possibilities and a strong labour demand in their home countries, students are choosing to pursue their master's degrees in colleges overseas. Many students in their field are motivated by this to seek graduate degrees. As a result, the focus of this research will be on the many students from American colleges who are seeking master's degrees in the subject of computer science. Similar guidelines are used by

several American institutions when it comes to student admittance. Colleges consider a variety of variables, including academic performance evaluation and ranking on aptitude tests. Their result on English proficiency exams like the TOEFL and IELTS is used to determine how well-versed they are in the language. On the basis of the entire profile of the applicant application, the admission committee of universities decides whether to accept or reject a particular candidate.

Given that there are many students from the USA who are pursuing master's degrees in computer science, the suggested system's focus will be on these students. Prerequisites are a common practise in the United States. Schools take into account a number of factors, such as record audits and on-campus evaluations. Based on English tests like the TOEFL and IELTS, the order of the English language is decided. Depending on the overall of the applicant, the entry advisory board decides whether to recommend or disapprove an up-and-comer. The independent variables are Score on the Graduate Record Exam 1 (GRE): The grade will be based on 340 points. a TOEFL (Test of English as a Foreign Language) score out of 120 topics. University that serves as an example of a bachelor's school among colleges. There will be a scale of 1 to 5. The Statement of Purpose (SOP), which is a record of the applicant's life and motivation for the chosen degree or college, shows these things. There will be a scale of 1 to 5 points. The applicant's letter of recommendation (LOR) provides credibility, upholds certainty, and attests to your competence. The rating is on a scale of 1 to 5. GPA (CGPA) for undergrads on a scale of 10. Research expertise that can support similar research articles in discussions, acting as the college instructor's right hand. (either 0 or then again 1).

2.0 EXPLORATORY DATA ANALYSIS

Exploratory data analysis is the first examination of data that has been given or extracted to determine trends, underlying limits, quality, patterns, and relationships between different entities within the data collection (EDA). Before using sophisticated modelling approaches, or even Machine Learning and Artificial Intelligence algorithms, EDA will give you a good indication of which model matches the data the best and whether any data cleansing and massaging are necessary. Depending on the type and quantity of data you have, exploratory data analysis (EDA) can be highly involved and time-consuming. Although there is no formal method for doing EDA, there are a few strategies that will help you get the best results. The crucial EDA results that one should endeavour to obtain from the data are: Detect outliers and abnormalities

- Find out if the initial assumptions you or your team made about the quality of the data were accurate or wildly off. Find out which statistical models can suit the data.
- Recognize variables or dimensions that can be used to pivot the data.
- Choose between using multivariate or univariate analysis approaches.

The EDA, often referred to as Data Exploration, is a stage of the data analysis process when various methods are employed to comprehend the dataset being used. Understanding the dataset can relate to a variety of things, including but not limited to: Extraction of significant factors and omission of irrelevant variables

Understanding the relationships between variables, or the lack thereof, can help you maximise your insights from a dataset while reducing any potential errors that may arise later in the process.

3.0 RESULT ANALYSIS

The Accuracy of algorithms are shown in the below table. We Notice Random forest is best suited to this problem

