Lab 0

```
from google.colab import drive
drive.mount('/content/drive')

import pandas as pd

data = {
   'USN': ['1RV18CS001', '1RV18CS002', '1RV18CS003', '1RV18CS004',
'1RV18CS005'],
   'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eve'],
   'Marks': [85, 78, 92, 88, 76]
}

df = pd.DataFrame(data)
print(df)

from sklearn.datasets import load_diabetes
dia = load_diabetes()
df = pd.DataFrame(dia.data, columns=dia.feature_names)
df.head()

file_path = '/content/drive/MyDrive/BDA_LAB/Lab-0/sample_sales_data.csv'
df = pd.read_csv(file_path)
df.head()

sales_data =
pd.read_csv('/content/drive/MyDrive/BDA_LAB/Lab-0/sample_sales_data.csv')
sales_data.head()

import yfinance as yf
import pandas as pd
import matplotlib.pyplot as plt

tickers = ["HDFCBANK.NS", "ICICIBANK.NS", "KOTAKBANK.NS"]
data = yf.download(tickers, start="2024-01-01", end="2024-12-30", group_by='ticker')
print("First 5 rows of the dataset:")
print(data.head())

print("\nShape of the dataset:")
```

```
print(data.shape)
print("\nColumn names:")
print(data.columns)
hdfc_data = data['HDFCBANK.NS']
icici_data = data['ICICIBANK.NS']
kotak_data = data['KOTAKBANK.NS']
print("\nSummary statistics for Reliance Industries:")
print(hdfc_data.describe())
hdfc_data['Daily Return'] = hdfc_data['Close'].pct_change()
icici_data['Daily Return'] = icici_data['Close'].pct_change()
kotak_data['Daily Return'] = kotak_data['Close'].pct_change()

plt.figure(figsize=(12, 6))
plt.subplot(2, 1, 1)
hdfc_data['Close'].plot(title="HDFC Bank - Closing Price")
plt.subplot(2, 1, 2)
hdfc_data['Daily Return'].plot(title="HDFC Bank - Daily Returns", color='orange')
plt.tight_layout()
plt.show()

# Create the plots for all three banks in one figure
plt.figure(figsize=(12, 8))

# Plot HDFC Bank - Closing Price
plt.subplot(3, 1, 1)
hdfc_data['Close'].plot(title="HDFC Bank - Closing Price", color='blue')
plt.ylabel('Closing Price')

# Plot ICICI Bank - Closing Price
plt.subplot(3, 1, 2)
icici_data['Close'].plot(title="ICICI Bank - Closing Price", color='red')
plt.ylabel('Closing Price')

# Plot Kotak Bank - Closing Price
plt.subplot(3, 1, 3)
kotak_data['Close'].plot(title="Kotak Bank - Closing Price", color='green')
plt.ylabel('Closing Price')

# Adjust layout to make it nice
plt.tight_layout()
```

```
# Show the plot
plt.show()

# Create the plots for all three banks in one figure
plt.figure(figsize=(12, 8))

# Plot HDFC Bank - Closing Price
plt.subplot(3, 1, 1)
hdfc_data['Daily Return'].plot(title="HDFC Bank - Daily Returns", color='blue')
plt.ylabel('Daily Returns')

# Plot ICICI Bank - Closing Price
plt.subplot(3, 1, 2)
icici_data['Daily Return'].plot(title="ICICI Bank - Daily Returns", color='red')
plt.ylabel('Daily Returns')

# Plot Kotak Bank - Closing Price
plt.subplot(3, 1, 3)
kotak_data['Daily Return'].plot(title="KOTAK Bank - Daily Returns", color='green')
plt.ylabel('Daily Returns')

# Adjust layout to make it nice
plt.tight_layout()

# Show the plot
plt.show()
```

Output:

	Product	Quantity	Price	Sales	Region
0	Laptop	5	1000	5000	North
1	Mouse	15	20	300	West
2	Keyboard	10	50	500	East
3	Monitor	8	200	1600	South
4	Laptop	12	950	11400	North

```
file_path = '/content/drive/MyDrive/BDA_LAB/Lab-0/Dataset of Diabetes .csv'
df = pd.read_csv(file_path)
df.head()
```

	ID	No_Pation	Gender	AGE	Urea	Cr	HbA1c	Chol	TG	HDL	LDL	VLDL	BMI	CLASS
0	502	17975	F	50	4.7	46	4.9	4.2	0.9	2.4	1.4	0.5	24.0	N
1	735	34221	M	26	4.5	62	4.9	3.7	1.4	1.1	2.1	0.6	23.0	N
2	420	47975	F	50	4.7	46	4.9	4.2	0.9	2.4	1.4	0.5	24.0	N
3	680	87656	F	50	4.7	46	4.9	4.2	0.9	2.4	1.4	0.5	24.0	N
4	504	34223	M	33	7.1	46	4.9	4.9	1.0	0.8	2.0	0.4	21.0	N

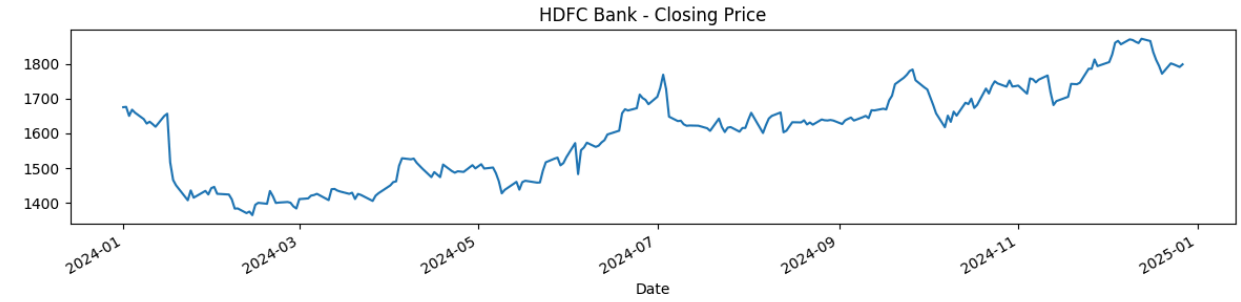
```
sales_data = pd.read_csv('/content/drive/MyDrive/BDA_LAB/Lab-0/sample_sales_data.csv')
sales_data.head()
```

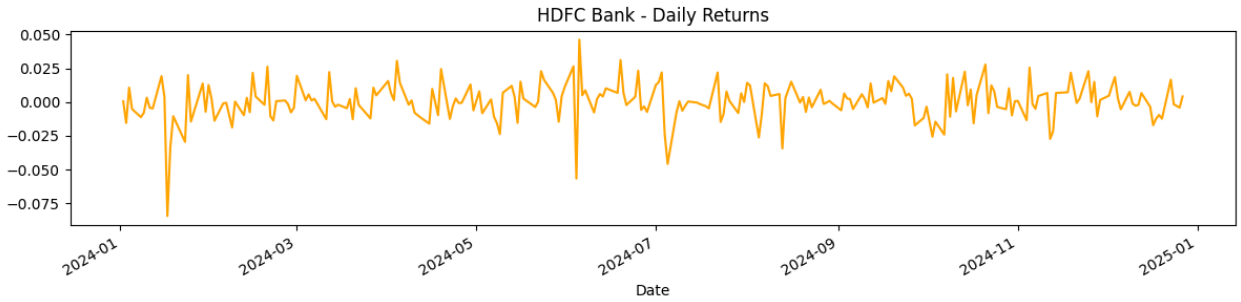
	Product	Quantity	Price	Sales	Region
0	Laptop	5	1000	5000	North
1	Mouse	15	20	300	West
2	Keyboard	10	50	500	East
3	Monitor	8	200	1600	South
4	Laptop	12	950	11400	North

