

Gold Price Prediction

This repository contains a gold price prediction model that uses various features such as SPX, USO, SLV, EUR/USD to predict the price of gold (GLD). The model is built using Active Learning techniques and can be used for investment purposes or for academic research.

Active Learning

Active Learning is a technique in machine learning that aims to reduce the amount of labeled data required for training a model. It selects the most informative samples for labeling based on the model's uncertainty or informativeness and trains the model on these selected samples, resulting in improved performance with less labeling effort. This is particularly useful when labeling data is time-consuming or expensive.

Random Forest Regressor

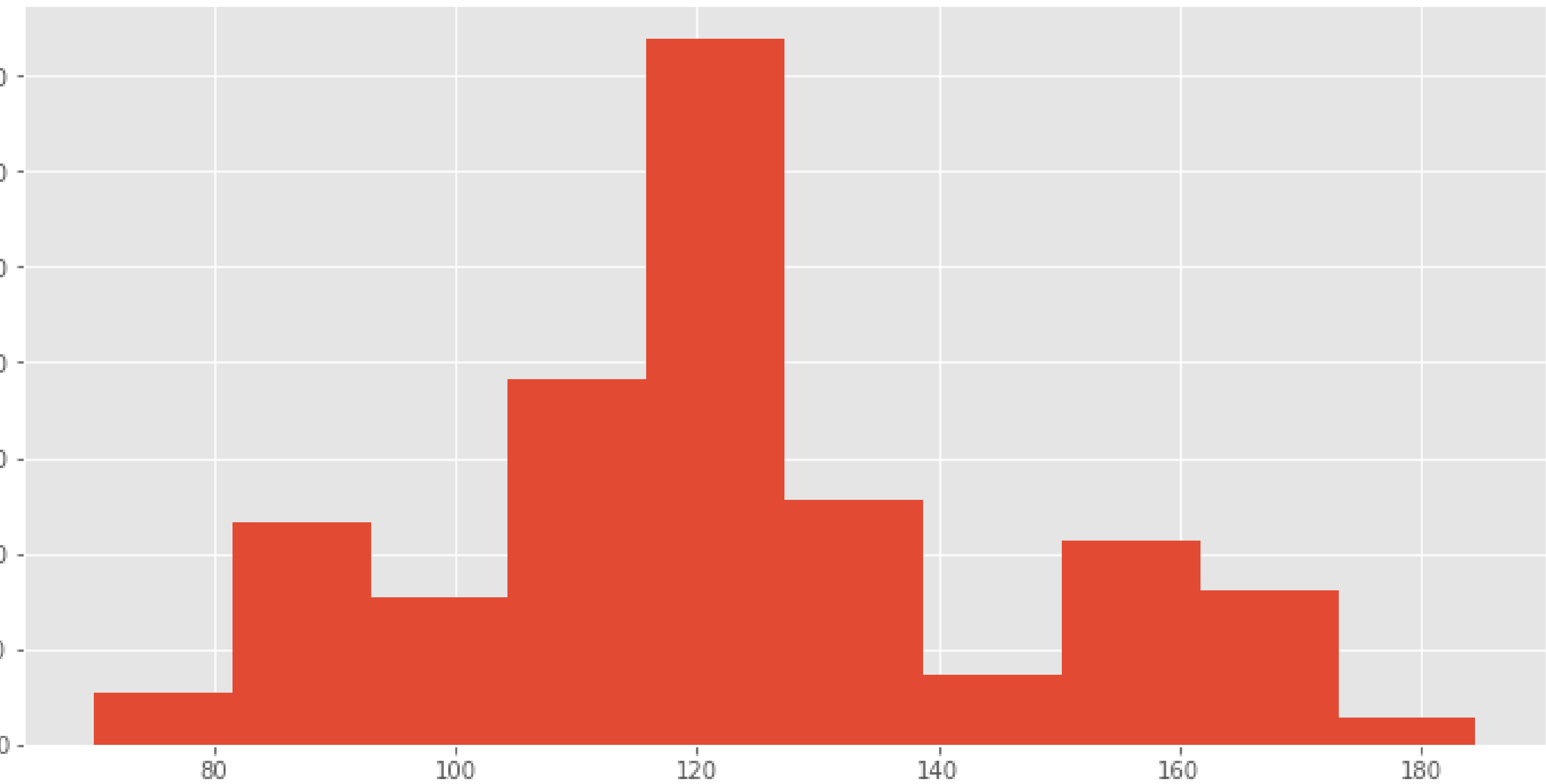
Random Forest Regressor is a machine learning algorithm that uses an ensemble of decision trees to make predictions. It works by building multiple trees using random subsets of features and data, and combining their predictions to produce the final result. This approach results in a robust algorithm that can handle non-linear relationships and outliers, making it a popular choice for regression problems.

