DRIVING FORCES BEHIND ART VALUATION: PRICING PAINTINGS IN 18TH CENTURY PARIS

TEAM NAME:

***THE ENERGETIC STUDENTS*. A SKETCH BY LEONARDO DA VINCI.**

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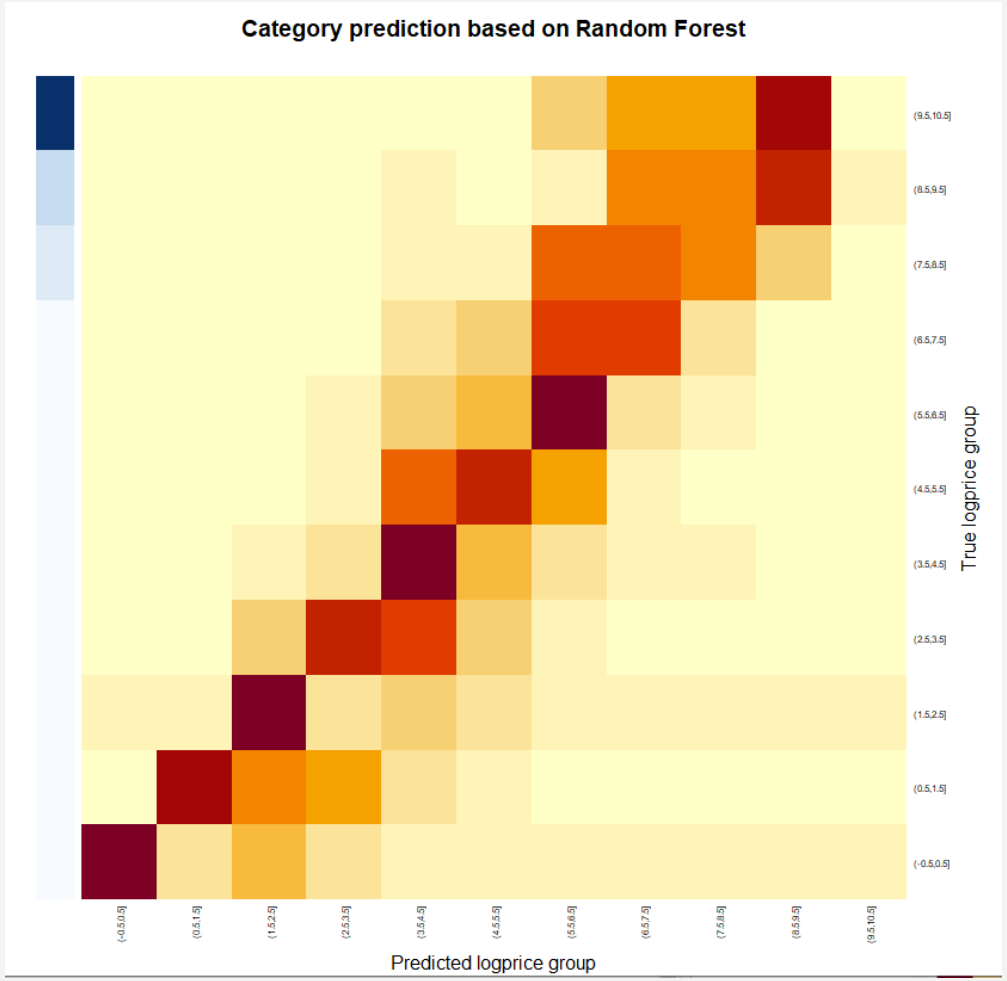
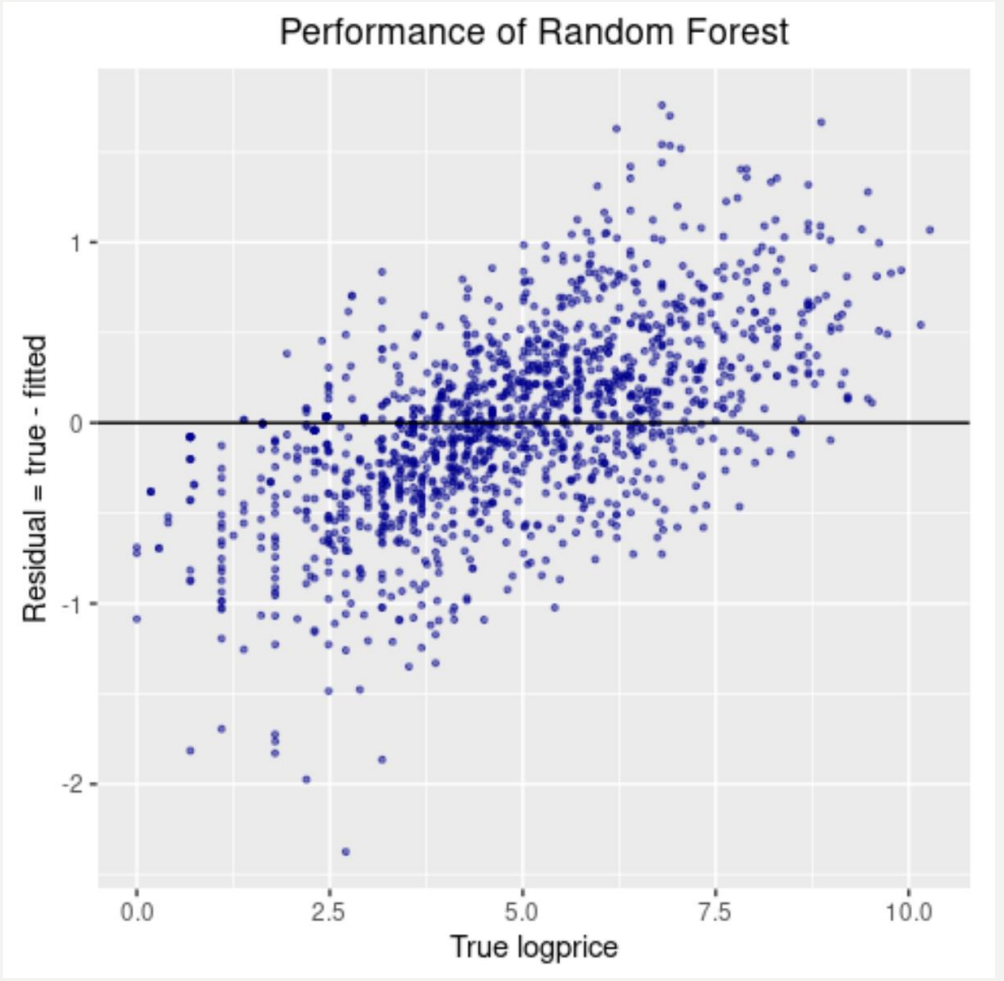
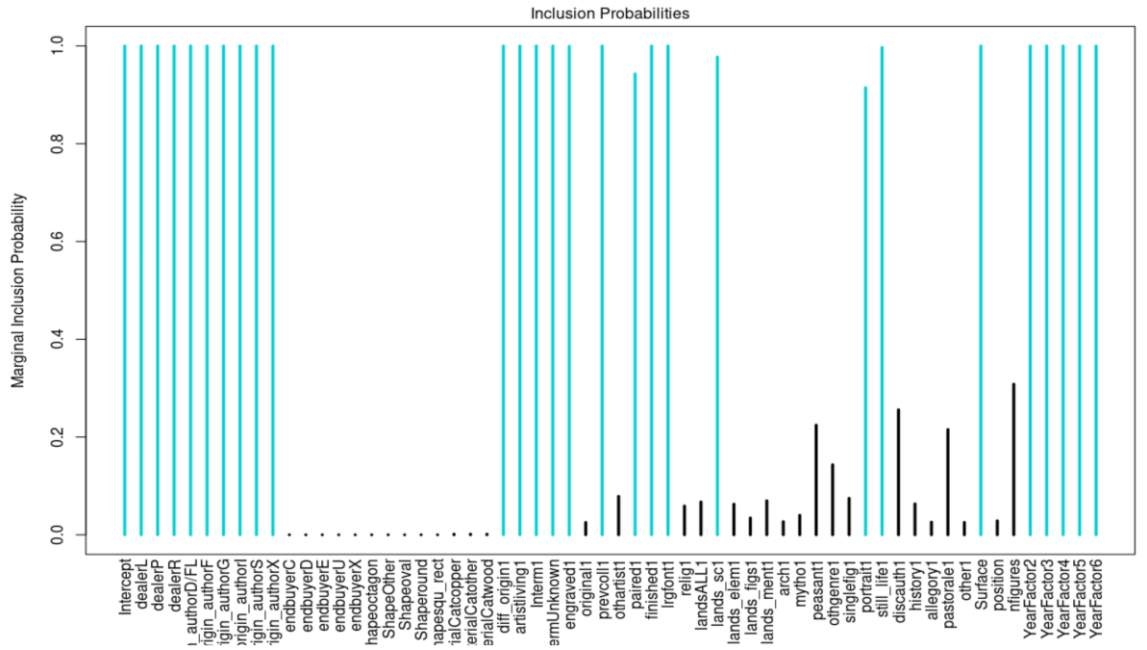
INSPIRING GRAPHICS