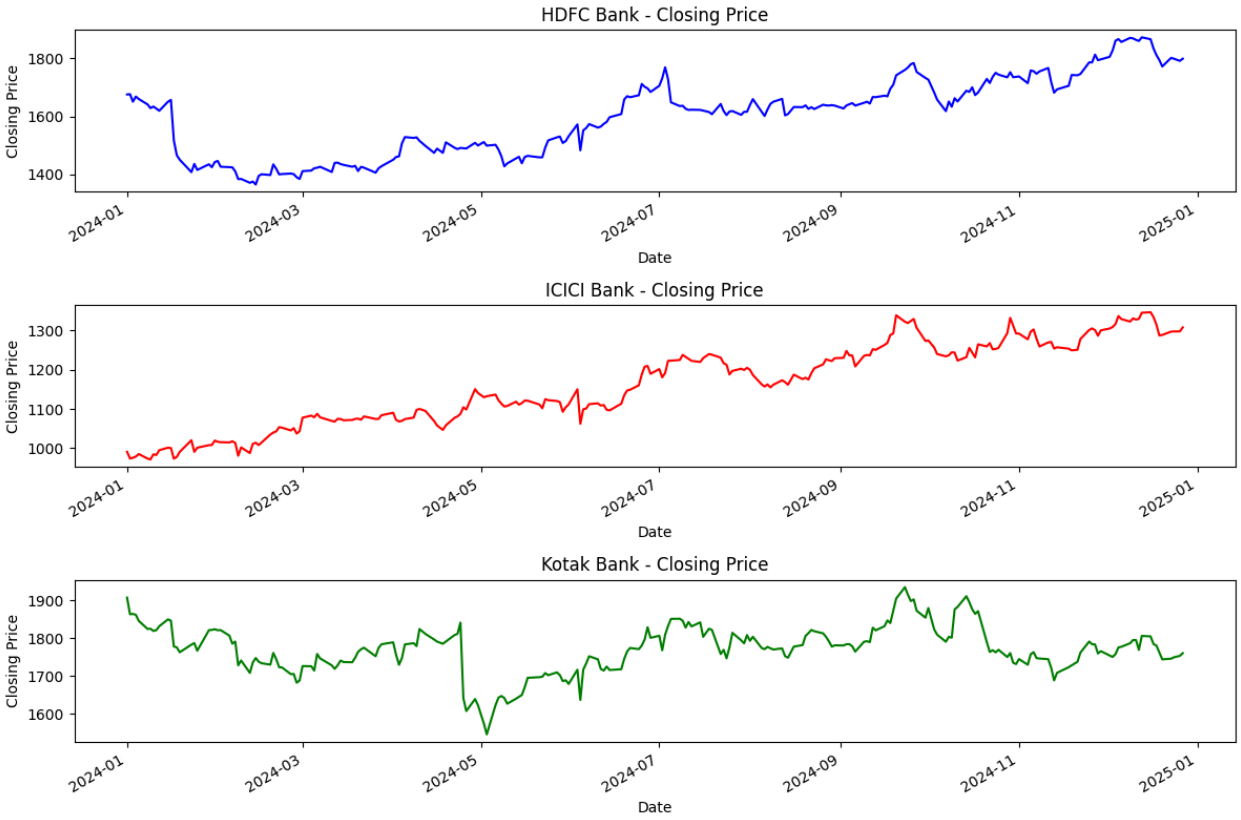
```
tickers = ["HDFCBANK.NS", "ICICIBANK.NS", "KOTAKBANK.NS"]
data = yf.download(tickers, start="2024-01-01", end="2024-12-30", group_by='ticker')
print("First 5 rows of the dataset:")
print(data.head())
```

```
[*********************100%***********************]  3 of 3 completedFirst 5 rows of the dataset:
Ticker      HDFCBANK.NS                                                \
Price             Open         High          Low        Close    Volume
Date
2024-01-01  1683.017598  1686.125187  1669.206199  1675.223999   7119843
2024-01-02  1675.914685  1679.860799  1665.950651  1676.210571  14621046
2024-01-03  1679.071480  1681.735059  1646.466666  1650.363525  14194881
2024-01-04  1655.394910  1672.116520  1648.193203  1668.071777  13367028
2024-01-05  1664.421596  1681.932477  1645.628180  1659.538208  15944735

Ticker     KOTAKBANK.NS                                            \
Price             Open         High          Low        Close   Volume
Date
2024-01-01  1906.909954  1916.899006  1891.027338  1907.059814  1425902
2024-01-02  1905.911108  1905.911108  1858.063525  1863.008179  5120796
2024-01-03  1861.959234  1867.952665  1845.627158  1863.857178  3781515
2024-01-04  1869.451068  1869.451068  1858.513105  1861.559692  2865766
2024-01-05  1863.457575  1867.852782  1839.383985  1845.577148  7799341

Ticker     ICICIBANK.NS
Price             Open        High         Low       Close    Volume
Date
2024-01-01   983.086778  996.273246  982.541485  990.869812   7683792
2024-01-02   988.490253  989.134730  971.883221  973.866150  16263825
2024-01-03   976.295294  979.567116  966.777197  975.650818  16826752
2024-01-04   977.980767  980.707295  973.519176  978.724365  22789140
2024-01-05   979.567084  989.779158  975.402920  985.218445  14875499
```

```
Shape of the dataset:
(244, 15)

Column names:
MultiIndex([( 'HDFCBANK.NS',   'Open'),
            ( 'HDFCBANK.NS',   'High'),
            ( 'HDFCBANK.NS',    'Low'),
