

✓ Seatwork 6.1

```
filepath = '/content/nike_shoes_sales.csv'
```

```
import pandas as pd
import numpy as np
```

```
data = pd.read_csv(filepath)
```

```
data
```

	product_name	product_id	listing_price	sale_price	discount	brand	description	rating	reviews
0	Nike Air Force 1 '07 Essential	CJ1646-600	0	7495	0	Nike	Let your shoe game shimmer in the Nike Air For...	0.0	0 ["https://static.nike.com/a/images/t_PD
1	Nike Air Force 1 '07	CT4328-101	0	7495	0	Nike	The legend lives on in the Nike Air Force 1 '0...	0.0	0 ["https://static.nike.com/a/images/t_PD
2	Nike Air Force 1 Sage Low LX	CI3482-200	0	9995	0	Nike	Taking both height and craft to new levels, th...	0.0	0 ["https://static.nike.com/a/images/t_PD
3	Nike Air Max Dia SE	CD0479-200	0	9995	0	Nike	Designed for a woman's foot, the Nike Air Max ...	0.0	0 ["https://static.nike.com/a/images/t_PD
4	Nike Air Max Verona	CZ6156-101	0	9995	0	Nike	Pass on the good vibes in the Nike Air Max Ver...	0.0	0 ["https://static.nike.com/a/images/t_PD

```
#The listed columns of the data set
data.columns
```

```
Index(['product_name', 'product_id', 'listing_price', 'sale_price', 'discount',
      'brand', 'description', 'rating', 'reviews', 'images'],
      dtype='object')
```

```
#The data type of each column
data.dtypes
```

```
product_name    object
product_id      object
listing_price    int64
sale_price      int64
discount        int64
brand           object
description      object
rating          float64
reviews         int64
images          object
dtype: object
```

```
#Total of the shoe model or the product name of nike shoes in the data set
len(data)
```

```
643
```

```
#displays the firts 5 of the datasets
data.head()
```

	product_name	product_id	listing_price	sale_price	discount	brand	description	rating	reviews
0	Nike Air Force 1 '07 Essential	CJ1646-600	0	7495	0	Nike	Let your shoe game shimmer in the Nike Air For...	0.0	0 ["https://static.nike.com/a/images/t_PDP_
1	Nike Air Force 1 '07	CT4328-101	0	7495	0	Nike	The legend lives on in the Nike Air	0.0	0 ["https://static.nike.com/a/images/t_PDP_

```
# Displays the First 20 data
data.head(20)
```

	product_name	product_id	listing_price	sale_price		description	rating	reviews
0	Nike Air Force 1 '07 Essential	CJ1646-600	0	7495		Let your shoe game shimmer in the Nike Air For...	0.0	0
1	Nike Air Force 1 '07	CT4328-101	0	7495		The legend lives on in the Nike Air Force 1 '0...	0.0	0
2	Nike Air Force 1 Sage Low LX	CI3482-200	0	9995		Taking both height and craft to new levels, th...	0.0	0
3	Nike Air Max Dia SE	CD0479-200	0	9995		Designed for a woman's foot, the Nike Air Max ...	0.0	0
4	Nike Air Max Verona	CZ6156-101	0	9995		Pass on the good vibes in the Nike Air Max Ver...	0.0	0
5	Nike Free Metcon 3	CJ6314-146	0	9995		The Nike Free Metcon 3 combines the flexibilit...	0.0	0
6	NikeCourt Blanc	CI0808-100	0	5995		Inspired by heritage models, the NikeCourt Bla...	0.0	0
7	Nike Free Metcon 3	CJ0861-017	0	9995		The Nike Free Metcon 3 combines Nike Free flex...	5.0	1
8	Nike Zoom Pegasus Turbo 2	AT8242-009	0	15995		The Nike Zoom Pegasus Turbo 2 is updated with ...	2.7	14
9	Nike Air Max 270 React ENG	CK2595-500	0	14995		The Nike Air Max 270 React ENG combines a full...	5.0	2
10	Nike Air Max 90	CD0490-104	0	9995		Clean lines, versatile and timeless—the people...	5.0	9
11	Nike Air Force 1 '07	315115-112	0	7495		The radiance lives on in the Nike Air Force 1 ...	4.5	67
12	Jordan Air Max 200 XX	AV5186-101	0	10495		With design inspiration taken from the iconic ...	0.0	0
13	Nike SuperRep Go	CJ0860-668	0	7995		The Nike SuperRep Go combines comfortable foam...	0.0	0
14	Nike Air VaporMax Flyknit 3	AJ6910-009	0	16995		Be bouncy and buoyant in the Nike Air VaporMax...	4.4	48
15	Nike Air Zoom SuperRep	BQ7043-668	0	9995		The Nike Air Zoom SuperRep is designed for cir...	4.4	34
16	Nike Air Max 270 React ENG	CK2608-100	0	14995		Refresh your step in the Nike Air Max 270 Reac...	0.0	0
17	Nike Air Max 97	921733-104	0	16995		The Nike Air Max 97 keeps a sneaker icon going	4.3	16

