5. Basic DataFrame Operations

```
# Creating DataFrames from Lists
        import pandas as pd


        data_list = [[101, 'Alice', 25], [102, 'Bob', 30], [103, 'Charlie', 22]]
        df1 = pd.DataFrame(data_list, columns=['ID', 'Name', 'Age'])
        print("DataFrame from List:\n", df1)
      #Output
        DataFrame from List:
           ID     Name  Age
        0  101    Alice   25
        1  102      Bob   30
        2  103  Charlie   22



#Creating DataFrame from Dictionaries
        data_dict = {
          'ID': [101, 102, 103],
          'Name': ['Alice', 'Bob', 'Charlie'],
          'Age': [25, 30, 22]
        }
        df2 = pd.DataFrame(data_dict)
        print("\nDataFrame from Dictionary:\n", df2)
      # Output
        DataFrame from Dictionary:
           ID     Name  Age
        0  101    Alice   25
        1  102      Bob   30
```

```
2  103  Charlie   22


# Modifying Data
    df2['Salary'] = [50000, 60000, 55000]
    print("\nDataFrame after adding Salary column:\n", df2)
# Output
    DataFrame after adding Salary column:
       ID     Name  Age  Salary
    0  101    Alice   25  50000
    1  102      Bob   30  60000
    2  103  Charlie   22  55000

# Filtering Data
    filtered_df = df2[df2['Age'] > 25]
    print("\nFiltered Data (Age > 25):\n", filtered_df)
        # Output
    Filtered Data (Age > 25):
       ID Name  Age  Salary
    1  102  Bob   30  60000

# Sorting Data
    sorted_df = df2.sort_values(by='Age', ascending=True)
    print("\nDataFrame Sorted by Age:\n", sorted_df)
# Output
    DataFrame Sorted by Age:
       ID     Name  Age  Salary
    2  103  Charlie   22  55000
    0  101    Alice   25  50000
    1  102      Bob   30  60000
```

Indexing and Slicing

- print("\nNames Column:\n", df2['Name'])

#output:

Names Column:

0 Alice

1 Bob

2 Charlie

Name: Name, dtype: object

- print("\nRow at Index 1:\n", df2.iloc[1])

#Output:

Row at Index 1:

ID 102

Name Bob

Age 30

Salary 60000

Name: 1, dtype: object

- print("\nSelecting Name and Salary columns:\n", df2[['Name', 'Salary']])

#Output:

Selecting Name and Salary columns:

	Name	Salary
0	Alice	50000
1	Bob	60000
2	Charlie	55000

- print("\nSelecting Names where Age > 25:\n", df2.loc[df2['Age'] > 25, 'Name'])

#Output:

Selecting Names where Age > 25:

1 Bob

Name: Name, dtype: object