            ( 'HDFCBANK.NS',  'Close'),
            ( 'HDFCBANK.NS', 'Volume'),
            ('KOTAKBANK.NS',   'Open'),
            ('KOTAKBANK.NS',   'High'),
            ('KOTAKBANK.NS',    'Low'),
            ('KOTAKBANK.NS',  'Close'),
            ('KOTAKBANK.NS', 'Volume'),
            ('ICICIBANK.NS',   'Open'),
            ('ICICIBANK.NS',   'High'),
            ('ICICIBANK.NS',    'Low'),
            ('ICICIBANK.NS',  'Close'),
            ('ICICIBANK.NS', 'Volume')],
           names=['Ticker', 'Price'])

Summary statistics for Reliance Industries:
Price         Open         High          Low        Close        Volume
count   244.000000   244.000000   244.000000   244.000000  2.440000e+02
mean   1601.375295  1615.443664  1588.221245  1601.898968  2.119658e+07
std     134.648125   134.183203   132.796819   133.748372  2.133860e+07
min    1357.463183  1372.754374  1345.180951  1365.404785  8.798460e+05
25%    1475.316358  1494.072805  1460.259509  1474.564087  1.274850e+07
50%    1627.724976  1638.350037  1616.000000  1625.950012  1.686810e+07
75%    1696.474976  1711.425018  1679.250000  1697.062531  2.295014e+07
max    1877.699951  1880.000000  1858.550049  1871.750000  2.226710e+08
<ipython-input-21-065504fcd90d>:10: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  hdfc_data['Daily Return'] = hdfc_data['Close'].pct_change()
<ipython-input-21-065504fcd90d>:11: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  icici_data['Daily Return'] = icici_data['Close'].pct_change()
<ipython-input-21-065504fcd90d>:12: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  kotak_data['Daily Return'] = kotak_data['Close'].pct_change()
```






HDFC Bank - Closing Price
Closing Price
1800
1600
1400
2024-01
2024-03
2024-05
2024-07
2024-09
2024-11
2025-01
Date
ICICI Bank - Closing Price
Closing Price
1300
1200
1100
1000
2024-01
2024-03
2024-05
2024-07
2024-09
2024-11
2025-01
Date
Kotak Bank - Closing Price
Closing Price
1900
1800
1700
1600
2024-01
2024-03
2024-05
2024-07
2024-09
2024-11
2025-01
Date