**Python Coding Challenge**

**Name: PRIYESHWAR**

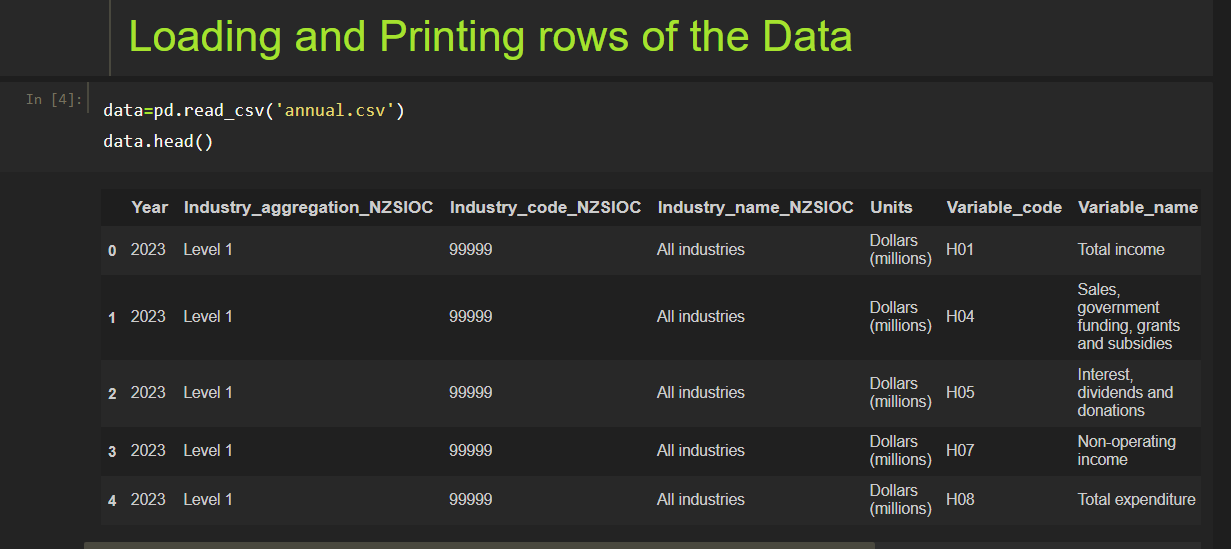
**Mail:** [**priyesh2664@gmail.com**](mailto:priyesh2664@gmail.com)

**Loading and Printing rows of the Data**

Read the CSV file into a DataFrame and preview the first few rows using head().

**data=pd.read\_csv('annual.csv')**

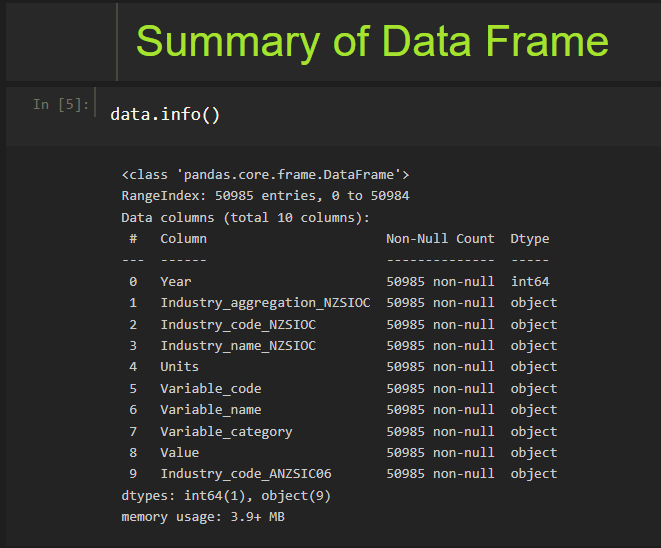
**data.head()**

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**Summary of Data Frame**

Use info() to display data types and count of non-null values per column.

