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# Machine Learning

## Lab 0:

To Do Exercise : 1

Method 1 : Initializing values directly into DF

```
import pandas as pd
data = {'Name': ['Alice', 'Bob', 'Charlie', 'David'],
        'Marks': [25, 30, 35, 40],
        'USN': ['1BM22CS254', '1BM22CS255', '1BM22CS256',
                '1BM22CS257']
      }
df = pd.DataFrame(data)
print("Sample data:")
print(df.head())
```

Method 2 : Importing datasets 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 files

```
import pandas as pd
df = pd.read_csv('sample_sales_data.csv')
print(df.head())
```

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

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

To-do Exercise 2

```
# step 1: Import required libraries
import yfinance as yf
import pandas as pd
import matplotlib.pyplot as plt

# step 2: Downloading stock Market Data
# Define the ticker symbols for Indian companies
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")
print(data.head())

# step 3: Basic DE
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()
```

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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 - closing price")
plt.subplot(2,1,2)
reliance_data['Daily Return'].plot(title="HDFC Bank - Daily Returns", color='orange')
plt.tight_layout()
plt.show()
```

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