Next steps: [View recommended plots](#)

```
#displays the last 5 of the dataset
data.tail()
```

	product_name	product_id	listing_price	sale_price	discount	brand	description	rating	reviews
638	Air Jordan 8 Retro	CI1236-100	15995	12797	0	Nike	The Air Jordan 8 Retro recaptures the memorabl...	5.0	1 ["https://static.nike.com/a/images/t_PD
639	Nike Phantom Venom Club IC	AO0578-717	4995	3497	0	Nike	The Nike Phantom Venom Club IC is engineered	0.0	0

```
# Displays the last 20 data
data.tail(20)
```

	product_name	product_id	listing_price	sale_price	description	rating	reviews	
623	Nike Zoom Pegasus Turbo XX	AR4347-600	16995	13597	Bridging performance and style, the Nike Zoom ...	1.0	1	
624	Nike React Metcon	BQ6044-100	0	12995	The Nike React Metcon takes the stability and ...	3.9	10	
625	Nike Air Max 200	CI3867-001	0	9995	Inspired by energy patterns radiating from Ear...	0.0	0	
626	Nike Phantom Venom Academy IC	AO0570-810	7495	5247	The Nike Phantom Venom Academy IC is engineere...	0.0	0	
627	Nike Phantom Vision Academy Dynamic Fit IC	AO3267-080	8495	6797	The Nike Phantom Vision Academy Dynamic Fit IC...	0.0	0	
628	Air Jordan 1 Jester XX Low Laced SE	CQ0278-200	8995	7197	Lighten up, have some fun, and sweat nothing e...	0.0	0	
629	Nike Mercurial Vapor 13 Club MG	AT7968-606	0	4995	The Nike Mercurial Vapor 13 Club MG wraps your...	0.0	0	
630	Nike Zoom Pegasus Turbo 2 Special Edition	BV7757-500	15995	12797	The Nike Zoom Pegasus Turbo 2 is updated with ...	5.0	1	
631	Nike Metcon 5 AMP	CN5455-160	0	11995	The Nike Metcon 5 AMP arms you with stability ...	4.5	2	
632	Air Jordan 5 Retro	CD2722-001	0	15995	The Air Jordan 5 Retro for women gives a colou...	3.3	3	
633	Nike ZoomX Vaporfly NEXT%	AO4568-600	0	19995	The Nike ZoomX Vaporfly NEXT% clears your path...	4.7	45	
634	Nike Mercurial Vapor 13 Academy IC	AT7993-414	7495	5247	The soft upper of the Nike Mercurial Vapor 13 ...	0.0	0	
635	Nike Tiempo Legend 8 Academy TF	AT6100-606	0	6495	The Nike Tiempo Legend 8 Academy TF takes the ...	0.0	0	

```
#dropping a data column
data.drop(['discount'], axis = 1, inplace =True)
#shows error because the code ran twice, and the datas are already dropped
```

