May The Best Model Win

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TARGET MARKET

This competition required contestants to create a model for CME Group's stock from January 1st, 2016 to Present with a shift period of one day

Us!

The competitive format pushed our team to learn from each other by building and evaluating models

New-To-The-Game Traders

Consumers interested in investing for long or short term gains can now engage with our platform to learn how.

HERE'S WHAT WE'RE UP AGAINST

Problems

First,

FinEdu helped new-to-trade consumers find ways to analyze any stock based on tried and true financial metrics like, Sharpe Ratio and Exponentially Weighted Moving Average

Now,

Might FinEdu actually help users invest? We determined that predictive modeling would allow some of them to make sound trading decisions.

Next,

Equipped with the analysis and predictions, users can customize our tool for any stock.

EN ROUTE

Solutions

First,

FinEdu simplified methodologies for stock analysis while providing conceptual education on the process.

Now,

Our models were built for comprehensive predictive analysis of any stock.

Next,

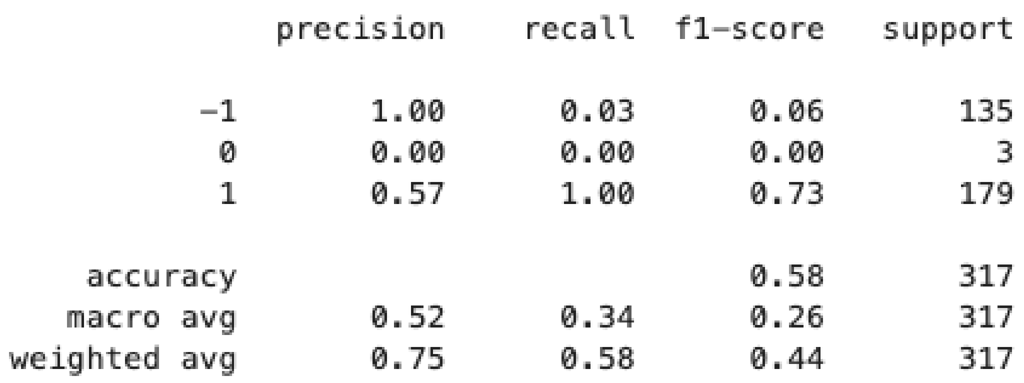
FinEdu will help users build predictive portfolios for their own implementation.

Our work

FinEdu, for learning the tools of the trade

Competitive Approach: Classification Models

Gregory

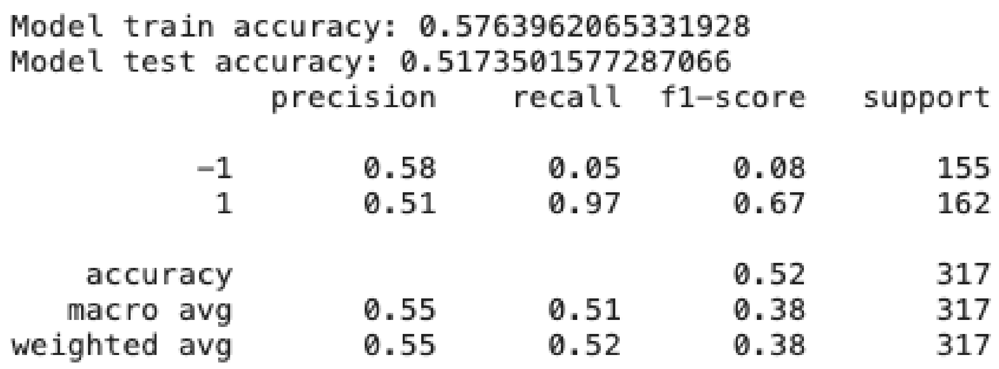


```
              precision    recall  f1-score   support

          -1       1.00      0.03      0.06       135
           0       0.00      0.00      0.00         3
           1       0.57      1.00      0.73       179

    accuracy                           0.58       317
   macro avg       0.52      0.34      0.26       317
weighted avg       0.75      0.58      0.44       317
```

