

```
In [2]: !pip install panda
```

```
Requirement already satisfied: panda in c:\users\hp\anaconda3\lib\site-packages (0.3.1)  
Requirement already satisfied: setuptools in c:\users\hp\anaconda3\lib\site-packages (from panda) (69.5.1)  
Requirement already satisfied: requests in c:\users\hp\anaconda3\lib\site-packages (from panda) (2.32.2)  
Requirement already satisfied: charset-normalizer<4,>=2 in c:\users\hp\anaconda3\lib\site-packages (from requests->panda) (2.0.4)  
Requirement already satisfied: idna<4,>=2.5 in c:\users\hp\anaconda3\lib\site-packages (from requests->panda) (3.7)  
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\users\hp\anaconda3\lib\site-packages (from requests->panda) (2.2.2)  
Requirement already satisfied: certifi>=2017.4.17 in c:\users\hp\anaconda3\lib\site-packages (from requests->panda) (2024.6.2)
```

```
In [3]: import pandas as pd
```

```
In [4]: pd.__version__
```

```
Out[4]: '2.2.2'
```

```
In [13]: store = pd.read_csv(r'E:\Nareshit\2.October Data Science\15 oct - Pandas Package
```

```
In [14]: store
```

Out[14]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	20103
1	Office Supplies	Naperville	United States	Phillina Ober	GBC	04-01-2020	20112
2	Office Supplies	Naperville	United States	Phillina Ober	Avery	04-01-2020	20112
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	20112
4	Office Supplies	Philadelphia	United States	Mick Brown	Avery	05-01-2020	20141
...
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	20143
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	20115
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	20156
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	20143
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	20143

10194 rows × 19 columns



In [15]: id (store)

Out[15]: 2182631798928

In [16]: `len(store)`

Out[16]: 10194

In [17]: `store.shape`

Out[17]: (10194, 19)

In [18]: `store.columns`

Out[18]: Index(['Category', 'City', 'Country/Region', 'Customer Name', 'Manufacturer',
'Order Date', 'Order ID', 'Postal Code', 'Product Name', 'Region',
'Segment', 'Ship Date', 'Ship Mode', 'State/Province', 'Sub-Category',
'Discount', 'Profit', 'Quantity', 'Sales'],
dtype='object')

In [19]: `len(store.columns)`

Out[19]: 19

In [20]: `store`

Out[20]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	20103
1	Office Supplies	Naperville	United States	Phillina Ober	GBC	04-01-2020	20112
2	Office Supplies	Naperville	United States	Phillina Ober	Avery	04-01-2020	20112
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	20112
4	Office Supplies	Philadelphia	United States	Mick Brown	Avery	05-01-2020	20141
...
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	20143
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	20115
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	20156
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	20143
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	20143

10194 rows × 19 columns



In [21]:

store.dtypes

```
Out[21]: Category      object
City                  object
Country/Region       object
Customer Name        object
Manufacturer          object
Order Date           object
Order ID             object
Postal Code          object
Product Name         object
Region              object
Segment             object
Ship Date            object
Ship Mode            object
State/Province       object
Sub-Category         object
Discount             float64
Profit               float64
Quantity             int64
Sales                float64
dtype: object
```

```
In [22]: store.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10194 entries, 0 to 10193
Data columns (total 19 columns):
#   Column                Non-Null Count  Dtype
---  -
0   Category              10194 non-null  object
1   City                  10194 non-null  object
2   Country/Region       10194 non-null  object
3   Customer Name        10194 non-null  object
4   Manufacturer          10194 non-null  object
5   Order Date           10194 non-null  object
6   Order ID             10194 non-null  object
7   Postal Code          10194 non-null  object
8   Product Name         10194 non-null  object
9   Region               10194 non-null  object
10  Segment              10194 non-null  object
11  Ship Date            10194 non-null  object
12  Ship Mode            10194 non-null  object
13  State/Province       10194 non-null  object
14  Sub-Category         10194 non-null  object
15  Discount             10194 non-null  float64
16  Profit               10194 non-null  float64
17  Quantity             10194 non-null  int64
18  Sales                10194 non-null  float64
dtypes: float64(3), int64(1), object(15)
memory usage: 1.5+ MB
```

```
In [23]: type(store)
```

```
Out[23]: pandas.core.frame.DataFrame
```

```
In [24]: store.isnull()
```

Out[24]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Postal Code
0	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False
...
10189	False	False	False	False	False	False	False	False
10190	False	False	False	False	False	False	False	False
10191	False	False	False	False	False	False	False	False
10192	False	False	False	False	False	False	False	False
10193	False	False	False	False	False	False	False	False