data

	product_name	product_id	listing_price	sale_price	brand	description	rating	reviews	images
0	Nike Air Force 1 '07 Essential	CJ1646-600	0	7495	Nike	Let your shoe game shimmer in the Nike Air For...	0.0	0	["https://static.nike.com/a/images/t_PDP_1728_...
1	Nike Air Force 1 '07	CT4328-101	0	7495	Nike	The legend lives on in the Nike Air Force 1 '0...	0.0	0	["https://static.nike.com/a/images/t_PDP_1728_...
2	Nike Air Force 1 Sage Low LX	CI3482-200	0	9995	Nike	Taking both height and craft to new levels, th...	0.0	0	["https://static.nike.com/a/images/t_PDP_1728_...
3	Nike Air Max Dia SE	CD0479-200	0	9995	Nike	Designed for a woman's foot, the Nike Air Max ...	0.0	0	["https://static.nike.com/a/images/t_PDP_1728_...
						Pass on the			

```
#dropping multiple data columns
data.drop(['brand','images'], axis = 1, inplace = True)
#shows error because the code ran twice, and the datas are already dropped
```

data

	product_name	product_id	listing_price	sale_price	description	rating	reviews
0	Nike Air Force 1 '07 Essential	CJ1646-600	0	7495	Let your shoe game shimmer in the Nike Air For...	0.0	0
1	Nike Air Force 1 '07	CT4328-101	0	7495	The legend lives on in the Nike Air Force 1 '0...	0.0	0
2	Nike Air Force 1 Sage Low LX	CI3482-200	0	9995	Taking both height and craft to new levels, th...	0.0	0
3	Nike Air Max Dia SE	CD0479-200	0	9995	Designed for a woman's foot, the Nike Air Max ...	0.0	0
4	Nike Air Max Verona	CZ6156-101	0	9995	Pass on the good vibes in the Nike Air Max Ver...	0.0	0
...
638	Air Jordan 8 Retro	CI1236-100	15995	12797	The Air Jordan 8 Retro recaptures the memorabl...	5.0	1
639	Nike Phantom Venom Club IC	AO0578-717	4995	3497	The Nike Phantom Venom Club IC is engineered f...	0.0	0
640	Nike Mercurial Superfly 7 Academy TF	AT7978-414	8495	5947	The soft upper of the Nike Mercurial Superfly ...	5.0	1
641	Nike Air Max 98	AH6799-300	0	16995	The Nike Air Max 98 features the OG design lin...	4.0	4

```
#Printing the first 2 and last 2 datas of the dataset
small_data = pd.concat([data.iloc[:2], data.iloc[-2:]])
small_data
```

	product_name	product_id	listing_price	sale_price	description	rating	reviews
0	Nike Air Force 1 '07 Essential	CJ1646-600	0	7495	Let your shoe game shimmer in the Nike Air For...	0.0	0
1	Nike Air Force 1 '07	CT4328-101	0	7495	The legend lives on in the Nike Air Force 1 '0...	0.0	0
641	Nike Air Max 98	AH6799-300	0	16995	The Nike Air Max 98 features the OG design lin...	4.0	4
642	Nike P-6000 SE	CJ9585-600	8995	6297	A mash-up of Pegasus' past, the Nike P-6000 SE...	0.0	0

```
#The mean of the dataset
data.mean()
```

```
<ipython-input-42-1f82bbebc172>:2: FutureWarning: The default value of numeric_only in DataFrame.mean is deprecated. In a future versio
  data.mean()
listing_price    3875.762053
sale_price      10213.676516
rating           2.734837
reviews          7.181960
dtype: float64
```

```
#The median of the dataset
data.median()
```

```
<ipython-input-46-0c820d1115bf>:2: FutureWarning: The default value of numeric_only in DataFrame.median is deprecated. In a future vers
  data.median()
listing_price     0.0
sale_price       9597.0
rating           3.8
reviews          1.0
dtype: float64
```

```
#The mode of the dataset
data.mode()
```

	product_name	product_id	listing_price	sale_price	description	rating	reviews
0	Nike Air Max 90	CD6720-808	0	9995	The Nike Metcon 5 AMP arms you with stability ...	0.0	0

```
#Overall result of the dataset
data.describe()
```

