

ADMISSION PREDICTION USING MULTIPLE LINEAR REGRESSION WITH PCA

**G.VINESH^{*1}, KAITEPALLI DHARANI ^{*2}, PEDDAPALLI NEESHMA ^{*3},
SHRUTHI ANUGANTI ^{*4}, AND KAVELLI DHIRUVANESHWAR ^{*5}**

^{*2*3*4*5} Authors, Department of Computer Science Engineering, CMR Technical Campus,
Kandlakoya(V), Hyderabad, Telangana.

^{*1}Assistant Professor, Department of Computer Science Engineering, CMR Technical Campus,
Kandlakoya(V), Hyderabad, Telangana.

ABSTRACT

This project is titled as “Admission Prediction using multiple linear regression with pca”. In today's education world there are many numbers of students who want to pursue higher education after engineering or any graduate degree course in abroad universities like USA, UK. Students who want to do master's program in America have to write GRE and TOEFL. Once they have attended the exams which are one of the crucial factors they have to consider. So our goal is to develop a model using machine learning which will tell the students their chance of admission into a respective university. These models should consider all the crucial factors which plays a vital role in student admission process and should have high accuracy. The predicted output gives them a fair idea about their admission chances in a particular university.

KEYWORDS: Data preprocessing, Multiple linear regression, Principal components analysis, Admission prediction, Machine learning.

I. INTRODUCTION

This project is titled as “Admission Prediction using multiple linear regression with pca”. This system predicts the probability of students getting admitted in a university. This project uses machine-learning methods. First, we use a machine learning algorithms for training dataset. We then compare a number of algorithms that gives fair idea about student admission process and should have high accuracy. This has been developed for the purpose of the admission prediction model is to predict whether the student he/she gets admission or not in the universities. The algorithms are applied on the given dataset of admission prediction. Universities also can provide guidance to the students who are interested to take admissions to their courses, Also the universities can confirm or reject the admission of students. The main features of this project are as input and learning machines play complementary roles in supervised learning. When features are discriminative, they place less demand on the learning machine in order to perform a task successfully. In admission prediction system use only a few features such as GRE score of the student, TOFEL of the student, academic details. The system provides higher efficiency for prediction. The existing system has several disadvantages and many more difficulties to work well. The proposed system eliminates or reduce these difficulties. The proposed system is that the system is to automate the process carried out in the organization with improved performance and realize the vision of admission. All the crucial factors play a vital role in student admission prediction process and that have high accuracy.

II. METHODOLOGY

MULTIPLE LINEAR REGRESSION WITH PCA

Multiple regression analysis is one of the most widely used methodologies for expressing the dependence of a response variable on several predictor variables. The specific goals of principal component analysis are to reduce a large number of predictor variables to smaller no. of principal components and to provide a regression equation for an underlying process by using predictor variables.

PRINCIPAL COMPONENT ANALYSIS PCA

- It is considered to be one of the most used unsupervised algorithms and can be seen as the most popular dimensionality reduction algorithm.

- It is a linear dimensionality reduction technique that can be utilized for extracting information from a high-dimensional space by projecting it into a lower-dimensional sub-space.
- It tries to preserve the essential parts that have more variation of the data and remove the non-essential parts with fewer variation. Dimensions are nothing but features that represent the data.
- Students can use the model to assess their chances of getting admission into a particular university with an average accuracy of 95 percent.

ARCHITECTURE:

