

```
import pandas as pd
```

```
pd.__version__
```

```
'2.2.2'
```

```
store = pd.read_csv(r"D:\Naresh\19th, 20th - Pandas\Sample -  
Superstore_Orders.csv")
```

```
store
```

	Category	City	Country/Region	Customer
Name \				
0	Office Supplies	Houston	United States	Darren Powers
1	Office Supplies	Naperville	United States	Phillina Ober
2	Office Supplies	Naperville	United States	Phillina Ober
3	Office Supplies	Naperville	United States	Phillina Ober
4	Office Supplies	Philadelphia	United States	Mick Brown
...
10189	Office Supplies	New York City	United States	Patrick O'Donnell
10190	Office Supplies	Fairfield	United States	Erica Bern
10191	Office Supplies	Loveland	United States	Jill Matthias
10192	Technology	New York City	United States	Patrick O'Donnell
10193	Office Supplies	Charlottetown	Canada	Harry Olson

	Manufacturer	Order Date	Order ID	Postal Code
0	Message Book	03-01-2020	US-2020-103800	77015
1	GBC	04-01-2020	US-2020-112326	60540
2	Avery	04-01-2020	US-2020-112326	60540
3	SAFCO	04-01-2020	US-2020-112326	60540
4	Avery	05-01-2020	US-2020-141817	19143
...
10189	Wilson Jones	30-12-2023	US-2023-143259	10009
10190	GBC	30-12-2023	US-2023-115427	94533
10191	Other	30-12-2023	US-2023-156720	80538
10192	Other	30-12-2023	US-2023-143259	10009
10193	Wilson Jones	30-12-2023	CA-2023-143500	C0A

	Product Name	Region
0	Message Book, Wirebound, Four 5 1/2" X 4" Form...	Central

1	GBC Standard Plastic Binding Systems Combs	Central
2	Avery 508	Central
3	SAFCO Boltless Steel Shelving	Central
4	Avery Hi-Liter EverBold Pen Style Fluorescent ...	East
...
10189	Wilson Jones Legal Size Ring Binders	East
10190	GBC Binding covers	West
10191	Bagged Rubber Bands	West
10192	Gear Head AU3700S Headset	East
10193	Wilson Jones Impact Binders	East

	Segment	Ship Date	Ship Mode	
State/Province \				
0	Consumer	07-01-2020	Standard Class	Texas
1	Home Office	08-01-2020	Standard Class	Illinois
2	Home Office	08-01-2020	Standard Class	Illinois
3	Home Office	08-01-2020	Standard Class	Illinois
4	Consumer	12-01-2020	Standard Class	Pennsylvania
...
10189	Consumer	03-01-2024	Standard Class	New York
10190	Corporate	03-01-2024	Standard Class	California
10191	Consumer	03-01-2024	Standard Class	Colorado
10192	Consumer	03-01-2024	Standard Class	New York
10193	Consumer	03-01-2024	Standard Class	Prince Edward Island

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

[10194 rows x 19 columns]

```

id(store)
1841695091808

len(store)
10194

store.shape
(10194, 19)

store.columns
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')

```

```

len(store.columns)
19

```

```
store.isnull()
```

	Category	City	Country/Region	Customer Name	Manufacturer	\
0	False	False	False	False	False	
1	False	False	False	False	False	
2	False	False	False	False	False	
3	False	False	False	False	False	
4	False	False	False	False	False	
...	
10189	False	False	False	False	False	
10190	False	False	False	False	False	
10191	False	False	False	False	False	
10192	False	False	False	False	False	
10193	False	False	False	False	False	

	Order Date	Order ID	Postal Code	Product Name	Region
Segment \					
0	False	False	False	False	False
False					
1	False	False	False	False	False
False					
2	False	False	False	False	False
False					
3	False	False	False	False	False
False					