Algorithm	Accuracy
Logistics Regression	94%
SVM	94%
Random Forest	97%
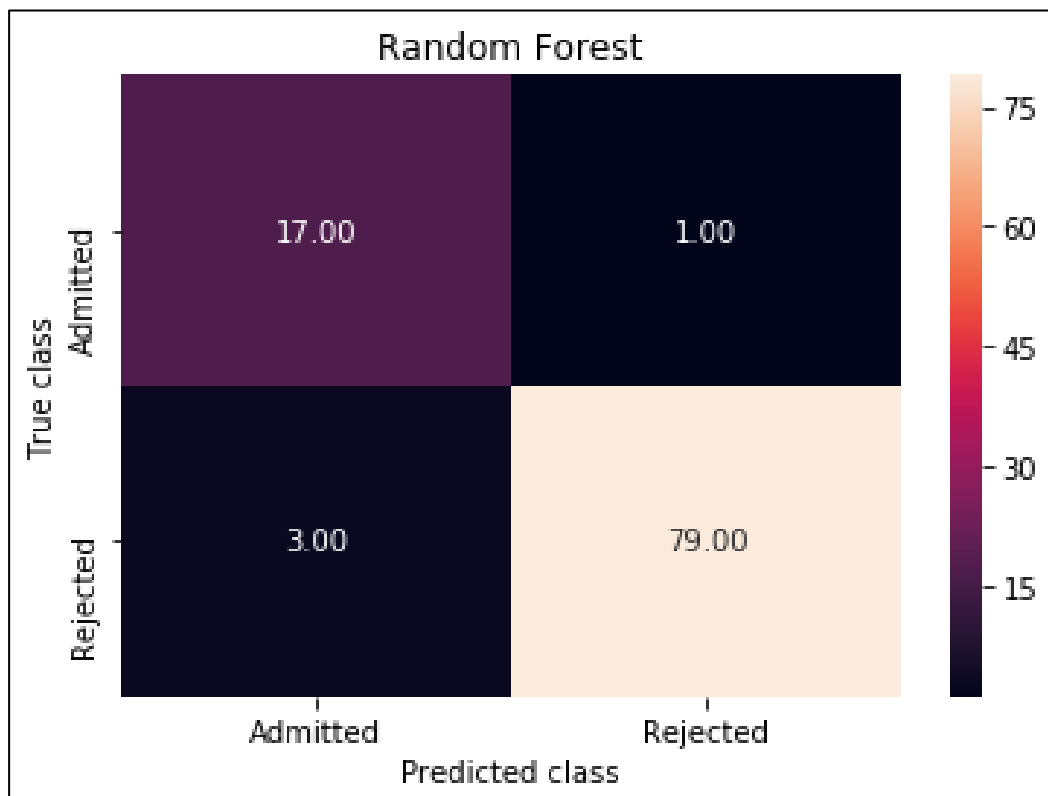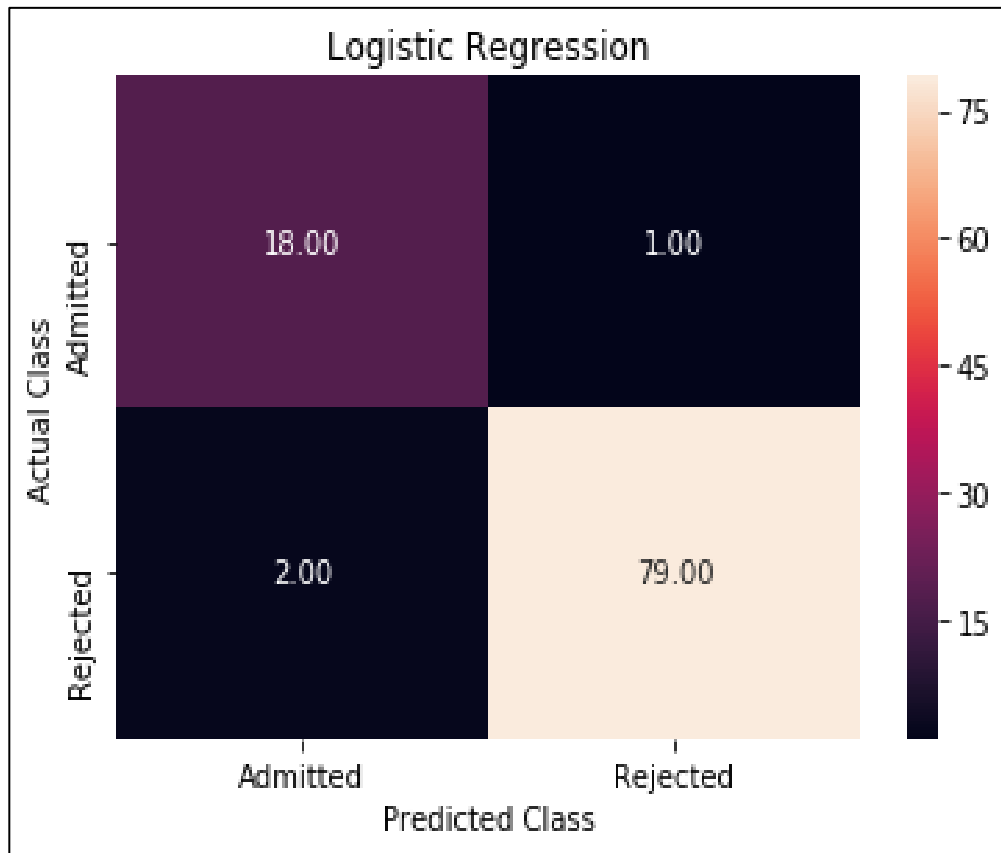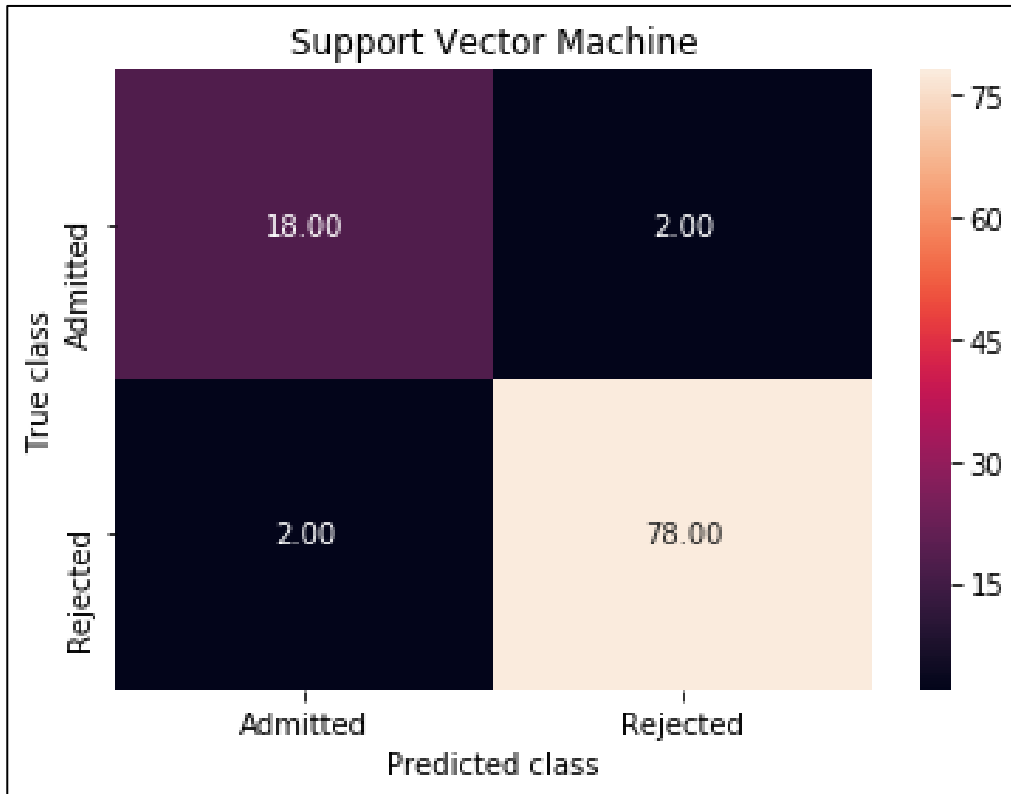
CONCLUSION