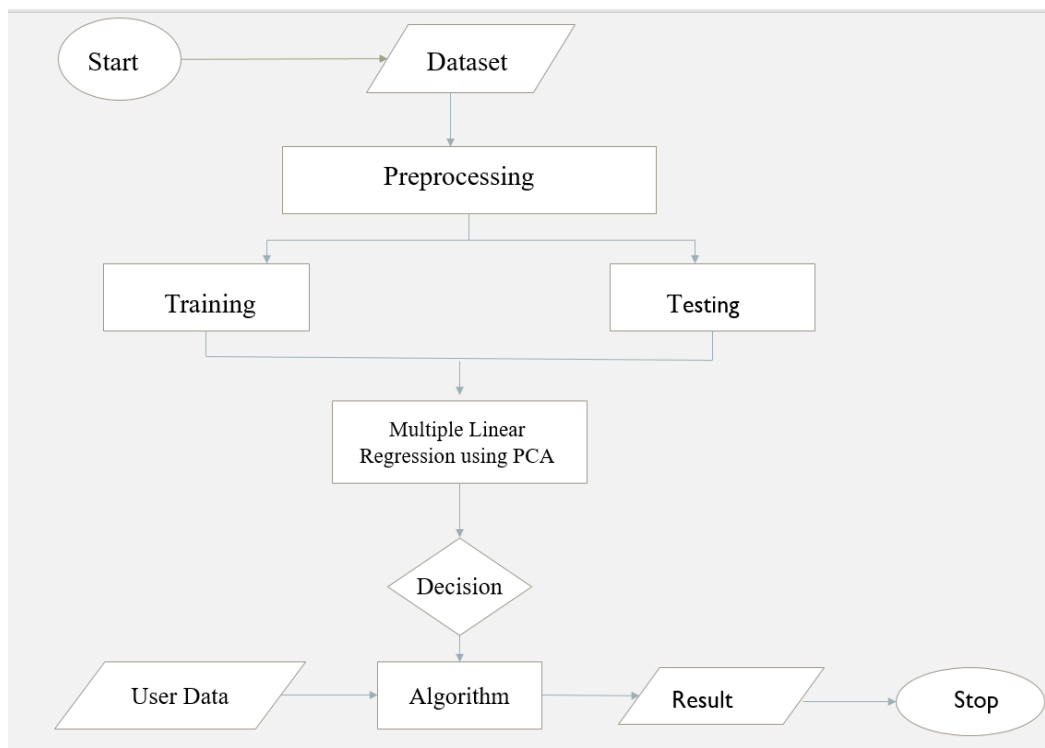


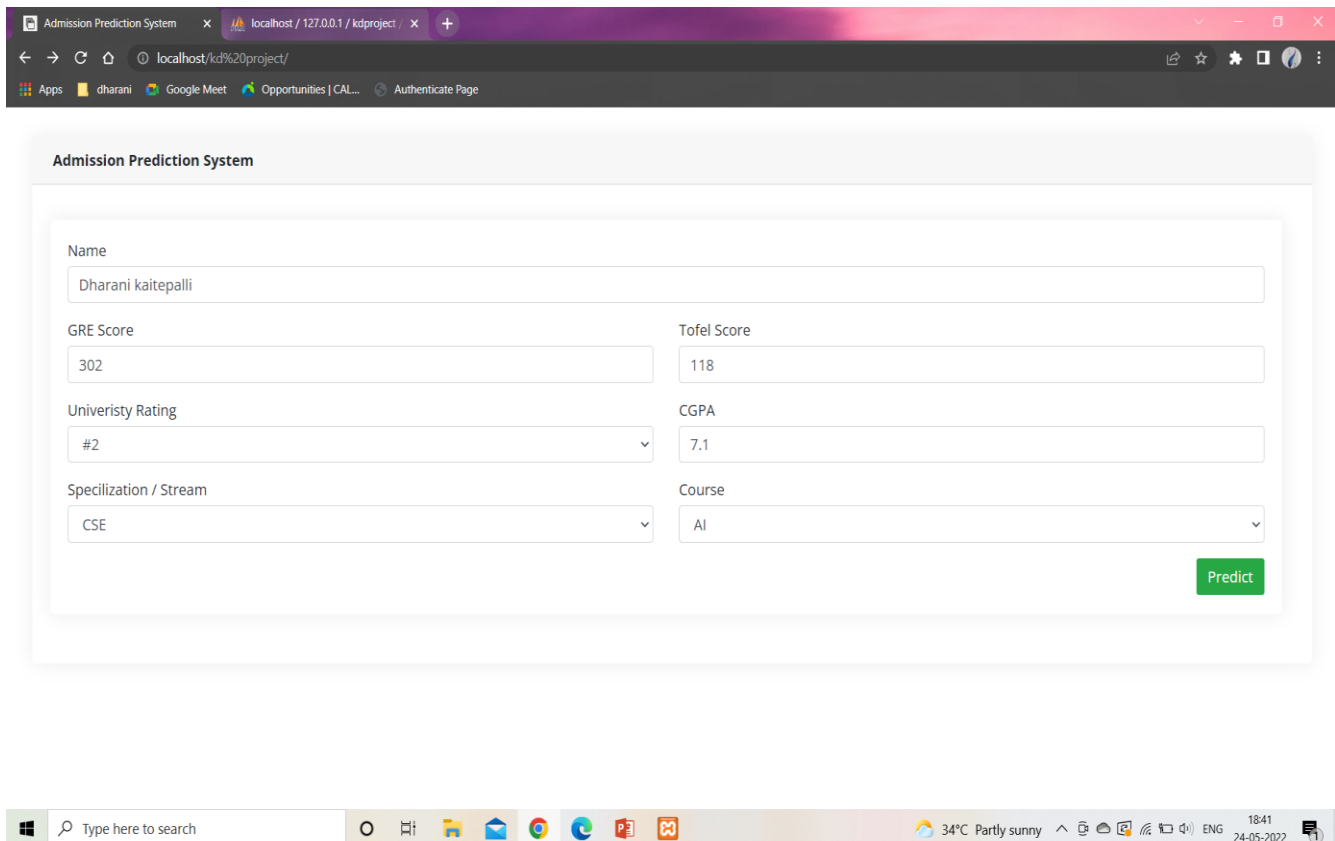
Figure 1: Architecture

1. In the architecture data gathering is the process of collecting and measuring raw data from different sources.
2. Next, Data preprocessing is a technique that is used to convert raw data into a clean dataset. In data preprocessing it contains 4 steps attribute selection, missing values, feature scaling, training and testing data.
3. After data preprocessing, the dataset is split into two where the 75% is used for training the dataset and 25% is used for test the data then, the dataset is trained using machine learning algorithm, here

multiple linear regression with pca is used for training the machine which predicts the admission of students.

4. The predicted output gives them a fair idea about their admission chances in a particular university.

III. RESULTS



The screenshot shows a web browser window with the title 'Admission Prediction System'. The address bar shows 'localhost / 127.0.0.1 / kdproject'. The browser tabs include 'Admission Prediction System', 'localhost / 127.0.0.1 / kdproject', and 'Authenticate Page'. The main content area displays a form titled 'Admission Prediction System' with the following fields:

- Name: Dharani kaitepalli
- GRE Score: 302
- Tofel Score: 118
- Univeristy Rating: #2 (dropdown menu)
- CGPA: 7.1
- Specilization / Stream: CSE (dropdown menu)
- Course: AI (dropdown menu)

A green 'Predict' button is located at the bottom right of the form.