Tye

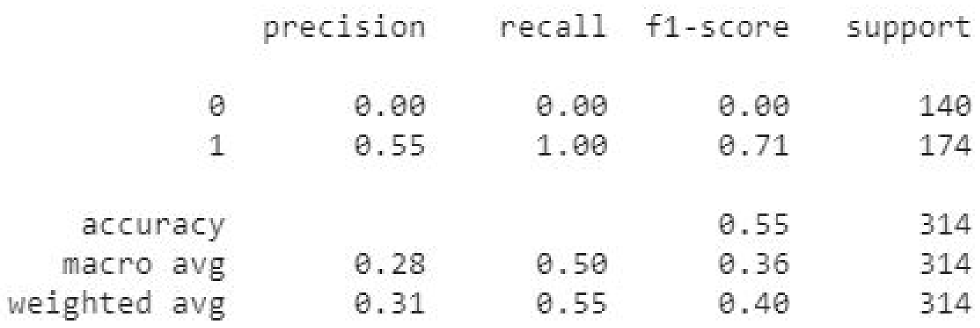


```
Model train accuracy: 0.5763962065331928
Model test accuracy: 0.5173501577287066
              precision    recall  f1-score   support

          -1       0.58      0.05      0.08       155
           1       0.51      0.97      0.67       162

    accuracy                           0.52       317
   macro avg       0.55      0.51      0.38       317
weighted avg       0.55      0.52      0.38       317
```

Yahya

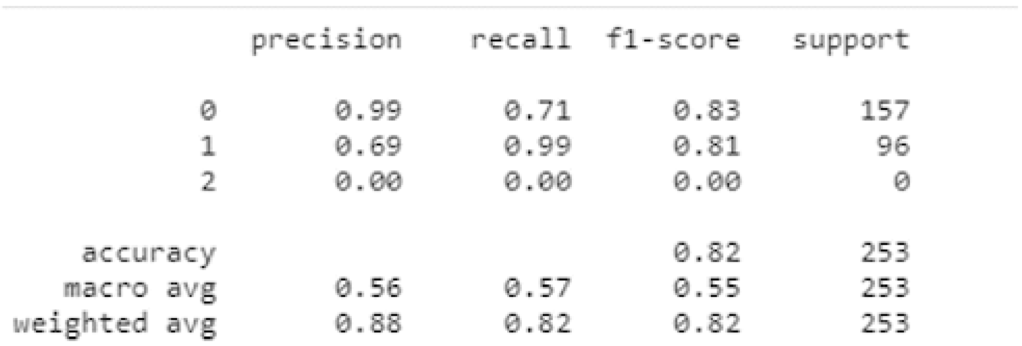


```
              precision    recall  f1-score   support

           0       0.00      0.00      0.00       140
           1       0.55      1.00      0.71       174

    accuracy                           0.55       314
   macro avg       0.28      0.50      0.36       314
weighted avg       0.31      0.55      0.40       314
```

Heather



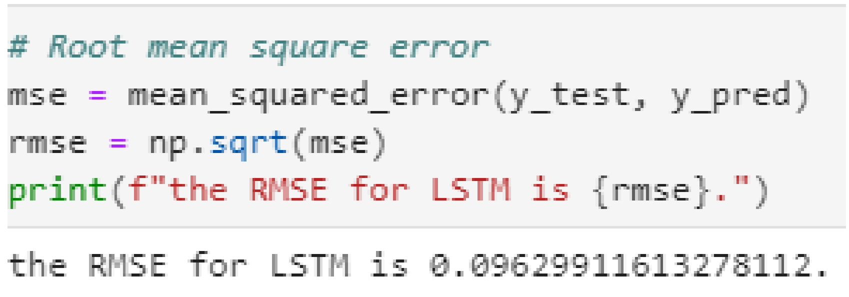
```
              precision    recall  f1-score   support

           0       0.99      0.71      0.83       157
           1       0.69      0.99      0.81        96
           2       0.00      0.00      0.00         0

    accuracy                           0.82       253
   macro avg       0.56      0.57      0.55       253
weighted avg       0.88      0.82      0.82       253
```