4	False	False	False	False	False	False
False						
...
.						
10189	False	False	False	False	False	False
False						
10190	False	False	False	False	False	False
False						
10191	False	False	False	False	False	False
False						
10192	False	False	False	False	False	False
False						
10193	False	False	False	False	False	False
False						
	Ship Date	Ship Mode	State/Province	Sub-Category	Discount	
Profit \						
0	False	False	False	False	False	False
False						
1	False	False	False	False	False	False
False						
2	False	False	False	False	False	False
False						
3	False	False	False	False	False	False
False						
4	False	False	False	False	False	False
False						
...
...						
10189	False	False	False	False	False	False
False						
10190	False	False	False	False	False	False
False						
10191	False	False	False	False	False	False
False						
10192	False	False	False	False	False	False
False						
10193	False	False	False	False	False	False
False						
	Quantity	Sales				
0	False	False				
1	False	False				
2	False	False				
3	False	False				
4	False	False				
...				
10189	False	False				
10190	False	False				

```
10191      False  False
10192      False  False
10193      False  False
```

```
[10194 rows x 19 columns]
```

```
store.isnull().sum()
```

```
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
```

```
store[:]
```

	Category	City	Country/Region	Customer
0	Office Supplies	Houston	United States	Darren Powers
1	Office Supplies	Naperville	United States	Phillina Ober
2	Office Supplies	Naperville	United States	Phillina Ober
3	Office Supplies	Naperville	United States	Phillina Ober
4	Office Supplies	Philadelphia	United States	Mick Brown
...
10189	Office Supplies	New York City	United States	Patrick O'Donnell
10190	Office Supplies	Fairfield	United States	Erica Bern
10191	Office Supplies	Loveland	United States	Jill

Matthias					
10192	Technology	New York City	United States	Patrick	
O'Donnell					
10193	Office Supplies	Charlottetown	Canada	Harry	
Olson					

	Manufacturer	Order Date	Order ID	Postal Code	\
0	Message Book	03-01-2020	US-2020-103800	77015	
1	GBC	04-01-2020	US-2020-112326	60540	
2	Avery	04-01-2020	US-2020-112326	60540	
3	SAFCO	04-01-2020	US-2020-112326	60540	
4	Avery	05-01-2020	US-2020-141817	19143	
...	
10189	Wilson Jones	30-12-2023	US-2023-143259	10009	
10190	GBC	30-12-2023	US-2023-115427	94533	
10191	Other	30-12-2023	US-2023-156720	80538	
10192	Other	30-12-2023	US-2023-143259	10009	
10193	Wilson Jones	30-12-2023	CA-2023-143500	C0A	

	Product Name	Region	\
0	Message Book, Wirebound, Four 5 1/2" X 4" Form...	Central	
1	GBC Standard Plastic Binding Systems Combs	Central	
2	Avery 508	Central	
3	SAFCO Boltless Steel Shelving	Central	
4	Avery Hi-Liter EverBold Pen Style Fluorescent ...	East	
...	
10189	Wilson Jones Legal Size Ring Binders	East	
10190	GBC Binding covers	West	
10191	Bagged Rubber Bands	West	
10192	Gear Head AU3700S Headset	East	
10193	Wilson Jones Impact Binders	East	

	Segment	Ship Date	Ship Mode	
State/Province	\			
0	Consumer	07-01-2020	Standard Class	Texas
1	Home Office	08-01-2020	Standard Class	Illinois
2	Home Office	08-01-2020	Standard Class	Illinois
3	Home Office	08-01-2020	Standard Class	Illinois
4	Consumer	12-01-2020	Standard Class	Pennsylvania
...
10189	Consumer	03-01-2024	Standard Class	New York
10190	Corporate	03-01-2024	Standard Class	California

10191	Consumer	03-01-2024	Standard Class	Colorado
10192	Consumer	03-01-2024	Standard Class	New York
10193	Consumer	03-01-2024	Standard Class	Prince Edward Island

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

[10194 rows x 19 columns]

store[0:0]

Empty DataFrame

Columns: [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]
Index: []

store[0:10]

