title: "Kaggle Project - Team Fat Tails" author: | | Grant Bourzikas | Quinton Nixon | Brock Friedrich date: "" output: pdf_document: df_print: kable toc: yes html_document: df_print: kable toc: true css: css/darkly.css notebook: css: css/darkly.css geometry: margin=1in

fontsize: 11pt fontfamily: palatino

Downloading from the Kaggle API

Using Code Blocks in Markdown

Using SAS in Markdown Code Blocks

Find more markdown snippits

Introduction

```
#setup, echo=FALSE, results="hide"}
# read setup script
source("Setup.R")
print("hello world!!!")
```

```
print("Verbose will be printed first")
```

Ask a home buyer to describe their dream house, and they probably won't begin with the height of the basement ceiling or the proximity to an east-west railroad. However, it is essential to review the data because it proves that there are many other influences in price negotiations than the number of bedrooms or a white-picket fence.

Data Synopsis

The Ames House dataset was compiled by Dean De Cock and contains 79 explanatory variables describing almost every aspect of residual home in Ames Iowa from 2006 to 2010. The data set contains 2930 observations involved in assessing home values.

Analysis Question 1

Restatement of Problem

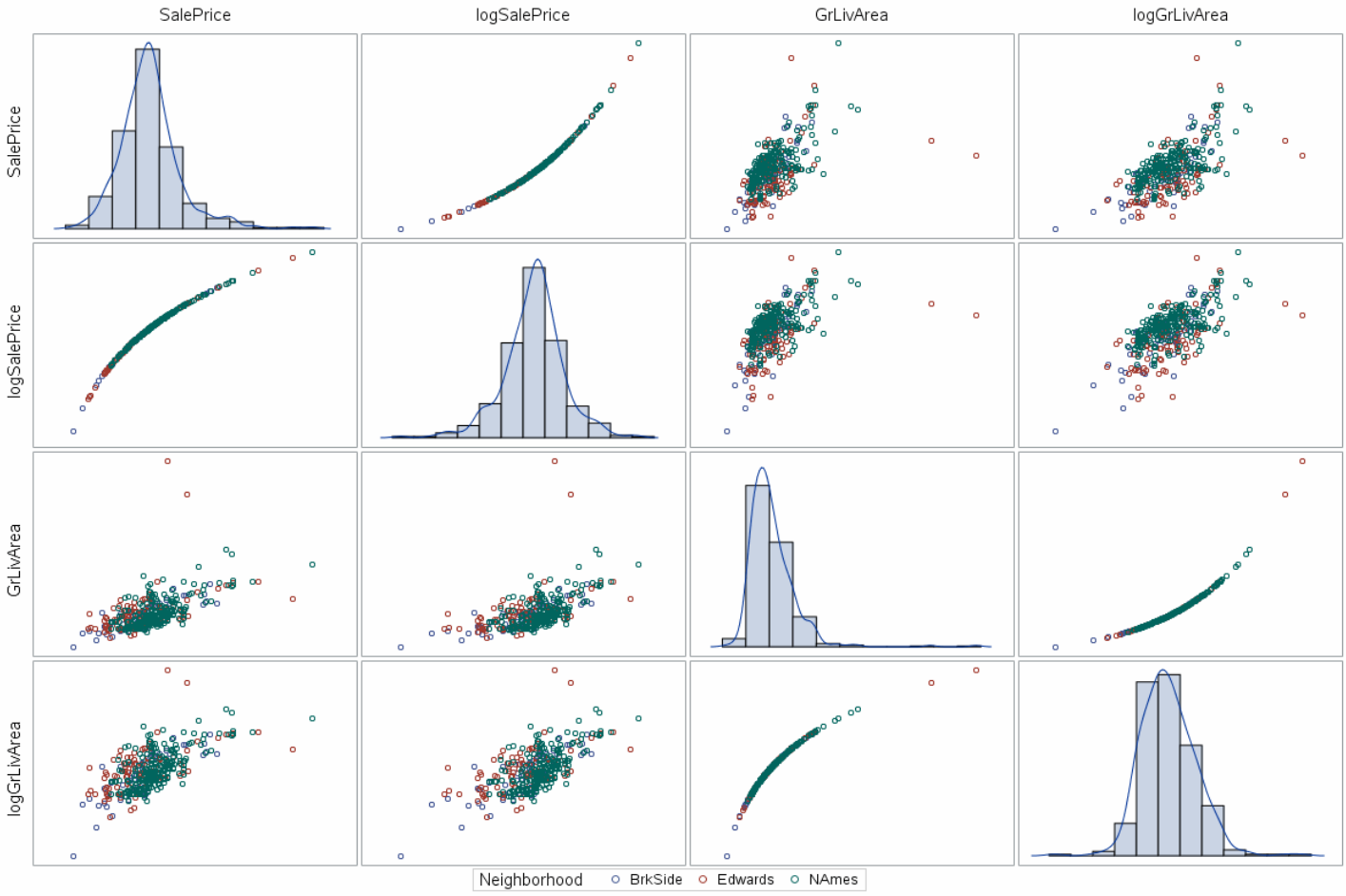
To build and fit a model, an analysis must be performed to identify features of the dataset that are statistically significant in their relation to, and prediction of, the sales price.