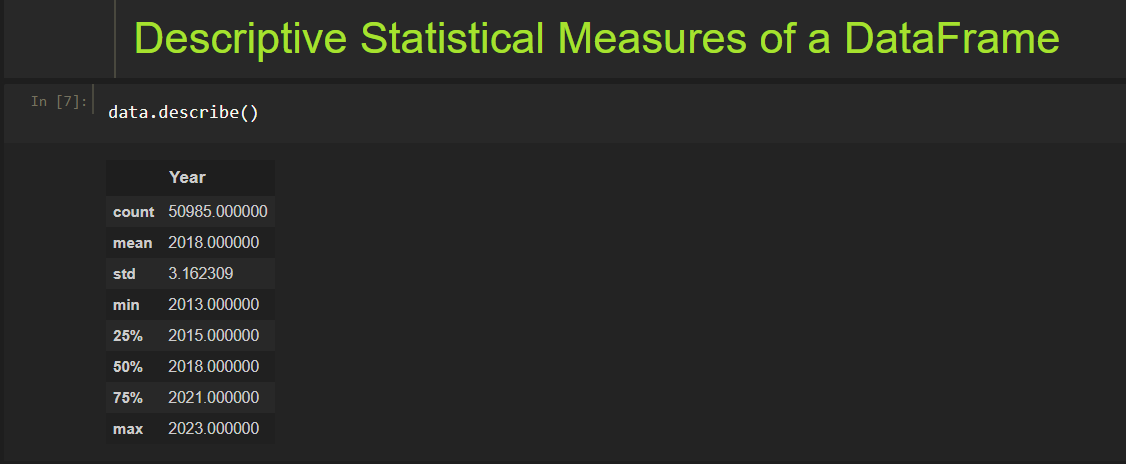
**data.info()**

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**Descriptive Statistical Measures of a DataFrame**

Generate basic statistics like mean, median, and quartiles with describe().

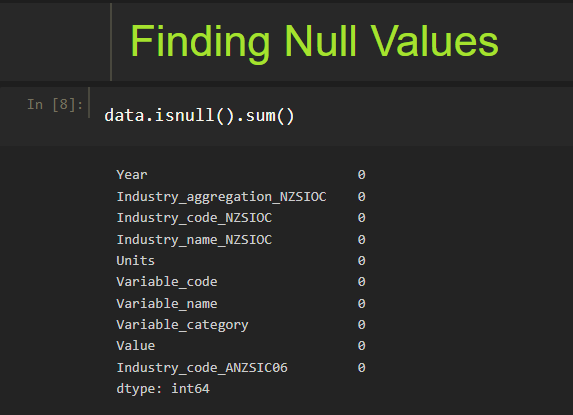
**data.describe()**

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**Finding Null Values**

Check for missing data by summing nulls in each column using isnull().sum().