	Category	City	Country/Region	Customer Name
0	Office Supplies	Houston	United States	Darren Powers
1	Office Supplies	Naperville	United States	Phillina Ober
2	Office Supplies	Naperville	United States	Phillina Ober
3	Office Supplies	Naperville	United States	Phillina Ober
4	Office Supplies	Philadelphia	United States	Mick Brown
5	Furniture	Henderson	United States	Maria Etezadi
6	Office Supplies	Henderson	United States	Maria Etezadi
7	Office Supplies	Athens	United States	Jack O'Briant

8	Office Supplies	Henderson	United States	Maria Etezadi Ibico
9	Office Supplies Alliance	Henderson	United States	Maria Etezadi

	Order Date	Order ID	Postal Code	\
0	03-01-2020	US-2020-103800	77015	
1	04-01-2020	US-2020-112326	60540	
2	04-01-2020	US-2020-112326	60540	
3	04-01-2020	US-2020-112326	60540	
4	05-01-2020	US-2020-141817	19143	
5	06-01-2020	US-2020-167199	42420	
6	06-01-2020	US-2020-167199	42420	
7	06-01-2020	US-2020-106054	30605	
8	06-01-2020	US-2020-167199	42420	
9	06-01-2020	US-2020-167199	42420	

	Product Name	Region
Segment \		
0	Message Book, Wirebound, Four 5 1/2" X 4" Form...	Central
Consumer		
1	GBC Standard Plastic Binding Systems Combs	Central Home
Office		
2	Avery 508	Central Home
Office		
3	SAFCO Boltless Steel Shelving	Central Home
Office		
4	Avery Hi-Liter EverBold Pen Style Fluorescent ...	East
Consumer		
5	Global Deluxe High-Back Manager's Chair	South Home
Office		
6	Rogers Handheld Barrel Pencil Sharpener	South Home
Office		
7	Dixon Prang Watercolor Pencils, 10-Color Set w...	South
Corporate		
8	Ibico Hi-Tech Manual Binding System	South Home
Office		
9	Alliance Super-Size Bands, Assorted Sizes	South Home
Office		

	Ship Date	Ship Mode	State/Province	Sub-Category	Discount
Profit \					
0	07-01-2020	Standard Class	Texas	Paper	0.2
5.5512					
1	08-01-2020	Standard Class	Illinois	Binders	0.8
-5.4870					
2	08-01-2020	Standard Class	Illinois	Labels	0.2
4.2717					
3	08-01-2020	Standard Class	Illinois	Storage	0.2
64.7748					-

4	12-01-2020	Standard Class	Pennsylvania	Art	0.2
4.8840					
5	10-01-2020	Standard Class	Kentucky	Chairs	0.0
746.4078					
6	10-01-2020	Standard Class	Kentucky	Art	0.0
1.4796					
7	07-01-2020	First Class	Georgia	Art	0.0
5.2398					
8	10-01-2020	Standard Class	Kentucky	Binders	0.0
274.4910					
9	10-01-2020	Standard Class	Kentucky	Fasteners	0.0
0.3112					

	Quantity	Sales
0	2	16.448
1	2	3.540
2	3	11.784
3	3	272.736
4	3	19.536
5	9	2573.820
6	2	5.480
7	3	12.780
8	2	609.980
9	4	31.120

store[0:20:5]

	Category	City	Country/Region	Customer Name \
0	Office Supplies	Houston	United States	Darren Powers
5	Furniture	Henderson	United States	Maria Etezadi
10	Office Supplies	Henderson	United States	Maria Etezadi
15	Office Supplies	Huntsville	United States	Vivek Sundaresam

	Manufacturer	Order Date	Order ID	Postal Code \
0	Message Book	03-01-2020	US-2020-103800	77015
5	Global	06-01-2020	US-2020-167199	42420
10	Southworth	06-01-2020	US-2020-167199	42420
15	Acco	07-01-2020	US-2020-105417	77340

