

A screenshot of a Python development environment, likely PyCharm, showing the execution of a script named `data_cleaning.py`.

The code in `data_cleaning.py` reads a CSV file and prints the count of null values for each column:

```
import pandas as pd
purchase_price = pd.read_csv("C:/Users/Admin/Desktop/2017PurchasePricesDec.csv")
# check null values
print(purchase_price.isnull().sum())
# Drop missing rows
purchase_price.dropna(inplace=True)
```

The terminal output shows the resulting DataFrame structure:

```
PS C:\Users\Admin\Documents\inventory data analysis> python -u "c:\Users\Admin\Documents\inventory data analysis\data_cleaning.py"
   Brand          0
Description      1
  Price          0
    Size          1
  Volume          1
Classification  0
PurchasePrice   0
VendorNumber    0
VendorName      0
dtype: int64
   Brand        int64
Description    object
  Price       float64
    Size        object
  Volume        object
Classification int64
PurchasePrice  float64
VendorNumber   int64
VendorName     object
dtype: object
Cleaning Completed
PS C:\Users\Admin\Documents\Inventory Data Analysis>
```

The status bar at the bottom indicates the code is run in Python 3.13 (64-bit) with 14 columns and 4 spaces.

The screenshot shows a Python development environment in Visual Studio Code (VS Code). The interface includes:

- File Explorer**: Shows files in the current workspace, including `data_loading.py`, `data_cleaning.py`, `eda_analysis.py`, `inventory_metrics.py`, and `visualization.py`.
- Terminal**: Displays the command `python -u "c:\Users\Admin\Documents\inventory data analysis\tempCodeRunnerFile.py"` being run.
- Code Editor**: The `data_loading.py` file is open, containing code to load datasets from CSV files. The output of this code is displayed below the editor, showing the structure of the loaded data frame.
- Output**: Shows the results of the code execution, including the printed message "Data Loaded Successfully!" and the head of the `purchase_price` DataFrame.

```
data_loading.py > ...
1 import pandas as pd
2
3 # Load datasets
4 purchase_price = pd.read_csv("C:/Users/Admin/Desktop/2017PurchasePricesDec.csv")
5 begin_inventory = pd.read_csv("C:/Users/Admin/Desktop/BegInvFINAL12312016.csv")
6 end_inventory = pd.read_csv("C:/Users/Admin/Desktop/EndInvFINAL12312016.csv")
7 invoice = pd.read_csv("C:/Users/Admin/Desktop/InvoicePurchases12312016.csv")
8 sales = pd.read_csv("C:/Users/Admin/Desktop/SalesFINAL12312016.csv")
9
10 print("Data Loaded Successfully!")
11 print(purchase_price.head())
12
```

Price	0
Size	1
Volume	1
Classification	0
PurchasePrice	0
VendorNumber	0
VendorName	0
dtype: int64	
Brand	int64
Description	object
Price	float64
Size	object
Volume	object
Classification	int64
PurchasePrice	float64
VendorNumber	int64
VendorName	object
dtype: object	

Cleaning Completed  
PS C:\Users\Admin\Documents\inventory data analysis> python -u "c:\Users\Admin\Documents\inventory data analysis\tempCodeRunnerFile.py"  
PS C:\Users\Admin\Documents\inventory data analysis>

The screenshot shows a code editor interface with several tabs open. The tabs include 'Welcome', 'data\_loading.py', 'data\_cleaning.py', 'eda\_analysis.py' (which is the active tab), and 'inventory\_metrics.py'. The 'eda\_analysis.py' tab contains the following Python code:

```
1 import pandas as pd
2
3 sales = pd.read_csv("C:/Users/Admin/Desktop/SalesFINAL12312016.csv")
4
5 # Basic statistics
6 print(sales.describe())
7
8 # Top selling products
9 top_products = sales.groupby("Description")["SalesQuantity"].sum().sort_values(ascending=False).head(10)
10
11 print(top_products)
12
```

The terminal tab shows the command being run:

```
PS C:\Users\Admin\Documents\inventory_data_analysis> python -u "c:\Users\Admin\Documents\inventory_data_analysis\eda_analysis.py"
```

Below the terminal, the output shows the results of the `sales.describe()` and `top\_products` calculations. The `sales.describe()` output includes columns for Store, Brand, SalesQuantity, SalesDollars, SalesPrice, Volume, Classification, ExciseTax, and VendorID. The `top\_products` output lists the top 10 selling products by Description and their SalesQuantity.

The screenshot shows a Python code editor interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Toolbar:** Standard file operations (New, Open, Save, Print, etc.).
- Search Bar:** A search bar at the top right labeled "inventory data analysis".
- Explorer:** A sidebar on the left showing the project structure.
  - OPEN EDITORS:** Welcome, data\_loading.py, data\_cleaning.py, eda\_analysis.py, inventory\_metrics.py (highlighted), visualization.py.
  - INVENTORY DATA ANALYSIS:** data\_cleaning.py, data\_loading.py, eda\_analysis.py, inventory\_metrics.py (highlighted), tempCodeRunnerfile.py, visualization.py.
- Code Editor:** The main area displays the content of the "inventory\_metrics.py" script.

```
1 import pandas as pd
2
3 beg = pd.read_csv("C:/Users/Admin/Desktop/BegInvFINAL12312016.csv")
4 end = pd.read_csv("C:/Users/Admin/Desktop/EndInvFINAL12312016.csv")
5 sales = pd.read_csv("C:/Users/Admin/Desktop/salesFINAL12312016.csv")
6
7 average_inventory = (beg["onHand"].sum() + end["onHand"].sum()) / 2
8 cost_of_goods_sold = sales["SalesDollars"].sum()
9
10 inventory_turnover = cost_of_goods_sold / average_inventory
11 print("Inventory Turnover:", round(inventory_turnover, 2))
12
13
```
- Terminal:** A terminal window at the bottom showing the command and output of running the script:

```
PS C:\Users\Admin\Documents\inventory data analysis> python -u "c:\Users\Admin\Documents\inventory data analysis\inventory_metrics.py"
Inventory Turnover: 7.28
EOD: 632
PS C:\Users\Admin\Documents\inventory data analysis>
```
- Status Bar:** Shows the current file is "master", line 14, column 1, spaces: 4, encoding: UTF-8, CRLF, Python 3.13 (64-bit).

Figure 1