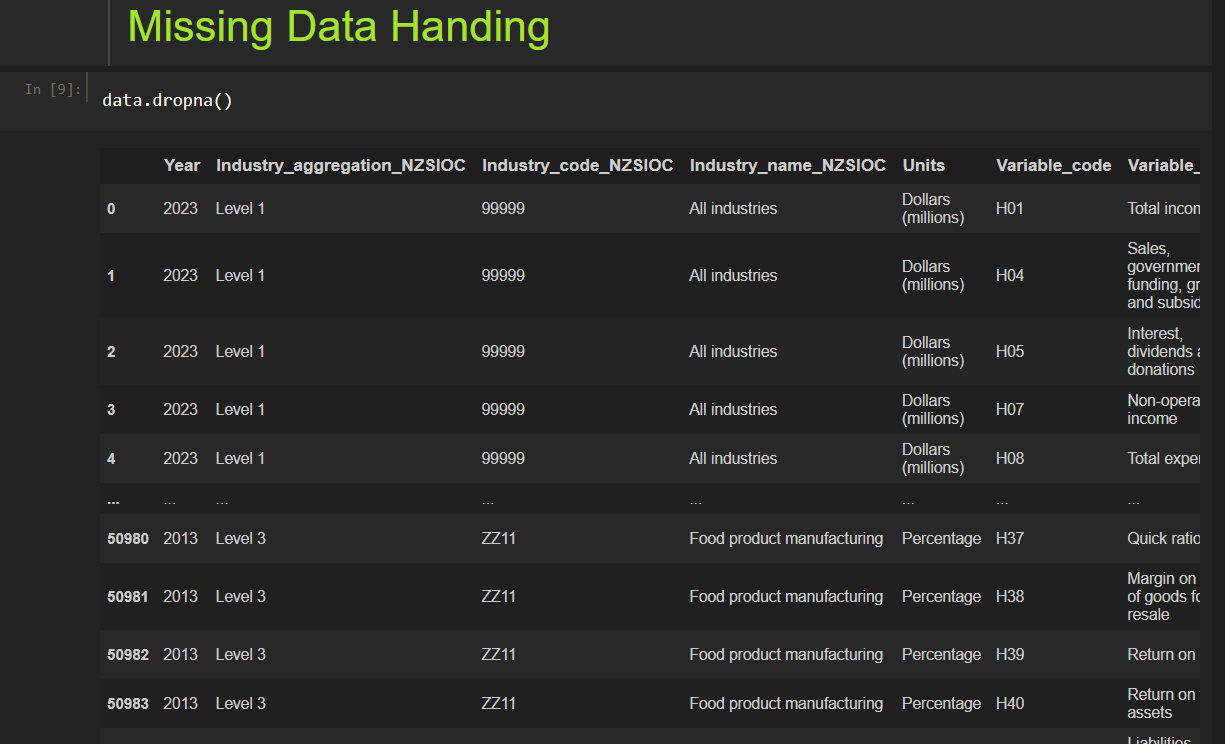
**data.isnull().sum()**

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**Missing Data Handing**

Remove rows containing any null values with dropna().

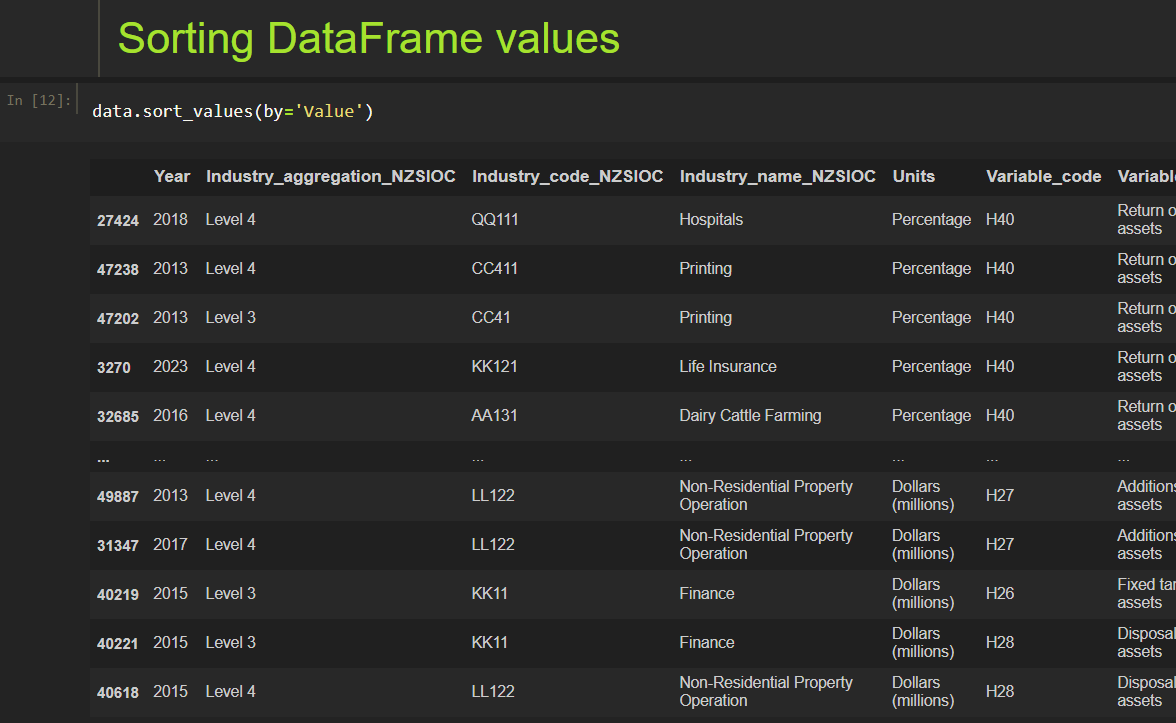
**data.dropna()**

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**Sorting DataFrame values**

Sort the DataFrame based on the 'Value' column using sort\_values().

