Assignment

On the Supervision of
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WE AS TEAM

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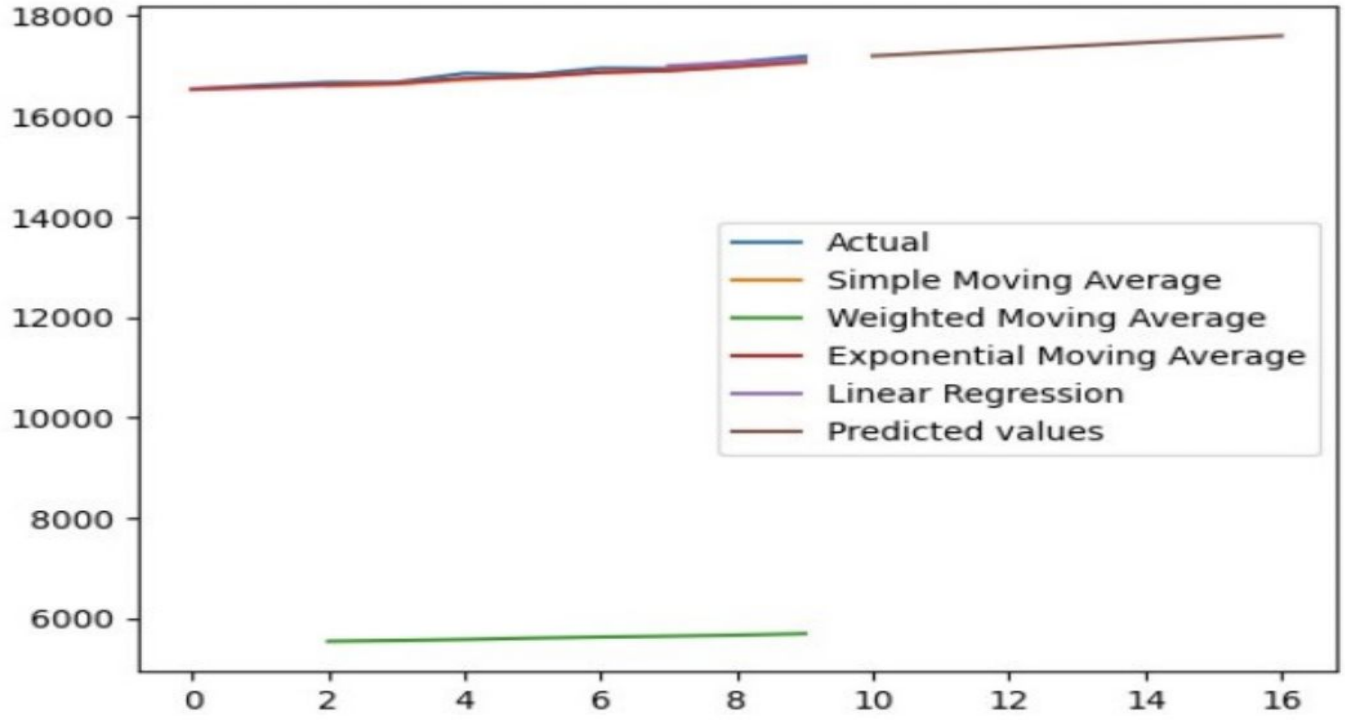
The Source Code of the First Question

```
import pandas as pd
import numpy as np
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt

# Step 1: Load the data from the Excel file
df = pd.read_excel('C:\My secure folder\data.xlsx')

# Step 2: Compute the moving averages
df['SMA'] = df['Close'].rolling(window=3).mean() # Simple Moving Average
df['WMA'] = df['Close'].rolling(window=3, win_type='triang').sum() / 6 # Weighted
Moving Average
df['EMA'] = df['Close'].ewm(span=3, adjust=False).mean() # Exponential Moving Average

# Step 3: Perform linear regression
X = np.array(df.index).reshape(-1, 1)
y = df['Close'].values
X_train = X[:7]
X_test = X[7:]
y_train = y[:7]
y_test = y[7:]
regressor = LinearRegression()
regressor.fit(X_train, y_train)
y_pred = regressor.predict(X_test)

# Step 4: Predict the next week's values using the linear regression model
X_future = np.array(range(10, 17)).reshape(-1, 1)
y_future = regressor.predict(X_future)

# Step 5: Plot the results
plt.plot(df['Close'], label='Actual')
plt.plot(df['SMA'], label='Simple Moving Average')
plt.plot(df['WMA'], label='Weighted Moving Average')
plt.plot(df['EMA'], label='Exponential Moving Average')
plt.plot(X_test, y_pred, label='Linear Regression')
plt.plot(X_future, y_future, label='Predicted values')
plt.legend()
plt.show()
```

EXPLANATION

This is a Python code that loads data from an Excel file, computes moving averages (Simple Moving Average, Weighted Moving Average, and Exponential Moving Average), performs linear regression on a portion of the data, uses the regression model to predict future values, and plots the results

Calculated Graph for the purpose of finding the next move:



Source code for question 2:

In [10]:

```
import pandas as pd
from sklearn.linear_model import LinearRegression

# Step 1: Load the data from the Excel file
df = pd.read_excel('C:\My secure folder\data.xlsx', index_col=0)

# Step 2: Compute the moving averages
df['SMA'] = df['Close'].rolling(window=3).mean() # Simple Moving Average
df['WMA'] = df['Close'].rolling(window=3, win_type='triang').sum() / 6 # Weighted Moving Average
df['EMA'] = df['Close'].ewm(span=3, adjust=False).mean() # Exponential Moving Average

# Step 3: Perform linear regression
X = pd.to_datetime(df.index).astype(int).values.reshape(-1, 1)
y = df['Close'].values
regressor = LinearRegression()
regressor.fit(X, y)

# Step 4: Prompt the user for input and predict the price
date_string = input('Enter a date to predict the price (YYYY-MM-DD): ')
date_to_predict = np.array(pd.to_datetime(date_string).value, dtype=np.int64).reshape(1, -1)

price_predicted = regressor.predict(date_to_predict)
print('The predicted price for', date_string, 'is:', price_predicted[0])
```

```
C:\Users\ASHWANI\AppData\Local\Temp\ipykernel_12984\4128356021.py:13: FutureWarning: The behavior of .astype from datetime64[n
s] to int32 is deprecated. In a future version, this astype will return exactly the specified dtype instead of int64, and will
raise if that conversion overflows.
  X = pd.to_datetime(df.index).astype(int).values.reshape(-1, 1)
```

```
Enter a date to predict the price (YYYY-MM-DD): 2023-01-12
The predicted price for 2023-01-12 is: 17283.033999999985
```

EXPLANATION

This code reads data from an Excel file containing the closing prices of a stock or other asset, and computes three types of moving averages - simple moving average, weighted moving average, and exponential moving average - for the closing prices. It then trains a linear regression model on the closing prices and their corresponding dates, and prompts the user to enter a date in the format 'YYYY-MM-DD'. Based on the user input, the code uses the trained model to predict the closing price for that date. In summary, the code is an example of how to load and analyze financial data, and how to use machine learning techniques to make predictions of stock based on the data. It demonstrates how to use popular Python libraries such as Pandas and Scikit-learn to perform data analysis and machine learning tasks.And the Pred. price was : 18534.91399

Answer to Question 3:

In some countries, it is common to accept payments without requiring an OTP (One-Time Password) or a similar form of two-factor authentication. This is often due to different levels of risk tolerance and regulatory requirements across different regions and countries. In some cases, these countries may have lower instances of financial fraud or higher levels of trust in their financial systems, which can reduce the need for additional security measures. In other cases, it may simply be a matter of convenience or speed - requiring an OTP or other form of authentication can slow down the payment process and create friction for users. It's important to note, however, that the decision to require or not require OTP.

And, other forms of authentication can also depend on the specific payment method or financial institution involved. Some institutions or payment methods may have stricter security requirements than others, regardless of the country in which they are used. Additionally, security measures may change over time based on evolving threat landscapes and regulatory requirements.

Explanation to Question no. 4:

When you insert an ATM card into an ATM machine, the machine reads the data stored on the magnetic stripe of the card. This data typically includes the cardholder's name, card number, expiration date, and a three-digit security code (CVV/CVC) that is used for online and card-not-present transactions. The machine may also capture other information such as the date, time, and location of the transaction, and the amount of cash withdrawn. If a criminal gains access to this data, they could use it to commit fraud, such as making unauthorized purchases or withdrawals using the victim's account. Criminals can obtain this information through various methods, including skimming, where a device is placed on the ATM to capture the card information, or hacking into the ATM network to intercept the data in transit. Once criminals have obtained this data, they can use it to make fraudulent transactions, or they can sell the data to other criminals on the dark web. The buyers of this data may use it for identity theft or to make fraudulent purchases or withdrawals. It's important to note that modern ATM machines use advanced security measures to prevent unauthorized access and protect the data of the cardholder. However, it's always a good idea to monitor your accounts for any suspicious activity and report any fraudulent charges or withdrawals to your bank immediately

Thank You