	Product Name	Region
Segment \		
0	Message Book, Wirebound, Four 5 1/2" X 4" Form...	Central
Consumer		
5	Global Deluxe High-Back Manager's Chair	South
Office		Home
10	Southworth 25% Cotton Granite Paper & Envelopes	South
Office		Home
15	Acco Four Pocket Poly Ring Binder with Label H...	Central
Consumer		

	Ship Date	Ship Mode	State/Province	Sub-Category	
Discount \					
0	07-01-2020	Standard Class	Texas	Paper	0.2
5	10-01-2020	Standard Class	Kentucky	Chairs	0.0
10	10-01-2020	Standard Class	Kentucky	Paper	0.0
15	12-01-2020	Standard Class	Texas	Binders	0.8

	Profit	Quantity	Sales
0	5.5512	2	16.448
5	746.4078	9	2573.820
10	3.0084	1	6.540
15	-18.2525	7	10.430

store.head()

	Category	City	Country/Region	Customer Name
Manufacturer \				
0	Office Supplies	Houston	United States	Darren Powers
	Message Book			
1	Office Supplies	Naperville	United States	Phillina Ober
	GBC			
2	Office Supplies	Naperville	United States	Phillina Ober
	Avery			
3	Office Supplies	Naperville	United States	Phillina Ober
	SAFCO			
4	Office Supplies	Philadelphia	United States	Mick Brown
	Avery			

	Order Date	Order ID	Postal Code	\
0	03-01-2020	US-2020-103800	77015	
1	04-01-2020	US-2020-112326	60540	
2	04-01-2020	US-2020-112326	60540	
3	04-01-2020	US-2020-112326	60540	
4	05-01-2020	US-2020-141817	19143	

	Product Name	Region
Segment \		
0	Message Book, Wirebound, Four 5 1/2" X 4" Form...	Central
	Consumer	
1	GBC Standard Plastic Binding Systems Combs	Central Home
	Office	
2	Avery 508	Central Home
	Office	
3	SAFCO Boltless Steel Shelving	Central Home
	Office	
4	Avery Hi-Liter EverBold Pen Style Fluorescent ...	East

Consumer

	Ship Date	Ship Mode	State/Province	Sub-Category	Discount	Profit \
0	07-01-2020	Standard Class	Texas	Paper	0.2	5.5512
1	08-01-2020	Standard Class	Illinois	Binders	0.8	5.4870 -
2	08-01-2020	Standard Class	Illinois	Labels	0.2	4.2717
3	08-01-2020	Standard Class	Illinois	Storage	0.2	64.7748 -
4	12-01-2020	Standard Class	Pennsylvania	Art	0.2	4.8840

	Quantity	Sales
0	2	16.448
1	2	3.540
2	3	11.784
3	3	272.736
4	3	19.536

store.head(3)

	Category	City	Country/Region	Customer Name	
0	Office Supplies	Houston	United States	Darren Powers	Message Book
1	Office Supplies	Naperville	United States	Phillina Ober	GBC
2	Office Supplies	Naperville	United States	Phillina Ober	Avery

	Order Date	Order ID	Postal Code \
0	03-01-2020	US-2020-103800	77015
1	04-01-2020	US-2020-112326	60540
2	04-01-2020	US-2020-112326	60540

	Product Name	Region
Segment \		
0	Message Book, Wirebound, Four 5 1/2" X 4" Form...	Central
Consumer		
1	GBC Standard Plastic Binding Systems Combs	Central Home
Office		
2	Avery 508	Central Home
Office		

	Ship Date	Ship Mode	State/Province	Sub-Category	Discount	Profit \
0	07-01-2020	Standard Class	Texas	Paper	0.2	

```

5.5512
1 08-01-2020 Standard Class Illinois Binders 0.8 -
5.4870
2 08-01-2020 Standard Class Illinois Labels 0.2
4.2717