	listing_price	sale_price	rating	reviews
count	643.000000	643.000000	643.000000	643.000000
mean	3875.762053	10213.676516	2.734837	7.181960
std	5889.947172	4513.289512	2.137756	15.968315
min	0.000000	1595.000000	0.000000	0.000000
25%	0.000000	6995.000000	0.000000	0.000000
50%	0.000000	9597.000000	3.800000	1.000000
75%	8495.000000	12797.000000	4.600000	6.000000
max	19995.000000	36500.000000	5.000000	223.000000



data

	product_name	product_id	listing_price	sale_price	description	rating	reviews
0	Nike Air Force 1 '07 Essential	CJ1646-600	0	7495	Let your shoe game shimmer in the Nike Air For...	0.0	0
1	Nike Air Force 1 '07	CT4328-101	0	7495	The legend lives on in the Nike Air Force 1 '0...	0.0	0
2	Nike Air Force 1 Sage Low LX	CI3482-200	0	9995	Taking both height and craft to new levels, th...	0.0	0
3	Nike Air Max Dia SE	CD0479-200	0	9995	Designed for a woman's foot, the Nike Air Max ...	0.0	0
4	Nike Air Max Verona	CZ6156-101	0	9995	Pass on the good vibes in the Nike Air Max Ver...	0.0	0
...
638	Air Jordan 8 Retro	CI1236-100	15995	12797	The Air Jordan 8 Retro recaptures the memorabl...	5.0	1
639	Nike Phantom Venom Club IC	AO0578-717	4995	3497	The Nike Phantom Venom Club IC is engineered f...	0.0	0
640	Nike Mercurial Superfly 7 Academy TF	AT7978-414	8495	5947	The soft upper of the Nike Mercurial Superfly ...	5.0	1
641	Nike Air Max 98	AH8790-300	0	16095	The Nike Air Max 98 features the OG design lin...	4.0	4

```
#Adding a new column named Review Checker which shows if the products has a review
data['Review Checker'] = np.where(data['reviews'] == 0, 'No Reviews', 'With Reviews')
data
```

	product_name	product_id	listing_price	sale_price	description	rating	reviews	Review Checker
0	Nike Air Force 1 '07 Essential	CJ1646-600	0	7495	Let your shoe game shimmer in the Nike Air For...	0.0	0	No Reviews
1	Nike Air Force 1 '07	CT4328-101	0	7495	The legend lives on in the Nike Air Force 1 '0...	0.0	0	No Reviews
2	Nike Air Force 1 Sage Low LX	CI3482-200	0	9995	Taking both height and craft to new levels, th...	0.0	0	No Reviews
3	Nike Air Max Dia SE	CD0479-200	0	9995	Designed for a woman's foot, the Nike Air Max ...	0.0	0	No Reviews
4	Nike Air Max Verona	CZ6156-101	0	9995	Pass on the good vibes in the Nike Air Max Ver...	0.0	0	No Reviews
...
638	Air Jordan 8 Retro	CI1236-100	15995	12797	The Air Jordan 8 Retro recaptures the memorabl...	5.0	1	With Reviews
639	Nike Phantom Venom Club IC	AO0578-717	4995	3497	The Nike Phantom Venom Club IC is engineered f...	0.0	0	No Reviews



```
#Creating a new DataFrame with important datas
basic_data = pd.DataFrame(data, columns=['product_name', 'product_id',
                                         'sale_price', 'rating', 'reviews'])
basic_data
```

	product_name	product_id	sale_price	rating	reviews	
0	Nike Air Force 1 '07 Essential	CJ1646-600	7495	0.0	0	
1	Nike Air Force 1 '07	CT4328-101	7495	0.0	0	
2	Nike Air Force 1 Sage Low LX	CI3482-200	9995	0.0	0	
3	Nike Air Max Dia SE	CD0479-200	9995	0.0	0	
4	Nike Air Max Verona	CZ6156-101	9995	0.0	0	
...	
638	Air Jordan 8 Retro	CI1236-100	12797	5.0	1	
639	Nike Phantom Venom Club IC	AO0578-717	3497	0.0	0	
640	Nike Mercurial Superfly 7 Academy TF	AT7978-414	5947	5.0	1	
641	Nike Air Max 98	AH6799-300	16995	4.0	4	
642	Nike P-6000 SE	CJ9585-600	6297	0.0	0	