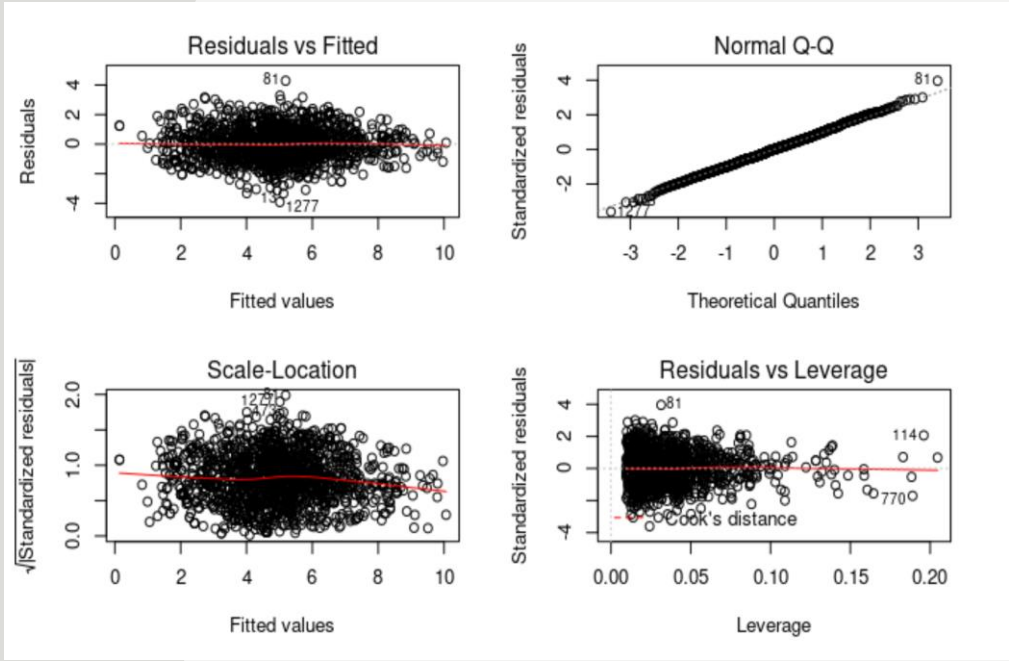
What model might be a good model?





VARIABLE SELECTION &INITIAL MODELING





BEST MODEL

Most Interesting Model:

Random Forest & Linear Regression Model

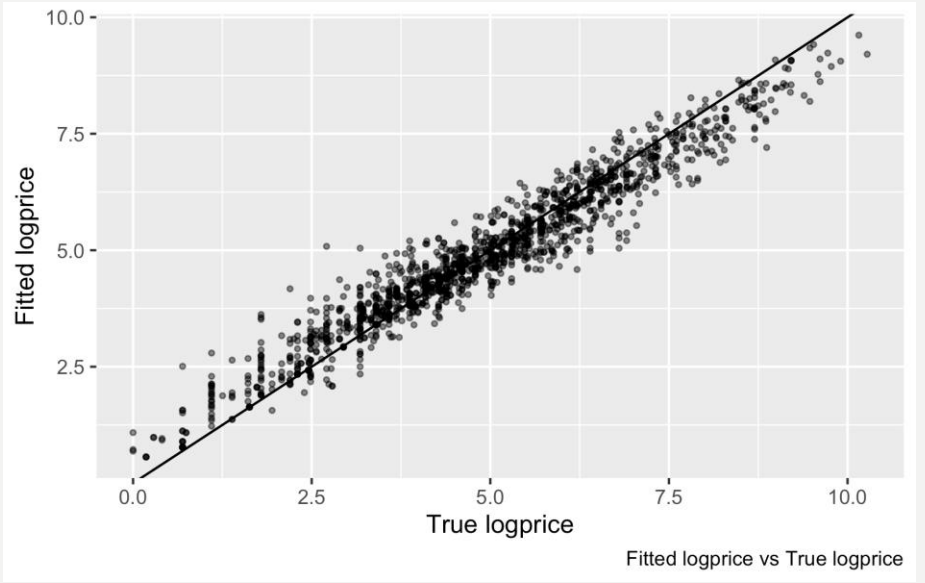
- Motivation:

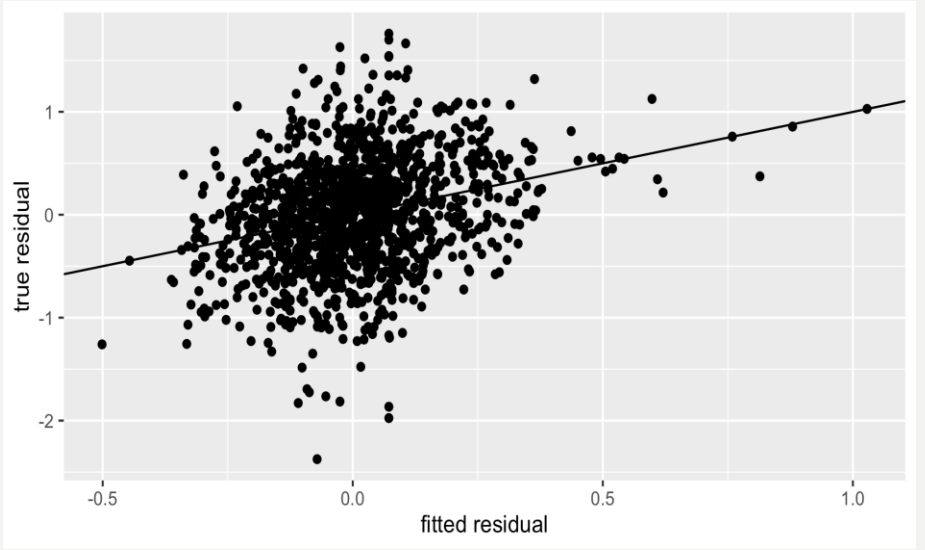
  Given many categorical and binary variables, paintings can be classified. Then the price of a painting largely falls into the range predicted by its category. Then identify other features to account for the slight price difference.

- How?
  1. Random Forest: classify a given painting in a large class
  2. Linear Regression: identify how painting features account for residuals

- Performance

Bias	Coverage	maxDeviation	MeanAbsDeviation	RMSE
144.39	0.91	8046.72	336.36	912.85





BEST INSIGHTS INTO PREDICTING PRICE

If the dealer devotes an additional paragraph in a larger font size, the auction price is expected to increase 49.74% on average (ceteris paribus).

For every 1% increase in the surface of a painting, the auction price is expected to increase 31.74% on average

Under the tree method, when the true value is low (<5), the model tends to overestimate. When the true value is high (>5), it will underestimate.

Other:

More Expensive: Engrave, Owner, Finish, Material, Intermediary

Less Expensive: Landscape, Paired

3 MOST EXPENSIVE PAINTINGS

No.1 10,000 livre

Adoration of the Kings (1624)
by Peter Paul Rubens

Features:

sold in 1777
Dealer: R
Large surface (90*114 inch)
Large font paragraph
Bought by collector

3 MOST EXPENSIVE PAINTINGS

No.2 9,500 livre

The Deer Hunt
by Philips Wouwerman

Features:

sold in 1767
Dealer: R
Large font paragraph
Bought by collector

3 MOST EXPENSIVE PAINTINGS

No.3 9,000 livre

Harbor concert
by Nicolaes Berchem

Features:

sold in 1777
Dealer: R
Large font paragraph
Bought by collector