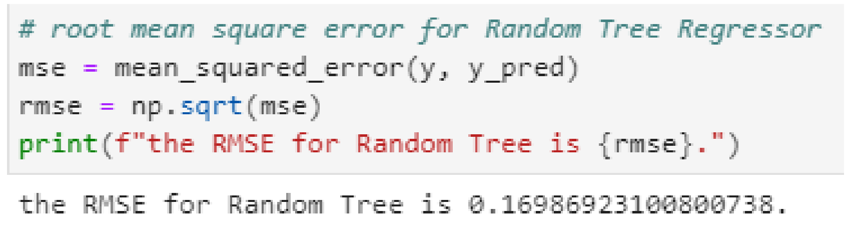
Competitive Approach: Regression Models

Abdullah



```
# Root mean square error
mse = mean_squared_error(y_test, y_pred)
rmse = np.sqrt(mse)
print(f"the RMSE for LSTM is {rmse}.")
```

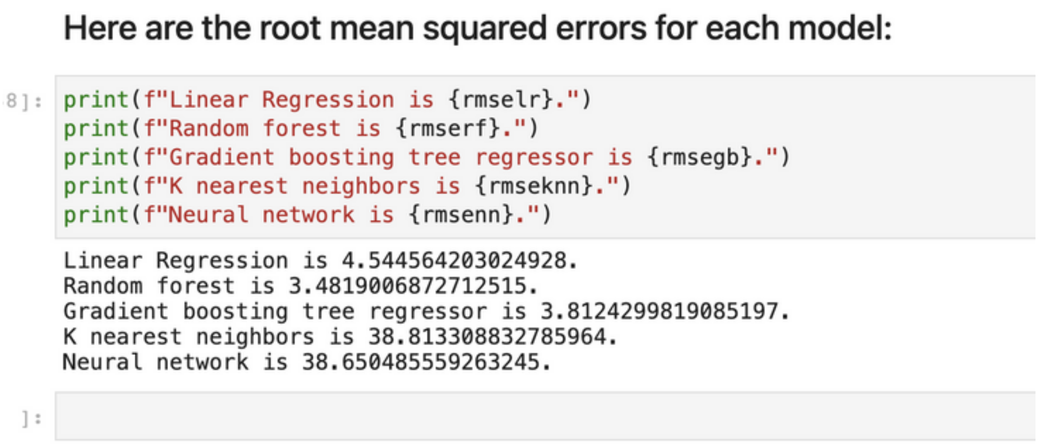
```
the RMSE for LSTM is 0.09629911613278112.
```



```
# root mean square error for Random Tree Regressor
mse = mean_squared_error(y, y_pred)
rmse = np.sqrt(mse)
print(f"the RMSE for Random Tree is {rmse}.")
```

```
the RMSE for Random Tree is 0.16986923100800738.
```

Havva

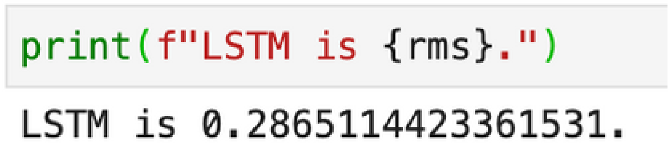


Here are the root mean squared errors for each model:

```
print(f"Linear Regression is {rmselr}.")
print(f"Random forest is {rmserf}.")
print(f"Gradient boosting tree regressor is {rmsegb}.")
print(f"K nearest neighbors is {rmseknn}.")
print(f"Neural network is {rmsenn}.")
```

```
Linear Regression is 4.544564203024928.
Random forest is 3.4819006872712515.
Gradient boosting tree regressor is 3.8124299819085197.
K nearest neighbors is 38.813308832785964.
Neural network is 38.650485559263245.
```

Alex



```
print(f"LSTM is {rms}.")
```

```
LSTM is 0.2865114423361531.
```

FinEdu

QUESTIONS?