**data.sort\_values(by='Value')**

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**Merge Data Frames**

Combine sales and products tables on product\_id using inner, left, right, and outer joins.

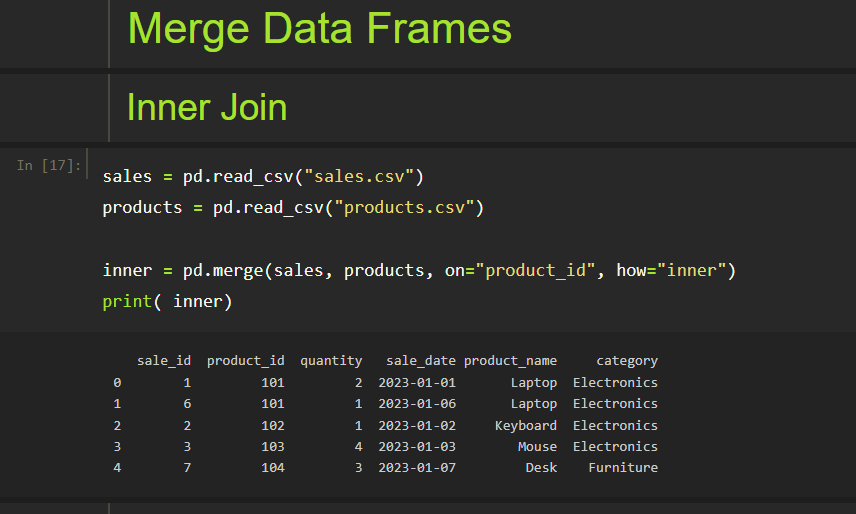
**Inner Join**

**sales = pd.read\_csv("sales.csv")**

**products = pd.read\_csv("products.csv")**

**inner = pd.merge(sales, products, on="product\_id", how="inner")**

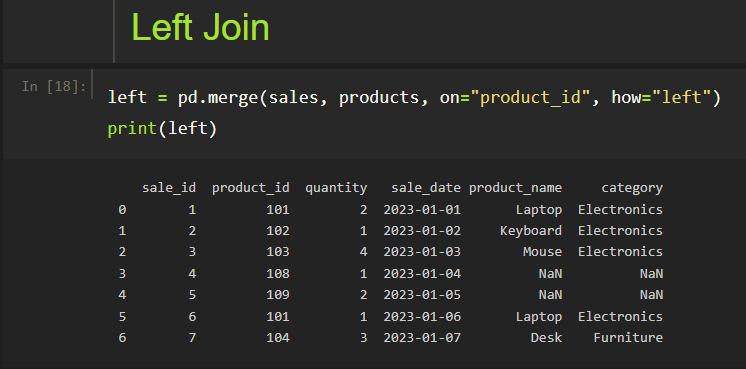
**print( inner)**

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**Left Join**

**left = pd.merge(sales, products, on="product\_id", how="left")**

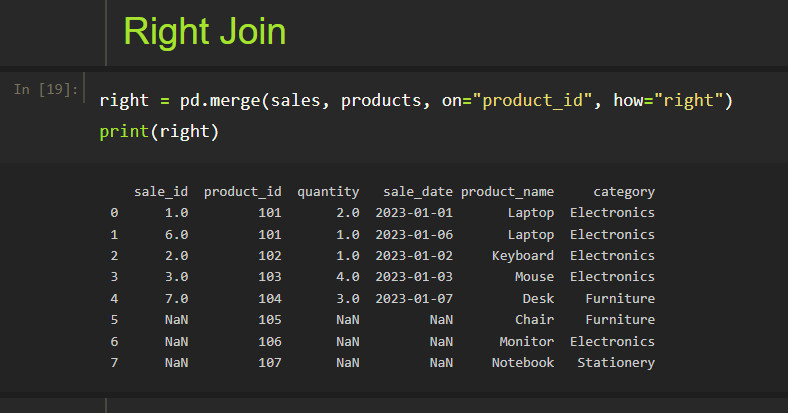
**print(left)**

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**Right Join**

**right = pd.merge(sales, products, on="product\_id", how="right")**

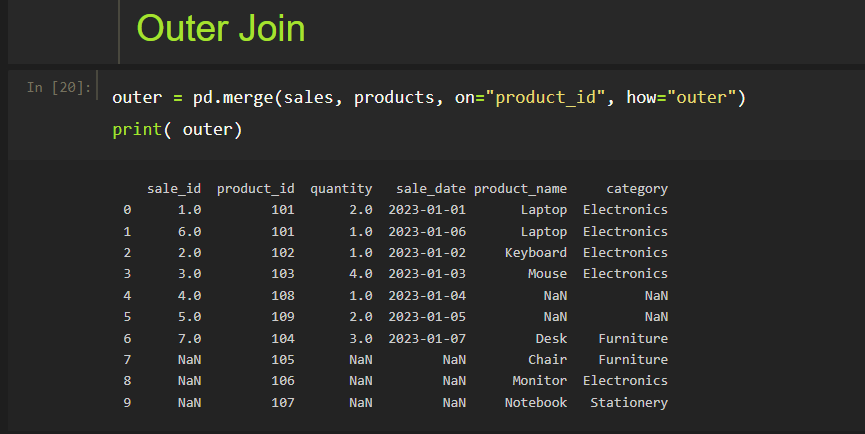
