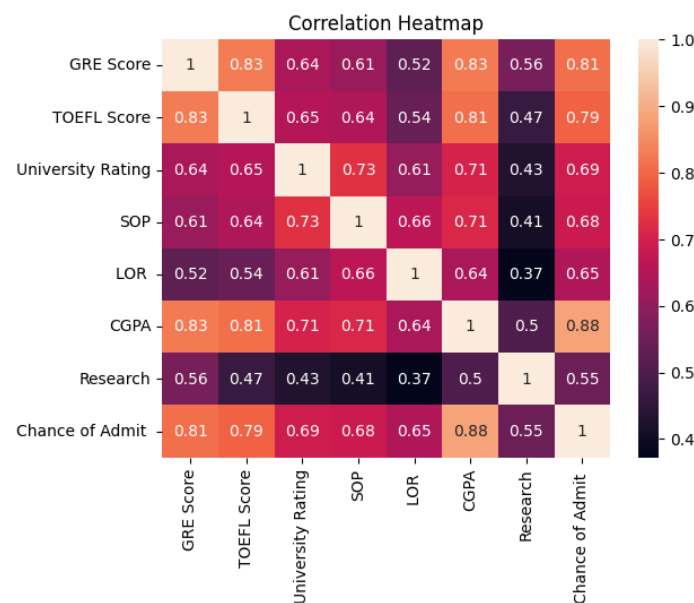


A4 - Predicting the Chances of Admission

All of the data corresponding to each of the parameters has been normalized and mapped to the range [0,1] to be able to draw meaningful conclusions from the values of the linear model coefficients, and to be able to comment on the strength of each of the parameters/variables to affect ones Chance of Admission.

Correlation Matrix

The correlation matrix shows the strength and direction of the linear relationship between each pair of features. The higher the correlation coefficient, the stronger the linear relationship.



Inferences from the Correlation Matrix

- CGPA has the highest correlation with the chances of admission (0.88).
- GRE score has the second-highest correlation with the chances of admission (0.81).
- University rating and Letter of Recommendation have a moderate correlation with the chances of admission (0.68 - 0.69).
- Research Rating has the lowest correlation with the chances of admission (0.55).

Ordinary Least Squares Fitting

The linear ordinary least squares model coefficients show the relative importance of each feature in predicting the chances of admission. The higher the coefficient, the more important the feature is. This can be done on account of the normalization. The OLS method gives the following linear equation to approximate the Chances of Admission

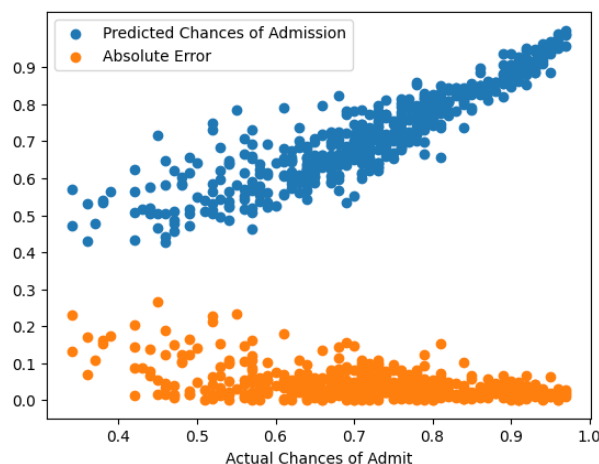
$$\text{Chances of Admit} = 0.63189 \text{ GRE Score} + 0.33336 \text{ TOEFL Score} + 0.02971 \text{ University Rating} + 0.00793 \text{ SOP Rating} + 0.08429 \text{ LOR Rating} + 1.18385 \text{ CGPA} + 0.02431 \text{ Research} - 1.27573$$

Inferences from the (OLS) Linear Model Coefficients

- CGPA is the most important feature in predicting the chances of admission (1.18385).

- GRE score is the second most important feature in predicting the chances of admission (0.63189).
- TOEFL Score is the third most important feature in predicting the chances of admission (0.33336).
- LOR rating, University rating, and Research rating are less important features in predicting the chances of admission.
- SOP rating seems to be the least important feature out of all of the given features in securing an admission

The Linear OLS model resulted in a Mean Squared Error of 0.0035408 which makes it a more than acceptable fit for the given data. It might not have been the best fit model and a non-linear model with different exponentials for each parameter might have provided an even better fit with a lower Mean Square Error.



Suggestions for increasing the chances of admission to top universities

Based on the inferences from the code, here are some suggestions for increasing the Chances of Admission into top Universities in **Decreasing order of importance**:

1. Aim for a high CGPA, and GRE Score.
2. Aim for a high TOEFL score.
3. Get strong LORs from professors and mentors.
4. Gain Research Experience if possible.
5. Write a strong SOP that highlights your academic achievements, research experience, and career goals.

These inferences from the code must not be followed to a tee as the importance of a good SOP is the least compared to all of the other parameters given, in actuality having a good Statement of Purpose is generally valued more than one's CGPA, Test Scores or any other metric.