



```
In [ ]: import numpy as np
import pandas as pd
from sklearn import metrics
from math import sqrt
import matplotlib.pyplot as plt
pd.set_option('display.max_columns', 100)
```

```
In [ ]: data = pd.read_csv("/Users/milesklingsberg/Documents/UWMSBA/590/Data/cleaned_data.csv")
```

```
In [ ]: xtrain = data.iloc[:,0:80]
ytrain = data.iloc[:,80]
xtrain = pd.DataFrame(xtrain)
ytrain = pd.DataFrame(ytrain)
```

```
In [ ]: SFTotals = xtrain.filter(regex="SF")
xtrain['totalsf'] = SFTotals.sum(axis=1)
```

```
In [ ]: def f(row):
    if row['CentralAir'] == 1 and row['Fireplaces'] ==1 and row['FireplaceQu'] >= 2:
        val = 1
    else:
        val = 0
    return val
xtrain['fireplacefeature'] = xtrain.apply(f,axis=1)
```

```
In [ ]: test = pd.read_csv("/Users/milesklingsberg/Documents/UWMSBA/590/Data/test.csv")
```

```
In [ ]: CAT_DTYPES={"Id": "int64", "MSSubClass": "int64", "MSZoning": "category", "Street": "category",
    "Alley": "category", "LotShape": "category", "LandContour": "category", "Utilities": "category",
    "LotConfig": "category", "LandSlope": "category", "Neighborhood": "category", "Condition1": "category",
    "Condition2": "category", "BldgType": "category", "HouseStyle": "category", "RoofStyle": "category",
    "RoofMatl": "category", "Exterior1st": "category", "Exterior2nd": "category", "MasVnrType": "category",
    "ExterCond": "category", "Foundation": "category", "BsmtQual": "category", "BsmtCond": "category",
    "BsmtFinType1": "category", "BsmtFinType2": "category", "Heating": "category", "HeatingQC": "category", "CentralAir": "category",
    "KitchenQual": "category", "Functional": "category", "FireplaceQu": "category", "Fireplace01": "category",
    "GarageQual": "category", "GarageCond": "category", "PavedDrive": "category", "PoolQC": "category",
    "MiscFeature": "category", "SaleType": "category", "SaleCondition": "category"}
```