- **SPX:** The S&P 500 Index, also known as Standard & Poor's 500 Index, is a stock market index that measures the stock performance of 500 large companies listed on stock exchanges in the United States.
- **USO:** The United States Oil Fund, LP is an exchange-traded fund that seeks to track the price movements of West Texas Intermediate (WTI) light, sweet crude oil.
- **SLV:** The iShares Silver Trust is an exchange-traded fund that seeks to track the price of silver.
- **EUR/USD:** This is the exchange rate between the Euro and the United States Dollar. It represents how many US dollars are needed to purchase one Euro.
- **GLD:** The SPDR Gold Trust is an exchange-traded fund that seeks to track the price of gold.

	SPX	GLD	USO	SLV	EUR/USD
count	2295.000000	2295.000000	2295.000000	2295.000000	2295.000000
mean	1658.896788	122.815156	31.797820	20.097042	1.283544
std	527.736520	23.324569	19.525375	7.089524	0.131424
min	676.530029	70.000000	7.960000	8.850000	1.039047
25%	1240.429993	109.750000	14.095000	15.570000	1.172175
50%	1552.099976	120.589996	33.849998	17.290001	1.302966
75%	2075.160034	133.010002	37.820000	23.085000	1.369760
max	3781.000000	184.589996	117.480003	47.259998	1.598798

