

EL3019: Machine Learning (TY BTech Electronics Engineering)

Home Assignment :: Type - Design

Title: Gold value predictions using machine learning

Name & Roll no. :

1. Vaishnavi Ganji (I-39)
 2. Nisha Indapure (I-50)
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Section I: Design

Introduction :

1. Gold was used for supporting trade transactions around the world besides other modes of payment. Various states maintained and enhanced their gold reserves and were recognized as wealthy and progressive states.
2. We predict future gold rates based on 22 market variables using machine learning techniques.
3. Results show that we can predict the daily gold rates very accurately.
4. Our prediction models will be beneficial for investors, and central banks to decide when to invest in this commodity.
- 5.

Working :

1. Here for gold value predictions we used Simple Linear regression Algorithm.
- 2.
3. Linear Regression is a machine learning algorithm which is based on supervised learning.
4. Linear regression refers to a model that can show relationship between two variables and how one can impact the other.
5. Linear regression performs the task to predict a dependent variable value (y) based on a given independent variable (x). So, this regression technique finds out a linear relationship between x (input) and y(output). Hence, the name is Linear Regression.
6. The equation we are using is
$$Y = A_0 + A_1.X_1$$
- 1.

Dataset used :

Algorithm:

1. Import the libraries.
2. Import the dataset.
3. Splitting dataset into training set and testing set.
4. Fitting simple linear regression to the training set .

5. Predicting the test set results.
6. Visualizing the training set.

Program and Output:

```
#Import Libraries
```

```
import numpy as np
```

```
import matplotlib.pyplot as plt
```

```
import pandas as pd
```

```
# Importing the dataset
```

```
datas = pd.read_csv('data_inr.csv')
```

```
x= datas.iloc[:, :-1].values
```

```
y =datas.iloc[:, 1].values
```

```
#Splitting the dataset into training and test data
```

```
from sklearn.model_selection import train_test_split
```

```
x_train, x_test, y_train, y_test = train_test_split( x, y, test_size=1/3, random_state=0)
```

```
#Apply Simple linear regression to training set
```

```
from sklearn.linear_model import LinearRegression
```

```
regressor=LinearRegression()
```

```
regressor.fit(x_train,y_train)
```

```
y_pred=regressor.predict(x_test)
```

```
#Plot dataset
```

```
plt.scatter(x_train,y_train,color='red')
```

```
plt.plot(x_train,regressor.predict(x_train),color='blue')
```

```
plt.title('Month vs Gold Rate')
```

```
plt.xlabel('Month')
```

```
plt.ylabel('Gold Rate')
```

```
plt.show()
```

```
plt.scatter(x_test,y_test,color='red')
```

```
plt.plot(x_train,regressor.predict(x_train),color='blue')
```

```
plt.title('Month vs Gold Rate')
```

```
plt.xlabel('Month')
```

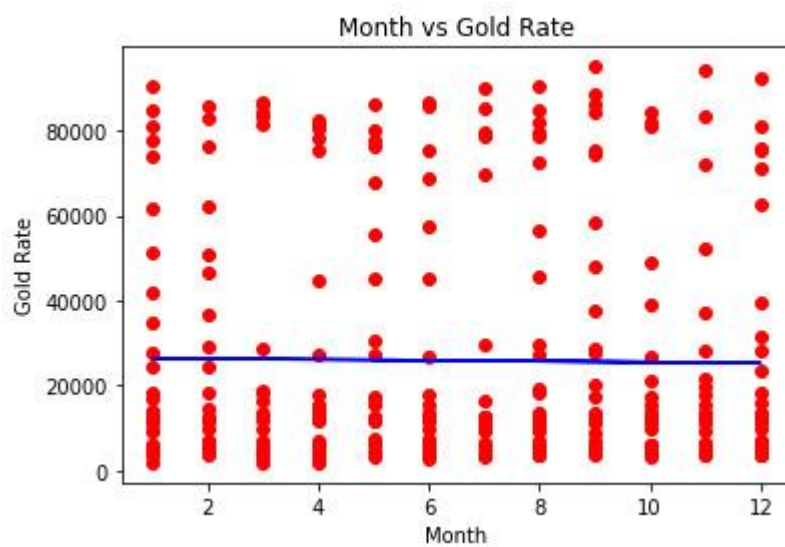
```
plt.ylabel('Gold Rate')
```

```
plt.show()
```

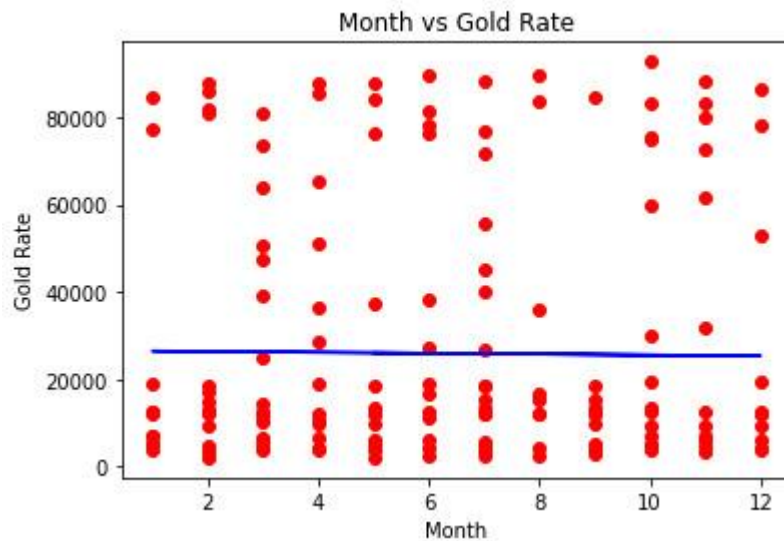
Outputs :

A . Reselts.

1: Plot for Training set results X_train vs Y_train .



2. plot for Training test results X_test vs y_test .



B . Example:

1.For example , consider one month we say October so we took 10 in y_predict function

```
#prediction of new value
#predict the value of gold in october
y_pred=regressor.predict([[10]])
print(y_pred)
```

2.Results of the above are as follow ,

We can see the value in Indian rupees for month od october as 25532.44050773.

```
...: y_pred=regressor.predict([[10]])
...: print(y_pred)
[25532.44050773]
```

Section II : Comparitive study

Method II :

1. Above we have used Simple linear regression algorithm to resolve the problem .
2. As well as for more complex type of data set in which more than two columns are present at that situation , Gold values predictions can be obtained by Multiple linear regression Algorithm .

