honly Used Pandas Commands, Operations, Methods, and Attributes in Data Sc

1. Importing Pandas

```python
import pandas as pd
```

This is the standard convention for importing Pandas.

2. Creating DataFrames

```python
# Creating a DataFrame from a dictionary
data = {'col1': [1, 2], 'col2': [3, 4]}
df = pd.DataFrame(data)

# Creating a DataFrame from a list of dictionaries
data = [{'col1': 1, 'col2': 3}, {'col1': 2, 'col2': 4}]
df = pd.DataFrame(data)

# Creating a DataFrame from a NumPy array
import numpy as np
arr = np.array([[1, 2], [3, 4]])
df = pd.DataFrame(arr, columns=['col1', 'col2'])
```

3. Viewing Data

```python
# Viewing the first few rows
df.head()
```

```
# Viewing the last few rows
df.tail()

# Getting the DataFrame's shape
df.shape

# Getting a concise summary of the DataFrame
df.info()

# Getting basic statistics
df.describe()
```

4. Selecting Data

```python
# Selecting a single column
df['col1']

# Selecting multiple columns
df[['col1', 'col2']]

# Selecting rows by index
df.iloc[0]

# Selecting rows by label
df.loc[0]
```

```
# Boolean indexing
df[df['col1'] > 1]

# Conditional selection with multiple conditions
df[(df['col1'] > 1) & (df['col2'] < 4)]
```

5. Adding and Removing Data

```python
# Adding a new column
df['col3'] = df['col1'] + df['col2']

# Removing a column
df.drop('col3', axis=1, inplace=True)

# Removing rows
df.drop([0, 1], axis=0, inplace=True)
```

6. Handling Missing Data

```python
# Checking for missing values
df.isnull()

# Dropping rows with missing values
df.dropna()
```

```
# Filling missing values
df.fillna(value=0)

# Replacing values
df.replace(to_replace=1, value=99)
```

7. Grouping and Aggregation

```python
# Grouping data by a column and computing the mean
df.groupby('col1').mean()

# Applying multiple aggregate functions
df.groupby('col1').agg(['mean', 'sum'])

# Pivot tables
df.pivot_table(values='col2', index='col1', aggfunc='mean')
```

8. Merging and Joining

```python
# Merging DataFrames on a key
df1 = pd.DataFrame({'key': ['A', 'B'], 'val1': [1, 2]})
df2 = pd.DataFrame({'key': ['A', 'B'], 'val2': [3, 4]})
merged = pd.merge(df1, df2, on='key')

# Concatenating DataFrames
concat = pd.concat([df1, df2], axis=0)
```

```
# Joining DataFrames
joined = df1.set_index('key').join(df2.set_index('key'))
```

9. Working with Dates

```python
# Converting a column to datetime
df['date'] = pd.to_datetime(df['date'])

# Extracting components of a date
df['year'] = df['date'].dt.year
df['month'] = df['date'].dt.month

# Setting a column as the index
df.set_index('date', inplace=True)

# Resampling data
df.resample('M').mean()
```

10. Input and Output

```python
# Reading from a CSV file
df = pd.read_csv('file.csv')

# Writing to a CSV file
df.to_csv('output.csv', index=False)
```

```
# Reading from an Excel file

df = pd.read_excel('file.xlsx', sheet_name='Sheet1')


# Writing to an Excel file

df.to_excel('output.xlsx', index=False)
```