643 rows × 5 columns

Next steps: [View recommended plots](#)

```
#Creating a new Column named Review Checker that shows if the shoes has a Review
basic_data['Review Checker'] = np.where(basic_data['reviews'] == 0,
                                         'No Reviews', 'With Reviews')
basic_data
```

	product_name	product_id	sale_price	rating	reviews	Review Checker	
0	Nike Air Force 1 '07 Essential	CJ1646-600	7495	0.0	0	No Reviews	
1	Nike Air Force 1 '07	CT4328-101	7495	0.0	0	No Reviews	
2	Nike Air Force 1 Sage Low LX	CI3482-200	9995	0.0	0	No Reviews	
3	Nike Air Max Dia SE	CD0479-200	9995	0.0	0	No Reviews	
4	Nike Air Max Verona	CZ6156-101	9995	0.0	0	No Reviews	
...	
638	Air Jordan 8 Retro	CI1236-100	12797	5.0	1	With Reviews	
639	Nike Phantom Venom Club IC	AO0578-717	3497	0.0	0	No Reviews	
640	Nike Mercurial Superfly 7 Academy TF	AT7978-414	5947	5.0	1	With Reviews	
641	Nike Air Max 98	AH6799-300	16995	4.0	4	With Reviews	
642	Nike P-6000 SE	CJ9585-600	6297	0.0	0	No Reviews	

643 rows × 6 columns

Next steps: [View recommended plots](#)

```
#Prints all the data that has a Review
with_reviews = basic_data.loc[basic_data['Review Checker'] == 'With Reviews']
with_reviews
```

	product_name	product_id	sale_price	rating	reviews	Review Checker	
7	Nike Free Metcon 3	CJ0861-017	9995	5.0	1	With Reviews	
8	Nike Zoom Pegasus Turbo 2	AT8242-009	15995	2.7	14	With Reviews	
9	Nike Air Max 270 React ENG	CK2595-500	14995	5.0	2	With Reviews	
10	Nike Air Max 90	CD0490-104	9995	5.0	9	With Reviews	
11	Nike Air Force 1 '07	315115-112	7495	4.5	67	With Reviews	
...	
636	Kyrie 6 'Enlightenment'	BQ4630-500	8797	4.4	10	With Reviews	
637	Nike React Metcon AMP	CT9155-063	13995	3.0	1	With Reviews	
638	Air Jordan 8 Retro	CI1236-100	12797	5.0	1	With Reviews	
640	Nike Mercurial Superfly 7 Academy TF	AT7978-414	5947	5.0	1	With Reviews	
641	Nike Air Max 98	AH6799-300	16995	4.0	4	With Reviews	

414 rows × 6 columns

Next steps: [View recommended plots](#)

```
#Prints all the data that has no Reviews
without_reviews = basic_data.loc[basic_data['Review Checker'] == 'No Reviews']
without_reviews
```

	product_name	product_id	sale_price	rating	reviews	Review Checker	
0	Nike Air Force 1 '07 Essential	CJ1646-600	7495	0.0	0	No Reviews	
1	Nike Air Force 1 '07	CT4328-101	7495	0.0	0	No Reviews	
2	Nike Air Force 1 Sage Low LX	CI3482-200	9995	0.0	0	No Reviews	
3	Nike Air Max Dia SE	CD0479-200	9995	0.0	0	No Reviews	
4	Nike Air Max Verona	CZ6156-101	9995	0.0	0	No Reviews	
...	
629	Nike Mercurial Vapor 13 Club MG	AT7968-606	4995	0.0	0	No Reviews	
634	Nike Mercurial Vapor 13 Academy IC	AT7993-414	5247	0.0	0	No Reviews	
635	Nike Tiempo Legend 8 Academy TF	AT6100-606	6495	0.0	0	No Reviews	
639	Nike Phantom Venom Club IC	AO0578-717	3497	0.0	0	No Reviews	
642	Nike P-6000 SE	CJ9585-600	6297	0.0	0	No Reviews	