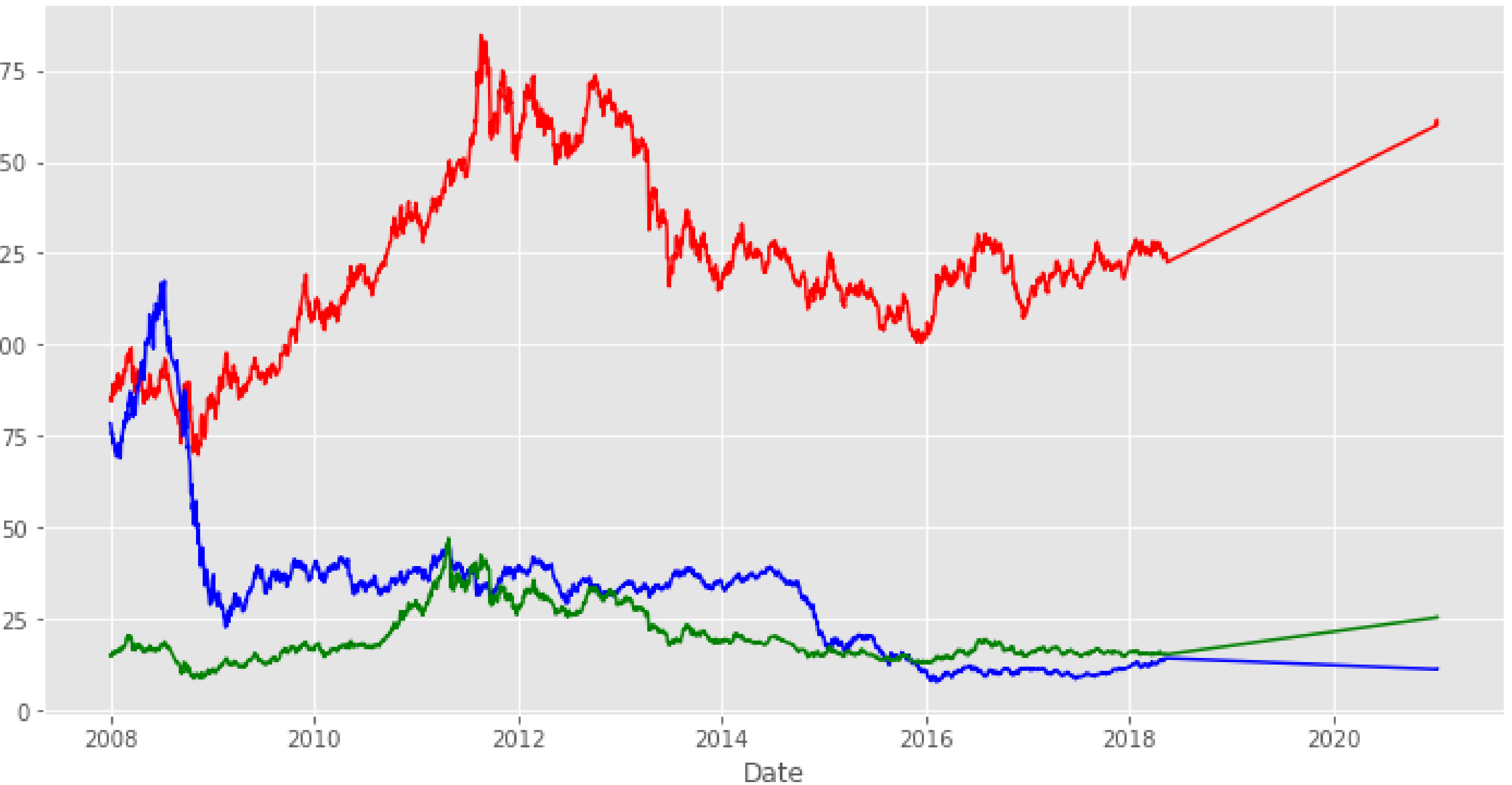
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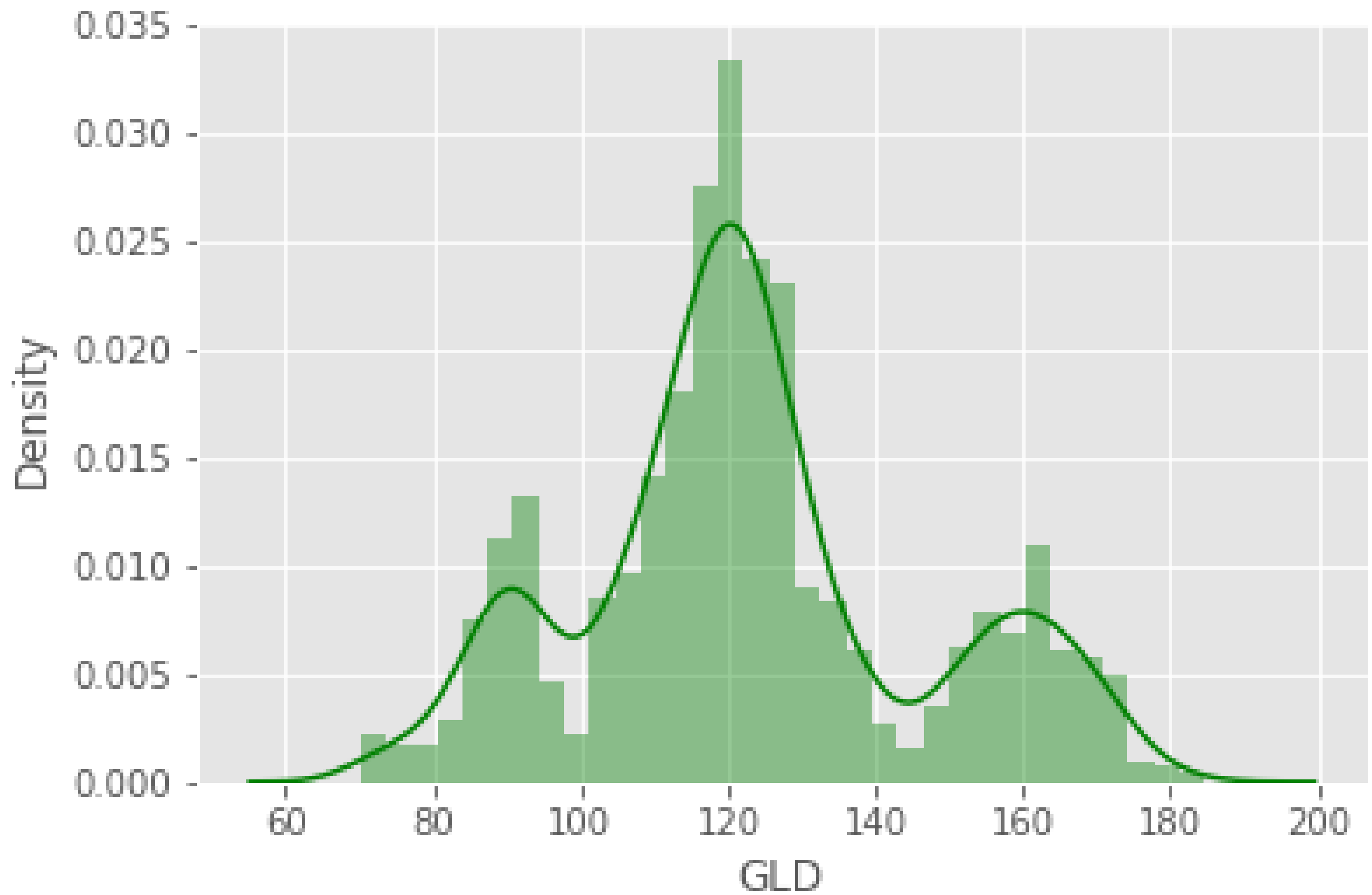
GLD





