Machine Learning

05/03/25

Lab - 01

Exercise 1: To-Do.

Method - 1: Initializing values directly into DataFrame

```
import pandas as pd
data = {
    'USN' : ['225', '230', '135', '140', '160'],
    'Name' : ['Shathi', 'Deva', 'Rishikesh',
              'varadha', 'CK Reddy'],
    'Marks' : [97, 85, 76, 84, 92]
}
df = pd.DataFrame(data)
print("Sample data:")
print(df.head())
```

Method - 2: Importing dataset from Sklearn.datasets

```
from Sklearn.datasets import load_diabetes
diabetes = load_diabetes()
df = pd.DataFrame(diabetes.data, columns = diabetes.feature_names)
df['target'] = diabetes.target
print("Sample data:")
print(df.head())
```

Method-3:- Importing datasets from a specific csv file.

```
filepath = 'Sample_sales_data.csv'
df = pd.read_csv(filepath)
print("sample data:")
print(df.head())
print("\n")
```

Method-4:- Downloading datasets from existing dataset repositories like Kaggle, UCI, Mendely, KEEL, etc.

```
df = pd.read_csv('Dataset of Diabetes.csv',
                 encoding = 'ISO-8859-1')
print("sample data:")
print(df.head())
```

Exercise-2:- To-do.

```
#Step1: import required libraries.
import yfinance as yf
import pandas as pd
import matplotlib.pyplot as plt
```

Stock Market Data Analysis, considering the following.

1. HDFC Bank Ltd., ICICI Bank Ltd., Kotak Mahindra Bank Ltd. : tickers = ["HDFCBANK.NS", "ICICIBANK.NS", "KOTAKBANK.NS"].

2. Start date : 2024-01-01, End date : 2024-12-30

3. plot the closing price and daily return for all the three banks mentioned.

Step 2: Downloading Stock Market Data

```
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())
```

Step 3: Basic Data Exploration.

```
print("\n Shape of the dataset:")
print(data.shape)

print("\n Column names:")
print(data.columns)

reliance_data = data['HDFCBANK.NS']
print("\n Summary Statistics for HDFC Bank:")
print(reliance_data.describe())
reliance_data['Daily Return'] = reliance_data['Close'].pct_change()
```

#Step 4 :- plot the closing price and daily returns.

```
plt.figure(figsize=(12,6))
plt.subplot(2,1,1)
reliance_data['close'].plot(title="HDFC Bank ltd.-
                                    Closing price")
plt.subplot(2,1,2)
reliance_data['Daily Return'].plot(title="HDFC Bank
  Ltd. - Daily Return", color='orange')
plt.tight_layout()
plt.show()
```

Thursday 5/3/25