Build the Model

Interrogate the Data

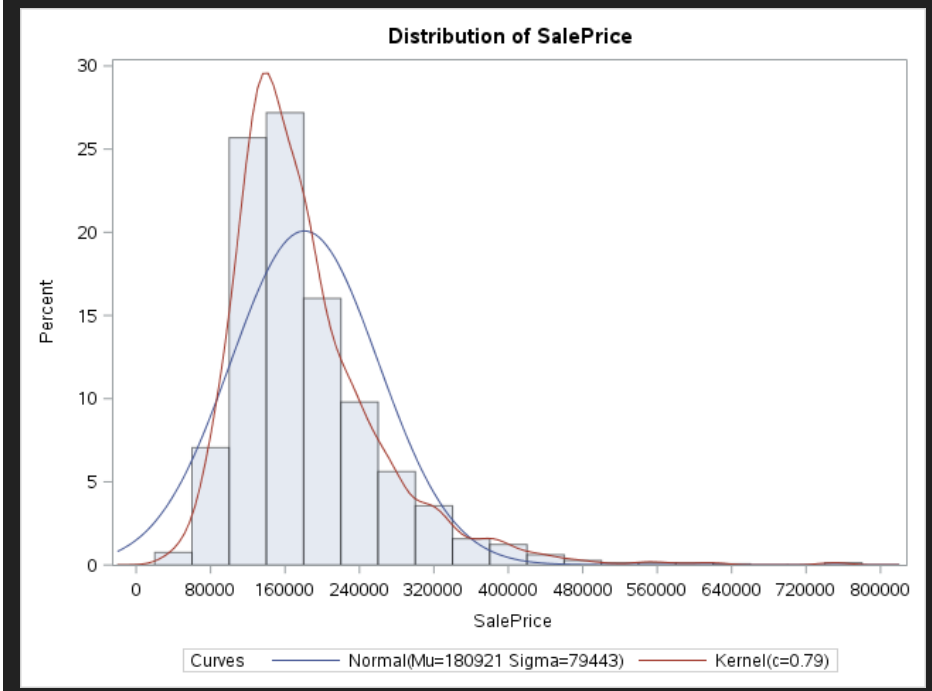
To build and fit a model, an analysis must be performed to identify features of the dataset that are statistically significant in their relation to, and prediction of, the sales price.

- Plot the data.
- Develop a tentative model(s).
    - Using the question(s) of interest (QOI).
    - Accounting for confounders.
    - Accounting for relationships (X^2,X^3, etc).
- Fit the model(s).
- Evaluate residual plots.
    - Constant SD.
    - Normality and zero me an.
    - Identify any influential observations.