10194 rows × 19 columns



In [29]: store.isna()

Out[29]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Postal Code
0	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False
...
10189	False	False	False	False	False	False	False	False
10190	False	False	False	False	False	False	False	False
10191	False	False	False	False	False	False	False	False
10192	False	False	False	False	False	False	False	False
10193	False	False	False	False	False	False	False	False

10194 rows × 19 columns



In [25]: store.isnull().sum()

```
Out[25]: Category      0
City      0
Country/Region      0
Customer Name      0
Manufacturer      0
Order Date      0
Order ID      0
Postal Code      0
Product Name      0
Region      0
Segment      0
Ship Date      0
Ship Mode      0
State/Province      0
Sub-Category      0
Discount      0
Profit      0
Quantity      0
Sales      0
dtype: int64
```

```
In [ ]:
```

```
In [30]: store.head()
```

```
Out[30]:
```

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Po C
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	US-2020-103800	77
1	Office Supplies	Naperville	United States	Phillina Ober	GBC	04-01-2020	US-2020-112326	60
2	Office Supplies	Naperville	United States	Phillina Ober	Avery	04-01-2020	US-2020-112326	60
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	US-2020-112326	60
4	Office Supplies	Philadelphia	United States	Mick Brown	Avery	05-01-2020	US-2020-141817	19

```
In [33]: store.head(10)
```

Out[33]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Po C
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	US-2020-103800	77
1	Office Supplies	Naperville	United States	Phillina Ober	GBC	04-01-2020	US-2020-112326	60
2	Office Supplies	Naperville	United States	Phillina Ober	Avery	04-01-2020	US-2020-112326	60
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	US-2020-112326	60
4	Office Supplies	Philadelphia	United States	Mick Brown	Avery	05-01-2020	US-2020-141817	19
5	Furniture	Henderson	United States	Maria Etezadi	Global	06-01-2020	US-2020-167199	42
6	Office Supplies	Henderson	United States	Maria Etezadi	Rogers	06-01-2020	US-2020-167199	42
7	Office Supplies	Athens	United States	Jack O'Briant	Dixon	06-01-2020	US-2020-106054	30
8	Office Supplies	Henderson	United States	Maria Etezadi	Ibico	06-01-2020	US-2020-167199	42

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Pos
9	Office Supplies	Henderson	United States	Maria Etezadi	Alliance	06-01-2020	US-2020-167199	42

In [34]: `store.tail()`

Out[34]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Pos
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	US-2023-143	20
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	US-2023-115	20
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	US-2023-156	20
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	US-2023-143	20
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	US-2023-143	20



In [35]: `store.tail(10)`

Out[35]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID
10184	Furniture	Quebec City	Canada	Bruce Galang	Other	29-12-2023	20141
10185	Office Supplies	Quebec City	Canada	Bruce Galang	Acco	29-12-2023	20141
10186	Furniture	New York City	United States	Patrick O'Donnell	Other	30-12-2023	20143
10187	Office Supplies	Columbus	United States	Chuck Clark	Eureka	30-12-2023	20126
10188	Office Supplies	Fairfield	United States	Erica Bern	Cardinal	30-12-2023	20115
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	20143
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	20115
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	20156
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	20143
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	20143

In []:

In [26]: `store.columns`

```
Out[26]: Index(['Category', 'City', 'Country/Region', 'Customer Name', 'Manufacturer',
              'Order Date', 'Order ID', 'Postal Code', 'Product Name', 'Region',
              'Segment', 'Ship Date', 'Ship Mode', 'State/Province', 'Sub-Category',
              'Discount', 'Profit', 'Quantity', 'Sales'],
              dtype='object')
```

In [27]: `store['Category']`

```
Out[27]: 0      Office Supplies
         1      Office Supplies
         2      Office Supplies
         3      Office Supplies
         4      Office Supplies
         ...
        10189 Office Supplies
        10190 Office Supplies
        10191 Office Supplies
        10192      Technology
        10193 Office Supplies
        Name: Category, Length: 10194, dtype: object
```

In [38]: `store[['Customer Name', 'Manufacturer']]`

Out[38]:

	Customer Name	Manufacturer
0	Darren Powers	Message Book
1	Phillina Ober	GBC
2	Phillina Ober	Avery
3	Phillina Ober	SAFCO
4	Mick Brown	Avery
...
10189	Patrick O'Donnell	Wilson Jones
10190	Erica Bern	GBC
10191	Jill Matthias	Other
10192	Patrick O'Donnell	Other
10193	Harry Olson	Wilson Jones