```

```

Quantity Sales
0 2 16.448
1 2 3.540
2 3 11.784

```

```
store.tail()
```

```

Category City Country/Region Customer
Name \
10189 Office Supplies New York City United States Patrick
O'Donnell
10190 Office Supplies Fairfield United States Erica
Bern
10191 Office Supplies Loveland United States Jill
Matthias
10192 Technology New York City United States Patrick
O'Donnell
10193 Office Supplies Charlottetown Canada Harry
Olson

```

```

Manufacturer Order Date Order ID Postal Code \
10189 Wilson Jones 30-12-2023 US-2023-143259 10009
10190 GBC 30-12-2023 US-2023-115427 94533
10191 Other 30-12-2023 US-2023-156720 80538
10192 Other 30-12-2023 US-2023-143259 10009
10193 Wilson Jones 30-12-2023 CA-2023-143500 C0A

```

```

Product Name Region Segment Ship
Date \
10189 Wilson Jones Legal Size Ring Binders East Consumer 03-01-
2024
10190 GBC Binding covers West Corporate 03-01-
2024
10191 Bagged Rubber Bands West Consumer 03-01-
2024
10192 Gear Head AU3700S Headset East Consumer 03-01-
2024
10193 Wilson Jones Impact Binders East Consumer 03-01-
2024

```

```

Ship Mode State/Province Sub-Category Discount
Profit \
10189 Standard Class New York Binders 0.2
19.7910

```

10190	Standard Class	California	Binders	0.2	
6.4750					
10191	Standard Class	Colorado	Fasteners	0.2	-
0.6048					
10192	Standard Class	New York	Phones	0.0	
2.7279					
10193	Standard Class	Prince Edward Island	Binders	0.2	-
0.6048					

	Quantity	Sales
10189	3	52.776
10190	2	20.720
10191	3	3.024
10192	7	90.930
10193	3	3.024

store.isna()

	Category	City	Country/Region	Customer Name	Manufacturer	\
0	False	False	False	False	False	
1	False	False	False	False	False	
2	False	False	False	False	False	
3	False	False	False	False	False	
4	False	False	False	False	False	
...	
10189	False	False	False	False	False	
10190	False	False	False	False	False	
10191	False	False	False	False	False	
10192	False	False	False	False	False	
10193	False	False	False	False	False	

	Order Date	Order ID	Postal Code	Product Name	Region
Segment \					
0	False	False	False	False	False
False					
1	False	False	False	False	False
False					
2	False	False	False	False	False
False					
3	False	False	False	False	False
False					
4	False	False	False	False	False
False					
...
.					
10189	False	False	False	False	False
False					
10190	False	False	False	False	False
False					
10191	False	False	False	False	False

False						
10192	False	False	False	False	False	False
False						
10193	False	False	False	False	False	False
False						
	Ship Date	Ship Mode	State/Province	Sub-Category	Discount	
Profit \						
0	False	False	False	False	False	False
False						
1	False	False	False	False	False	False
False						
2	False	False	False	False	False	False
False						
3	False	False	False	False	False	False
False						
4	False	False	False	False	False	False
False						
...
...						
10189	False	False	False	False	False	False
False						
10190	False	False	False	False	False	False
False						
10191	False	False	False	False	False	False
False						
10192	False	False	False	False	False	False
False						
10193	False	False	False	False	False	False
False						

	Quantity	Sales
0	False	False
1	False	False
2	False	False
3	False	False
4	False	False
...
10189	False	False
10190	False	False
10191	False	False
10192	False	False
10193	False	False

[10194 rows x 19 columns]

Introudce statistical concept in pandas ==>

store.describe()

	Discount	Profit	Quantity	Sales
count	10194.000000	10194.000000	10194.000000	10194.000000
mean	0.155385	28.673417	3.791838	228.225854
std	0.206249	232.465115	2.228317	619.906839
min	0.000000	-6599.978000	1.000000	0.444000
25%	0.000000	1.760800	2.000000	17.220000
50%	0.200000	8.690000	3.000000	53.910000
75%	0.200000	29.297925	5.000000	209.500000
max	0.800000	8399.976000	14.000000	22638.480000