229 rows × 6 columns

Next steps: [View recommended plots](#)

```
#Prints the mean of the sale price of the shoe models
np.mean(basic_data['sale_price'])
```

10213.676516329704

```
# Shows the total number of shoes that has a review
num_of_with = len(basic_data[basic_data['Review Checker'] == "With Reviews"])

print('Number of Shoes that has Reviews:', num_of_with)
```

Number of Shoes that has Reviews: 414

```
# Shows the total number of shoes that has no review
num_of_without = len(basic_data[basic_data['Review Checker'] == "No Reviews"])

print('Number of Shoes that has no Reviews:', num_of_without)
```

Number of Shoes that has no Reviews: 229

```
# Shows the shoe with the Highest Price
max_sale_price_index = np.argmax(basic_data['sale_price'])
max_sale_price_row = basic_data.loc[max_sale_price_index]
```

```
print("Nike Shoe with the Highest Sale Price:")
print(max_sale_price_row)
```

```
Nike Shoe with the Highest Sale Price:
product_name    Nike Air VaporMax Flyknit 2 LXX
product_id      AT5673-700
sale_price      36500
rating          0.0
reviews         0
Review Checker          No Reviews
Name: 523, dtype: object
```

```
# Shows the Shoe with the Lowest Price
min_sale_price_index = np.argmin(basic_data['sale_price'])
min_sale_price_row = basic_data.loc[min_sale_price_index]
```

```
print("\nNike Shoe with the Lowest Sale Price:")
print(min_sale_price_row)
```

```
Nike Shoe with the Lowest Sale Price:
product_name    Nike Kawa Shower
product_id      832528-001
sale_price      1595
rating          4.5
reviews         6
Review Checker          With Reviews
Name: 154, dtype: object
```

```
# Shows the shoe with the Highest Ratings
max_rating_index = np.argmax(basic_data['rating'])
max_rating_row = basic_data.loc[max_rating_index]
```

```
print("Nike Shoe with the Highest Rating:")
print(max_rating_row)
```

```
Nike Shoe with the Highest Rating:
product_name    Nike Free Metcon 3
product_id      CJ0861-017
sale_price      9995
rating          5.0
reviews         1
Review Checker          With Reviews
Name: 7, dtype: object
```

```
# Shows the shoe with the Lowest Rating
min_rating_index = np.argmin(basic_data['rating'])
min_rating_row = basic_data.loc[min_rating_index]
```

```
print("Nike Shoe with the Lowest Rating:")
print(min_rating_row)
```

```
Nike Shoe with the Lowest Rating:
product_name    Nike Air Force 1 '07 Essential
product_id      CJ1646-600
sale_price      7495
rating          0.0
reviews         0
Review Checker          No Reviews
Name: 0, dtype: object
```

```
# Shows the mean of the sale_price, rating, and reviews
mean_sale_price = basic_data['sale_price'].mean()
mean_rating = basic_data['rating'].mean()
mean_reviews = basic_data['reviews'].mean()
```

```
print(f"Average of Sale Price: {mean_sale_price}")
print(f"Average of Rating: {mean_rating}")
print(f"Average of Reviews: {mean_reviews}")
```

```
Average of Sale Price: 10213.676516329704
Average of Rating: 2.734836702954899
Average of Reviews: 7.181959564541213
```



```
# Shows the median of the sale_price, rating, and reviews
median_sale_price = basic_data['sale_price'].median()
median_rating = basic_data['rating'].median()
median_reviews = basic_data['reviews'].median()

print(f"Median of Sale Price: {median_sale_price}")
print(f"Median of Rating: {median_rating}")
print(f"Median of Reviews: {median_reviews}")
```

```
Median of Sale Price: 9597.0
Median of Rating: 3.8
Median of Reviews: 1.0
```