10194 rows × 2 columns

```
In [39]: store_catagorical = store[['Category', 'City', 'Country/Region', 'Customer Name',
              'Order Date', 'Order ID', 'Postal Code', 'Product Name', 'Region',
              'Segment', 'Ship Date', 'Ship Mode', 'State/Province', 'Sub-Category',
              'Discount', 'Profit', 'Quantity', 'Sales']]
```

In [40]: `store_catagorical`

Out[40]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	20103
1	Office Supplies	Naperville	United States	Phillina Ober	GBC	04-01-2020	20112
2	Office Supplies	Naperville	United States	Phillina Ober	Avery	04-01-2020	20112
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	20112
4	Office Supplies	Philadelphia	United States	Mick Brown	Avery	05-01-2020	20141
...
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	20143
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	20115
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	20156
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	20143
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	20143

10194 rows × 19 columns



In [41]: store_catagorical.info()

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10194 entries, 0 to 10193
Data columns (total 19 columns):
 #   Column                Non-Null Count  Dtype  
---  -
 0   Category              10194 non-null  object 
 1   City                  10194 non-null  object 
 2   Country/Region        10194 non-null  object 
 3   Customer Name         10194 non-null  object 
 4   Manufacturer          10194 non-null  object 
 5   Order Date            10194 non-null  object 
 6   Order ID              10194 non-null  object 
 7   Postal Code           10194 non-null  object 
 8   Product Name          10194 non-null  object 
 9   Region                10194 non-null  object 
10   Segment               10194 non-null  object 
11   Ship Date             10194 non-null  object 
12   Ship Mode             10194 non-null  object 
13   State/Province        10194 non-null  object 
14   Sub-Category          10194 non-null  object 
15   Discount              10194 non-null  float64
16   Profit                10194 non-null  float64
17   Quantity              10194 non-null  int64  
18   Sales                 10194 non-null  float64
dtypes: float64(3), int64(1), object(15)
memory usage: 1.5+ MB

```

```
In [42]: store_numerical = store[['Discount', 'Profit', 'Quantity', 'Sales']]
```

```
In [43]: store_numerical
```

```
Out[43]:
```

	Discount	Profit	Quantity	Sales
0	0.2	5.5512	2	16.448
1	0.8	-5.4870	2	3.540
2	0.2	4.2717	3	11.784
3	0.2	-64.7748	3	272.736
4	0.2	4.8840	3	19.536
...
10189	0.2	19.7910	3	52.776
10190	0.2	6.4750	2	20.720
10191	0.2	-0.6048	3	3.024
10192	0.0	2.7279	7	90.930
10193	0.2	-0.6048	3	3.024

10194 rows × 4 columns

```
In [44]: store.tail()
```

Out[44]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	20143
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	20115
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	20156
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	20143
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	20143

In []:

Slicing

In [45]:

```
store[:]
```

Out[45]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	20103
1	Office Supplies	Naperville	United States	Phillina Ober	GBC	04-01-2020	20112
2	Office Supplies	Naperville	United States	Phillina Ober	Avery	04-01-2020	20112
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	20112
4	Office Supplies	Philadelphia	United States	Mick Brown	Avery	05-01-2020	20141
...
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	20143
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	20115
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	20156
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	20143
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	20143

10194 rows × 19 columns



In [46]: store[0:10]

Out[46]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Po C
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	US-2020-103800	77
1	Office Supplies	Naperville	United States	Phillina Ober	GBC	04-01-2020	US-2020-112326	60
2	Office Supplies	Naperville	United States	Phillina Ober	Avery	04-01-2020	US-2020-112326	60
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	US-2020-112326	60
4	Office Supplies	Philadelphia	United States	Mick Brown	Avery	05-01-2020	US-2020-141817	19
5	Furniture	Henderson	United States	Maria Etezadi	Global	06-01-2020	US-2020-167199	42
6	Office Supplies	Henderson	United States	Maria Etezadi	Rogers	06-01-2020	US-2020-167199	42
7	Office Supplies	Athens	United States	Jack O'Briant	Dixon	06-01-2020	US-2020-106054	30
8	Office Supplies	Henderson	United States	Maria Etezadi	Ibico	06-01-2020	US-2020-167199	42

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Pos Co
9	Office Supplies	Henderson	United States	Maria Etezadi	Alliance	06-01-2020	US-2020-167199	42

In [47]: store[0:10:5]

Out[47]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Pos Co
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	US-2020-103800	770
5	Furniture	Henderson	United States	Maria Etezadi	Global	06-01-2020	US-2020-167199	424

In [48]: store[:, :-1]

Out[48]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	20143
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	20143
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	20156
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	20115
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	20143
...
4	Office Supplies	Philadelphia	United States	Mick Brown	Avery	05-01-2020	20141
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	20112
2	Office Supplies	Naperville	United States	Phillina Ober	Avery	04-01-2020	20112
1	Office Supplies	Naperville	United States	Phillina Ober	GBC	04-01-2020	20112
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	20103

10194 rows × 19 columns



In [49]:

```
store[6:7]
```

Out[49]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID	Pos Co
6	Office Supplies	Henderson	United States	Maria Etezadi	Rogers	06-01-2020	US-2020-167199	424



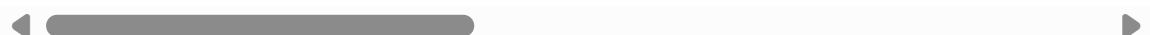
In [51]:

```
store[:, -10]
```

Out[51]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	14
10183	Furniture	St. John's	Canada	James Peterman	Nu-Dell	29-12-2023	14
10173	Furniture	Los Angeles	United States	James Galang	Global	29-12-2023	11
10163	Office Supplies	Fargo	United States	Christopher Schild	Wilson Jones	28-12-2023	13
10153	Furniture	Long Beach	United States	Jason Gross	Novimex	28-12-2023	10
...	
43	Furniture	Jonesboro	United States	Hunter Lopez	Hon	20-01-2020	14
33	Technology	Roswell	United States	Erica Hackney	Logitech	15-01-2020	10
23	Office Supplies	San Francisco	United States	Brian Dahlen	Other	13-01-2020	15
13	Technology	Henderson	United States	Maria Etezadi	GE	06-01-2020	16
3	Office Supplies	Naperville	United States	Phillina Ober	SAFCO	04-01-2020	11

1020 rows × 19 columns



In [52]: store[10::]

Out[52]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	
10	Office Supplies	Henderson	United States	Maria Etezadi	Southworth	06-01-2020	1
11	Office Supplies	Los Angeles	United States	Lycoris Saunders	Xerox	06-01-2020	1
12	Technology	Henderson	United States	Maria Etezadi	Other	06-01-2020	1
13	Technology	Henderson	United States	Maria Etezadi	GE	06-01-2020	1
14	Furniture	Huntsville	United States	Vivek Sundaresam	Howard Miller	07-01-2020	1
...
10189	Office Supplies	New York City	United States	Patrick O'Donnell	Wilson Jones	30-12-2023	1
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	1
10191	Office Supplies	Loveland	United States	Jill Matthias	Other	30-12-2023	1
10192	Technology	New York City	United States	Patrick O'Donnell	Other	30-12-2023	1
10193	Office Supplies	Charlottetown	Canada	Harry Olson	Wilson Jones	30-12-2023	1

10184 rows × 19 columns

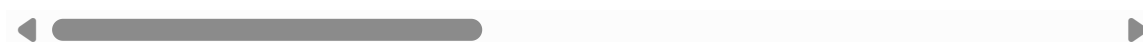


In [53]: store[::10]

Out[53]:

	Category	City	Country/Region	Customer Name	Manufacturer	Order Date	Order ID
0	Office Supplies	Houston	United States	Darren Powers	Message Book	03-01-2020	1036
10	Office Supplies	Henderson	United States	Maria Etezadi	Southworth	06-01-2020	1677
20	Furniture	Dover	United States	Seth Vernon	DAX	11-01-2020	1300
30	Office Supplies	San Francisco	United States	Brian Dahlen	Tennsco	13-01-2020	1577
40	Office Supplies	Scottsdale	United States	Toby Swindell	GBC	19-01-2020	1465
...
10150	Office Supplies	Newark	United States	Dan Reichenbach	BIC	27-12-2023	1344
10160	Office Supplies	New York City	United States	Jennifer Ferguson	Storex	28-12-2023	1648
10170	Technology	New York City	United States	Jennifer Ferguson	Other	28-12-2023	1648
10180	Office Supplies	New York City	United States	Michael Chen	Other	29-12-2023	1026
10190	Office Supplies	Fairfield	United States	Erica Bern	GBC	30-12-2023	1154

1020 rows × 19 columns



In []: