University Admit Eligibility Predictor

Abstract

The main objective of this project is to predict the admission process of university based on numerous factors. The admission process depends on criteria within the particular college or degree program. The proposed System helps a person to decide what colleges they can apply to with their scores. Machine learning algorithm are used for predictions to get accurate results. The dataset contains information of the student profile and the university details with a field providing if the admission was correct or not. The algorithms we are going to use are Multi Linear Regression, Polynomial Regression and Random Forest. The project will help the student to know whether they will get admitted in this college or not. We aim to create a portal which filters and provides a list of universities that fall into the student's acceptance range.

Literature Survey

A person's education plays a vital role in their life. While planning for education students often have several questions regarding the courses, universities, job opportunities, expenses involved, etc. Securing admission in their dream university is one of their main concerns. It is seen that often students prefer to pursue their education from universities which have global recognition. And when it comes to international students the first choice of the majority of them is the United States of America. With the majority of worlds highly reputed universities, wide range of courses offered in every sector, highly accredited education system and teaching, scholarships provided to students, best job market and many more advantages make it the dream destination for the international students. According to research, there are above 8 million international students studying in more than 1700 public and 2500 private universities and colleges across the USA. (MasterPortal (2017)).

❖ Bayesian Networks were used by (Thi et al. (2007)) to create a decision support system for evaluating the application submitted by international students in the university. This model was designed to predict the performance of the aspiring students by comparing them with the performance of students currently studying at the university and who had similar profiles during their application. In this way based on the current students' profile, the model predicted whether the aspiring student should be granted admission to the university. Since the comparisons were made only with the students who were already admitted to the university and the data of the students who were denied admission were not included in the research this model proved to be less efficient due to the problem of class imbalance.

❖ (Abdul Fatah S; M (2012)) developed a model that can provide a list of universities/colleges were the best suitable for a student based on their academic records and college admission criteria. The model was developed by applying data mining

techniques and knowledge discovery rules to the already existing in-house admission prediction system of the university. (Mane (2016)) conducted similar research that predicted the chance of a student getting admission to college based on their Senior Secondary School, Higher Secondary School, and Common Entrance Examination scoresusing the pattern growth approach to association rule mining.

❖ Mishra and Sahoo (2016)) conducted research from a university point of view to predict the likelihood of a student enrolling in the university after the have enquired about of courses in the university. They used K-Means algorithm for clustering the students based on different factors like feedback, family income, family occupation, parents' qualification, motivation etc. to predict if the student will enroll at the university or not. Depending upon the similarity of the attributes among the students they were grouped into clusters and decisions were made. The objective of the model was to increase the enrolment of the students in the university.

❖ Acharya et al. (July 2020) proposed a comparative approach by developing four machine learning regression models: linear regression, support vector machine, decision tree, and random forest for predictive analytics of graduate admission chances. Then compute error functions for the developed models and compare their performances to select the best performing model out of these developed models the linear regression is the best performing model with an R2 score of 0.72. Janani Pet al. proposed a developed project that uses machine learning techniques specifically a decision tree algorithm based on the test attributes like GRE, TOEFL, CGPA, research papers, etc. According to their scores, the possibility of a chance of admission is calculated. The developed model has 93% accuracy.

❖ GRADE system was developed by (Waters and Miikkulainen (2013)) to support the admission process for the graduate students in the University of Texas Austin Department of Computer Science. The main objective of the project was to develop a system that can help the admission committee of the university to take better and faster decisions. Logistic regression and SVM were used to create the model, both models performed equally well and the final system was developed using Logistic regression due to its simplicity. The time required by the admission committee to review the applications was reduced by 74% but human intervention was required to make the final decision on status if the application. (Nandeshwar et al. (2014)) created a similar model to predict the enrolment of the student in the university based on the factors like SAT score, GPA score, residency race etc. The Model was created using the Multiple Logistic regression algorithm, it was able to achieve accuracy rate of 67% only.

❖ Analysis & Prediction of American Graduate Admissions Process by (Bhavya Ghai (2018)) This project tries to understand American Graduate Admissions process by specifically analyzing MS Computer Science application over past 5 years. They have tried to model admissions data based on patterns extracted from data and domain knowledge. The key to analyzing Graduate Admissions data is to analyze data in buckets rather than considering all in one bucket. The project aims to help students choose the right Universities by predicting whether a student will be admitted to a specific University. This model uses four types of machine learning algorithms Decision Tree, Random Forest, AdaBoost and Naive Bayes and achieved highest accuracy of 69.79.

❖ Applications of Supervised Learning Techniques on Undergraduate Admissions Data by (Thomas Lux,Randall Pittman,Maya Shende,Anil Shende(2016)) Here they discussed about the use of supervised learning techniques,namely perceptrons and support vector machines, in predicting admission decisions and enrollment based on historical applicant data. They show through experimental results that a classifier, trained and validated on previous years' data, can identify with reasonable accuracy those applicants that the admissions office is likely to accept (based on historical decisions made by the admissions office), and of the accepted applicants, those ones that are likely to enroll at the institution. Additionally, the results from our feature selection experiments can inform admissions offices of the significance of applicant features relative to acceptance and enrollment, thus aiding the office in future data collection and decision making. They achieved a highest accuracy of 94.57 in this model.

❖ Student Admission Predictor by (HimanshuSonaware(2017)) Apart from these the education consultancy firms there are few websites and blogs that guide the students on the admission procedures. The drawback of the currently available resources is that they are very limited and also, they are not truly dependable taking into consideration of their accuracy and reliability. The aim of this research is to develop a system using machine learning algorithms. It will help the students to identify the chances of their application to a university being accepted. Also, it will help them in identifying the universities which are best suitable for their profile and also provide them with the details of those universities. A simple user interface will be developed for the users to access the SAP system.

❖ Graduate Admission Prediction Using Machine Learning by (K. JeevanRatnakar, G.Koteswara Rao,DurgaPrasanth Kumar(2020)) This paper addresses machine learning models to predict the chance of a student to be admitted to a master's program. This will assist students to know in advance if they have a chance to get accepted. The machine learning models are multiple linear regression, k-nearest neighbor, random forest, and Multilayer Perception. Experiments show that the Multilayer Perception model surpasses other models with an accuracy of 95.43.