**print(right)**

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**Outer Join**

**outer = pd.merge(sales, products, on="product\_id", how="outer")**

**print( outer)**

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**Visualizing DataFrame**

Plot total quantity sold over time with a line chart using Seaborn’s lineplot().

**import matplotlib.pyplot as plt**

**import seaborn as sns**

**plt.figure(figsize=(10, 6))**

**sns.lineplot(data=outer, x='sale\_date', y='quantity', marker='o')**

**plt.title('Total Quantity Sold Over Time')**

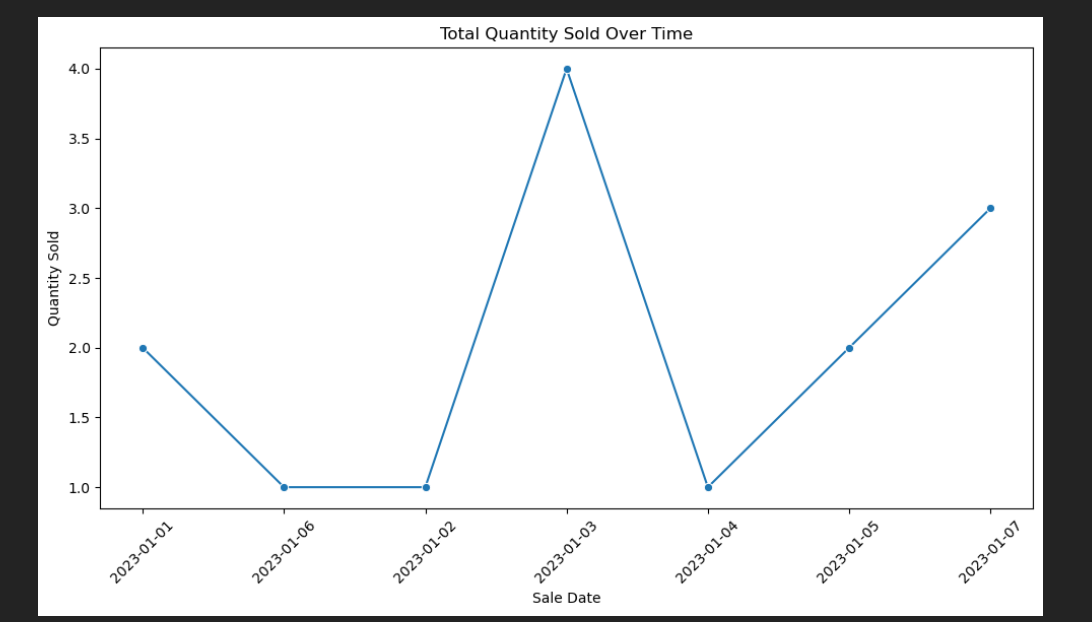
**plt.xlabel('Sale Date')**

**plt.ylabel('Quantity Sold')**

**plt.xticks(rotation=45)**

**plt.tight\_layout()**

**plt.show()**

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