Fit the Model

Check Assumptions

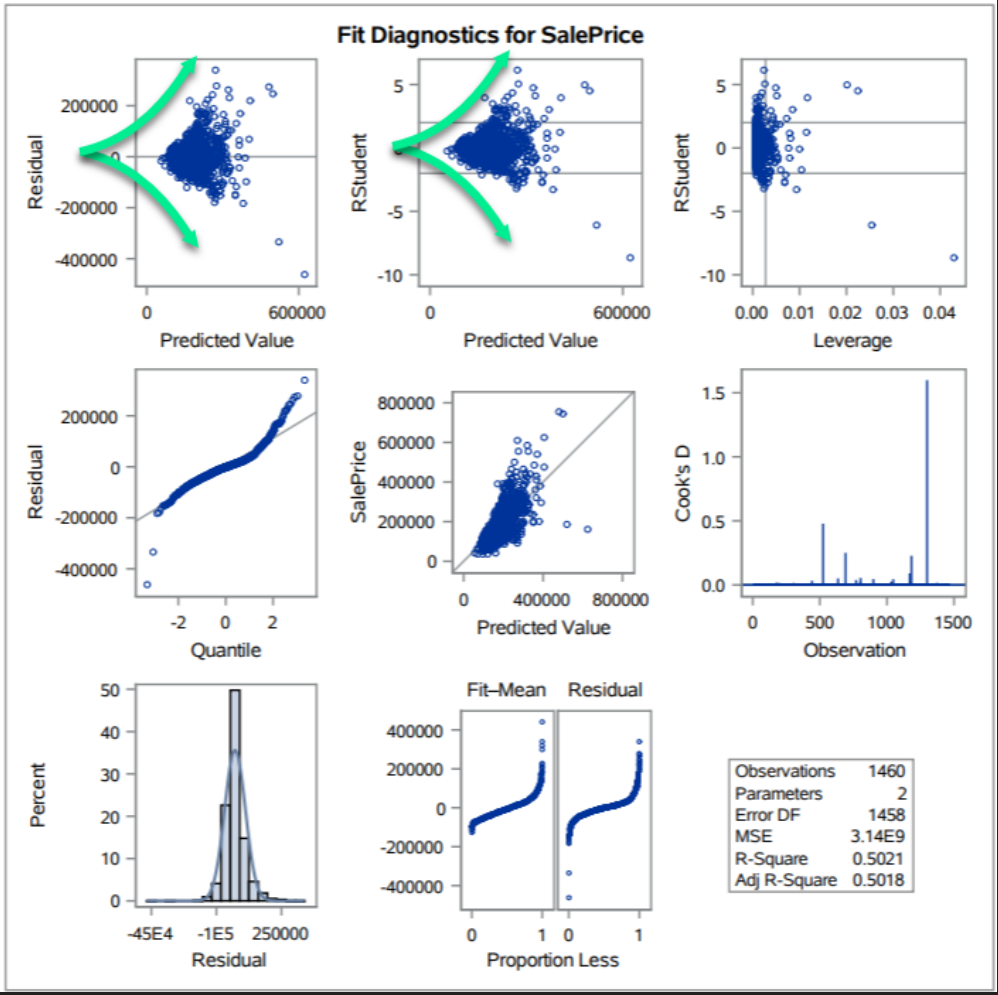


Residual Diagnostics

Outlier Analysis

Model Assumptions

Homogeneity of Variances



Code (will move to appendix later):

```
proc import datafile="/home/bfriedrich0/sasuser.v94/train.csv"
     out=train_original
     dbms=csv
     replace;
     getnames=yes;
run;

proc univariate data=train_original noprint;
var SalePrice;
histogram / nrows = 5 kernel normal(noprint);
run;
```

Neighborhooods: $x_1 = BrkSide$ $x_2 = NAmes$ $x_3 = Edwards$

$\hat\mu { {SalesPrice} } , = , \beta_0, +, \beta_1 , \cdot , BrkSide, +, \beta_2,Edwards, +, \beta_3, \cdot , NAmes, +, \beta_4(LivingArea_{log}, \cdot, BrkSide) + \beta_{5}, x, (LivingArea_{log} , x, Edwards)$

$\mu{\widehat{SalesPrice_{Ames}}} , = , \beta_0, +, \beta_1 , x , BrkSide, +, \beta_2,Edwards, +, \beta_3, *, NAmes, +, \beta_4(LivingArea_{log}, x, BrkSide) + \beta_{5}, x, (LivingArea_{log} , x, Edwards)$

Analysis Question 2

Appendix