# PREDICITNG A STUDENT'S ADMISSION INTO A UNIVERSITY

## PROBLEM STATEMENT:

Predicting a student's admission into various universities, based on several factors like GRE, TOEFEL, SOP,LOR, UNIVERSITY RANKING ,CGPA.

## APPROACH:

We assume that there is a power relation between the probability that a student gets into a university and all the parameters. Notice that Research is a Boolean value, hence it either adds value to your resume or leaves it unaltered. First, we normalise all the scores so that we get values ranging only from 0 to 1. Here we assume an inverse relation for university ranking.

We start by writing a prediction function,

$$\text{Probability} = GRE^{G} * TOEFEL^{T} * UNIRANK^{U} * SOP^{S} * LOR^{L} * CGPA^{C} + (r * RESEARCH)$$

We split the dataset into train and test for training and verification, On the train subset we perform curve fit. The test dataset is used to check accuracy using STEP FUNCTION (LOGISTIC REGRESSION TYPE).

The power parameters we get as output:

| | |
|---|---|
| GRE: 0.6558773394151651 | LOR: 0.09360999724527129 |
| TOEFEL: 0.40364904566051174 | CGPA: 1.423092695249985 |
| UNIVERSITY RANK: 0.02045084925910188 | RESEARCH: 0.031472405035229675 |
| SOP: 0.0018215299279157188 | |

Since, all parameters are probabilities(fractions), the higher the power the lesser is the contribution to probability. Comparing GRE, TOEFEL AND CGPA: the parameters range like CGPA > GRE > TOEFEL.Hence, overall importance is like TOEFEL > GRE > CGPA. Hence, focus should be more on TOEFEL and GRE.

## Analysis plot 1:

### GRE VS TOEFEL VS CGPA

Clearly as we can see,

For equal GRE, TOEFEL AND CGPA,

GRE AND TOEFEL increase the probability

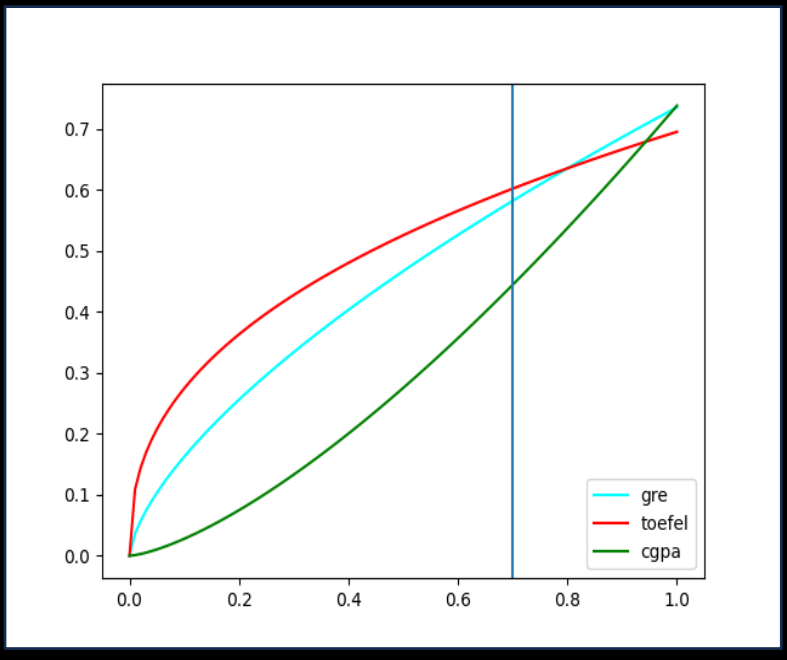
When compared to the CGPA.

For the given dataset, TOEFEL has an edge

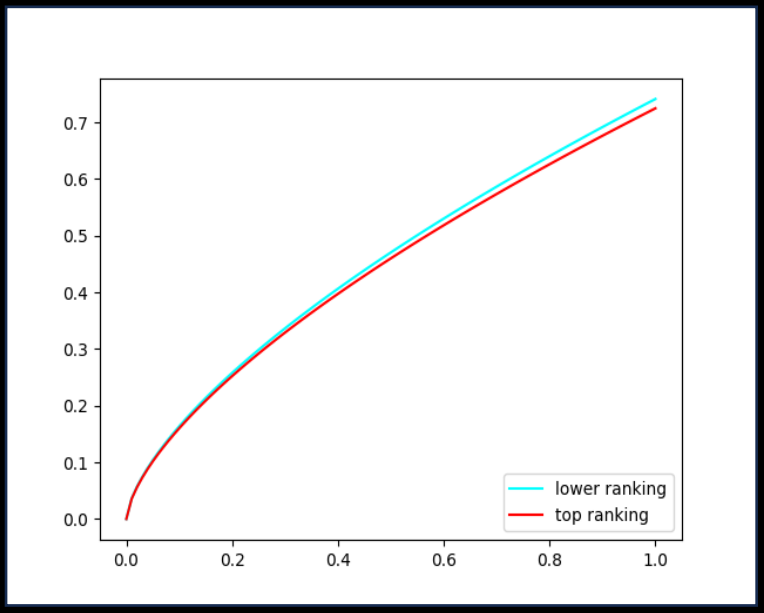
Over GRE.

HENCE,GRE AND TOEFEL ARE MORE

IMPORTANT THAN CGPA.



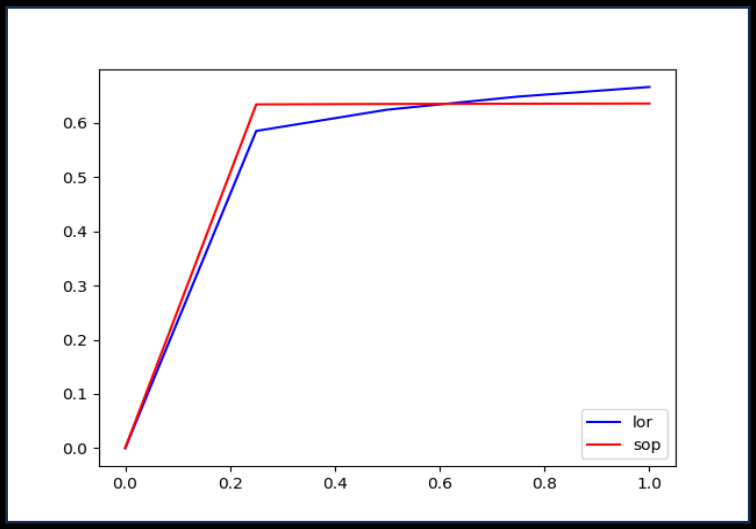
## Analysis Plot 2:




**Variation of GRE with university ranking**

Clearly we can see, that for a given Probability GRE SCORES required are higher For higher university ranking (RED) when Compared with lower ranking(BLUE). Hence, focus must be given more for GRE Or TOEFEL when applying for top notch Universities.

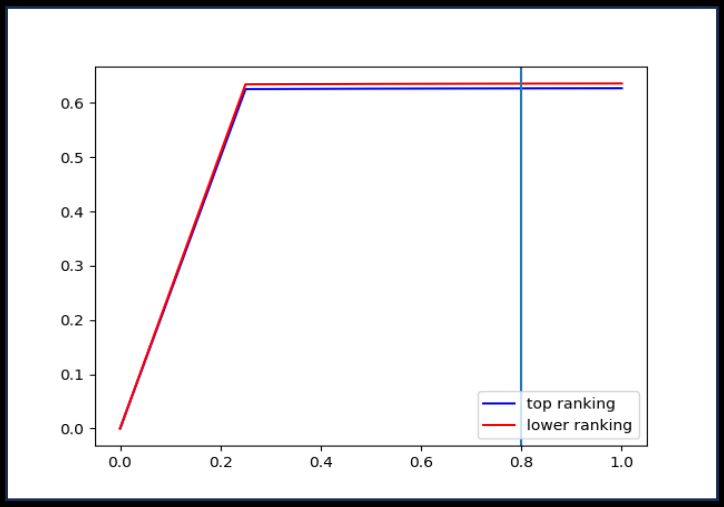
## Analysis Plot 3:




**SOP VS LOR**

The plot clearly shows us that for a given Probability LOR and SOP are nearly Equally important. There is no smoothness in variation because The datapoints are discrete(1-5 marking)

## Analysis Plot 4:




**SOP or LOR VS UNIVERSITY RANKING:**

Clearly from the given plot, for a given Lor sop marking, chance of getting a top Ranking university is less. Hence, we must focus more on the sop and Lor for better university admits.

**FINALLY LET'S TEST THE DATA TO GET ACCURACY:**

**The standard deviation is 0.04291012224974393 with ACCURACY OF 94/100**