GLD->Red USO->blue SLV->Green





```
error = r2_score(Y_test, test_data_prediction)
error
```

0.9896328493050027

+ Code

+ Markdown

```
model.score(X_test, Y_test)
```

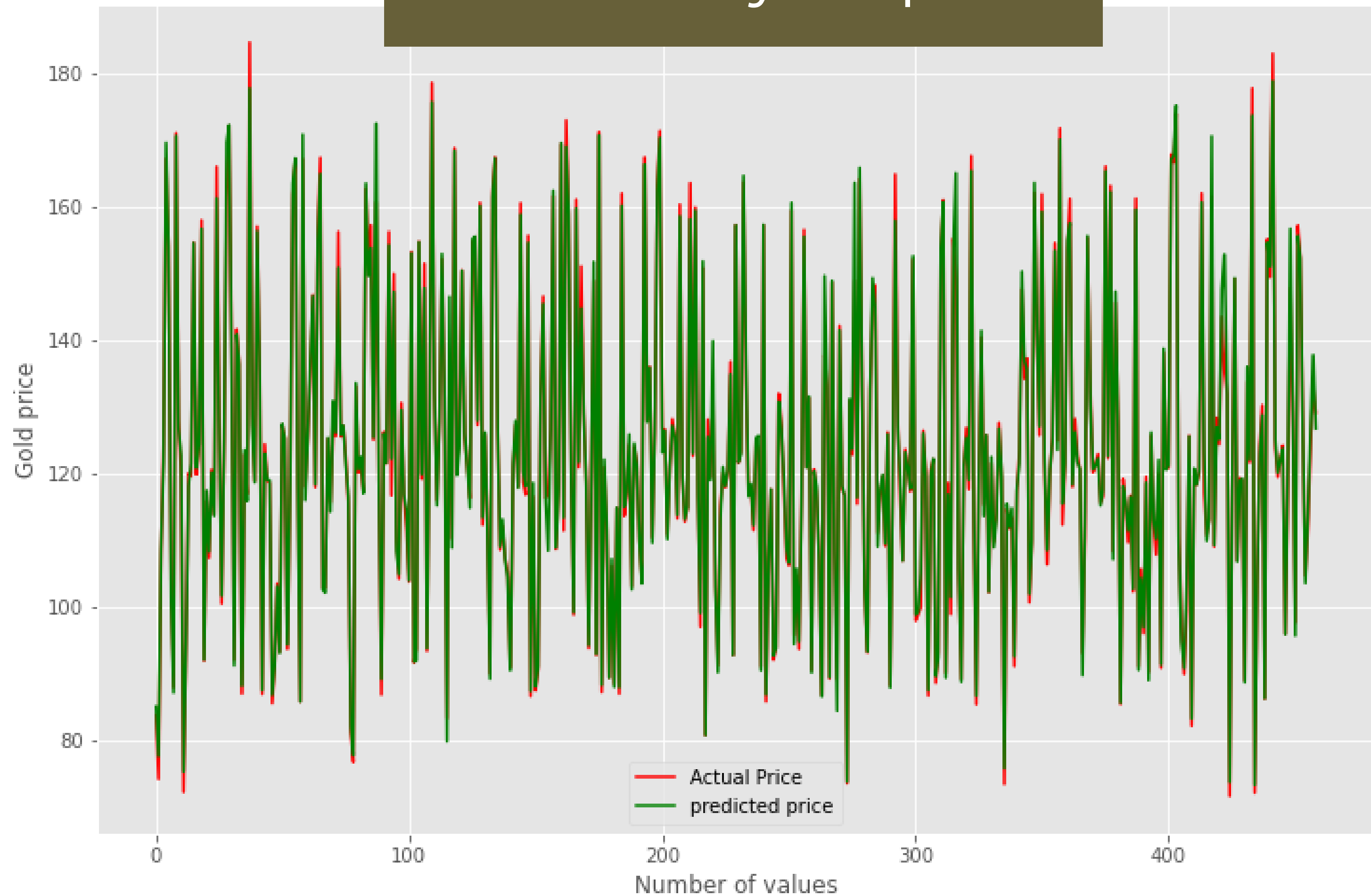
0.9896328493050027

+ Code

+ Markdown

**By using Random Forest Regressor ,
Model Accuracy is 0.98**

Accuracy Graph



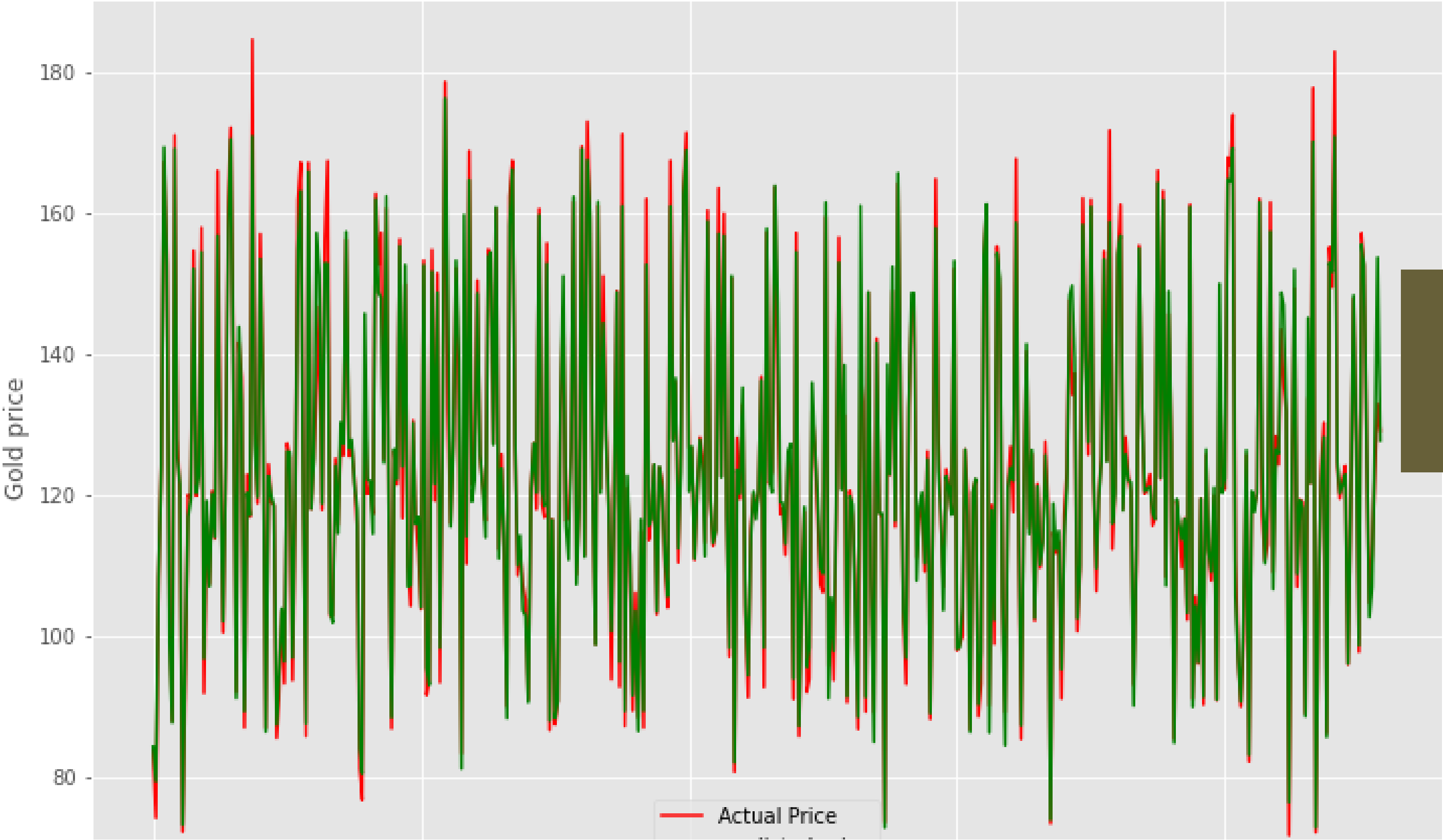


```
X_test=np.array(X_test)
Y_test=np.array(Y_test)
y_predict=m.predict(X_test)
m.score(X_test,Y_test)
```

```
[85]: 0.9725664936595626
```

**Model Accuracy By
using
Active Learning**

Actual price vs Predicted price



Accuracy
Graph

A graphic with a solid olive green background. In the center, the words "Thank You" are written in a white, elegant cursive script. The text is flanked by two large, white, hexagonal shapes that point towards the center. The entire composition is set within a dark olive green rectangular frame.

*Thank
You*