Figure 1: INPUT OF ADMISSION PREDICTION SYSTEM

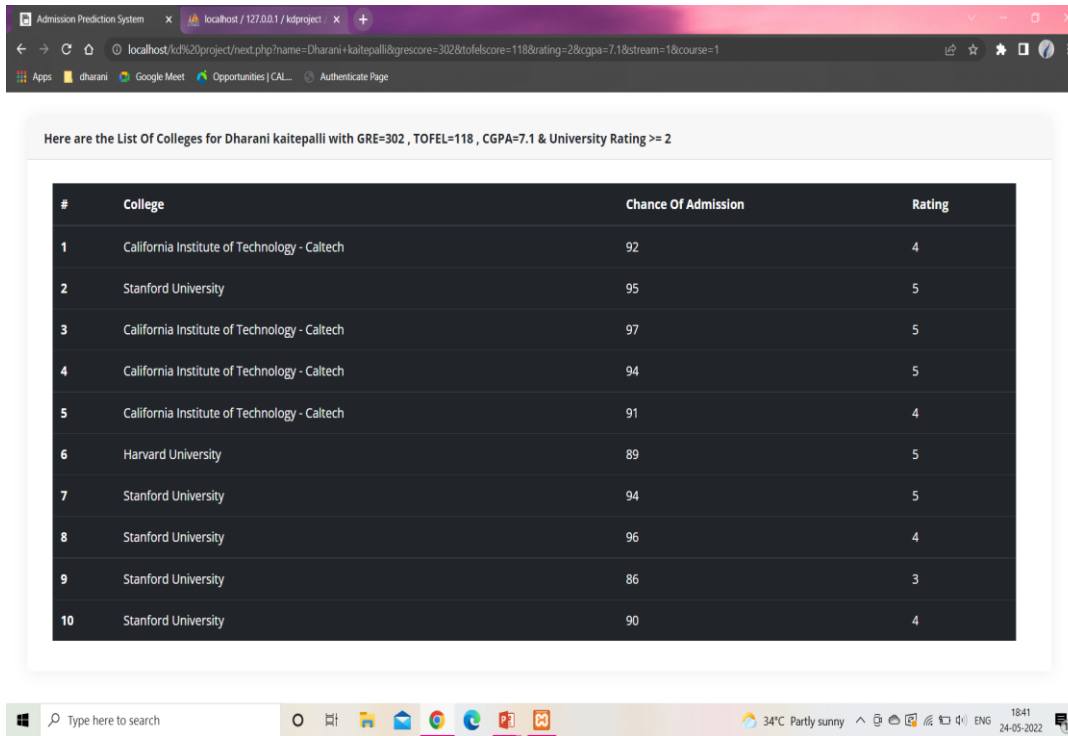


Figure 2: OUTPUT OF ADMISSION PREIDCTION SYSTEM

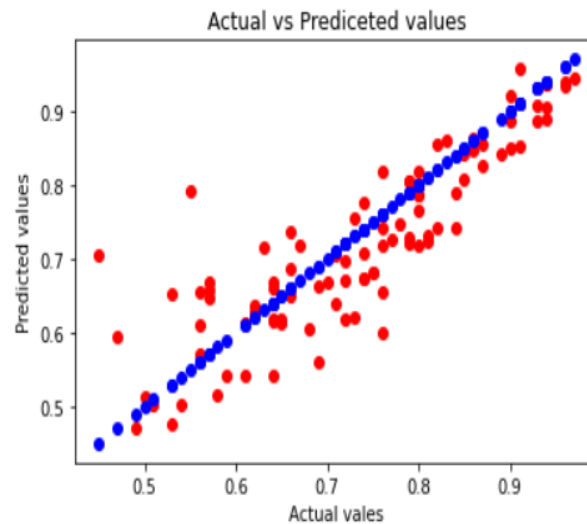


Figure 3: ESTIMATED GRAPH RESULT

IV. CONCLUSION

The main goal of this project is to create a Machine Learning model which could be used by students who want to pursue their education in the US. Students can use the model to assess their chances of getting admission into a particular university. Multiple linear regression with pca proved to best-fit for development of the system when compared with other Linear regression model. The model can be used by the students for evaluating their chances of getting shortlisted in a particular university with an average accuracy of 95%. The system is very flexible and versatile. The application has been tested with live data and has provided a successful result. Hence the software has proved to work efficiently.

V. ACKNOWLEDGEMENTS

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VI. REFERENCES

- [1] L. Breiman, Accuracy Predictors, Machine Learning, 24(2):123-140,1996.
- [2] Abdul Fatah S; M, A. H. (2012). System for Predicting College Admission, pp. 107–113.
- [3] Jamison, J. (2017). Applying Machine Learning to Predict Davidson College's Admissions Yield, pp. 765–766.
- [4] Jared Cirelli, Andrea M. Konkol, Faisal Aqlan, "Predictive Analytics Models for Student Admission and Enrolment.