The major objective of this effort is to develop a machine learning model that students who wish to continue their studies abroad may utilise. For this, many machine learning methods were used. SVM, Random Forest, and the linear regression model are contrasted with the others. With an average accuracy of 79%, students may use the model to predict their chances of admission to a certain university. The approach helps students to save a lot of time and money that they would otherwise spend on educational advisors and application fees for universities where they have a lower probability of getting admitted, therefore the project's ultimate purpose will be effectively attained. The biggest drawback of this effort is that we only used data from Indian students pursuing a master's degree in computer science in the US to construct models. We simply took into account a small number of colleges with various rankings. The curriculum may one day include more details on fresh colleges and courses. It is feasible to test other categorization algorithms to see whether they are more accurate than the existing method in order to resolve the issue. By altering the server code, the framework may be quickly upgraded to incorporate the new algorithm. Finally, students may use an open-source machine learning model to accurately predict their likelihood of admission to a certain university.

REFERENCES

1) N. Chakrabarty, S. Chowdhury, and S. Rana, "An Approach to Graduate Admissions' Chance" no. March, pp. 145– 154, 2020.
2) S. Sujay, "Supervised Machine Learning Modeling & Analysis for Graduate Admission" vol. 7, no. 4, pp. 5–7, 2020.
3) M. N. Injadat, A. Moubayed, A. B. Nassif, and A. Shami," ensemble model approach for data mining," Knowledge-Based Syst., vol. 200, p. 105992, Jul. 2020.
4) Bruggink, T. H., and Gambhir, V. 1996. models for college admission and enrollment: A case study for a liberal arts college. Research in Higher 37(2): 221–240.

5) Deerwester, S.; Dumais, S.; Furnas, G.; Landauer, T.; and Harshman, R. 1990. Indexing by latent analysis. Journal of the American Society for Science 41(6): 391–407.

6) Koh, K.; Kim, S.; and Boyd, S. 2007. An interior-point method for large-scale l1-regularized regression. Journal of Machine Learning Research 8(8): 1519–1555.

7) Acharya MS, Armaan A, Antony AS (2019) a comparison of regression models for prediction of graduate admissions. In: 2019 IEEE International conference on computational intelligence in data science (ICCIDS). IEEE

8) Janani P, HemaPriya V, MonishaPriya S, Prediction of MS Graduate Admissions using Decision Tree Algorithm ,International Journal of Science and Research (IJSR) ISSN: 2319-7064 ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426.

9) Gupta N, Sawhney A, Roth D (2016) Will I get in? Modeling the graduate admission process for American universities. In: 2016 IEEE 16th international conference on data mining workshops (ICDMW). IEEE.

10) Novoneel Chakraborty, Siddhartha Chowdhury, Srinibas Rana ons, A Statistical Approach to Graduate Admissions' Chance Prediction,in book: Innovations in Computer Science and Engineering (pp.333-340), march 2020."

11) Dr GNR Prasad, "FARMER SAATHI", International Journal of Computer Engineering and Applications, Volume XIII, Issue VI, December 2020.