

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
In [2]: df=pd.read_csv('amazon.csv')
```

```
In [3]: df
```

		product_id	product_name	category	discounted_price	actual_price	discount_percentage	rating	rating_count	about_product	
	0	B07JW9H4J1	Wayona Nylon Braided USB to Lightning Fast Cha...	Computers&Accessories Accessories&Peripherals ...	₹399	₹1,099	64%	4.2	24,269	High Compatibility : Compatible With iPhone 12...	AG3D604STAQKAY2UVGEUV46KN35Q,AHMY5CJWJMMI
	1	B098NS6PVG	Ambrane Unbreakable 60W / 3A Fast Charging 1.5...	Computers&Accessories Accessories&Peripherals ...	₹199	₹349	43%	4.0	43,994	Compatible with all Type C enabled devices, be...	AECPFYFQVRUWC3KGNLJIOREFP5LQ,AGYYVPDD7YC
	2	B096MSW6CT	Source Fast Phone Charging Cable & Data Sync U...	Computers&Accessories Accessories&Peripherals ...	₹199	₹1,899	90%	3.9	7,928	[Fast Charger& Data Sync] -With built-in safet...	AGU3BBQ2V2DDAMOAKGFAWDDQ6QHA,AESFLDV2PT
	3	B08HDJ86NZ	boAt Deuce USB 300 2 in 1 Type-C & Micro USB S...	Computers&Accessories Accessories&Peripherals ...	₹329	₹699	53%	4.2	94,363	The boAt Deuce USB 300 2 in 1 cable is compati...	AEWAZDZZJLQUYVOVGBEUKSLXHQ5A,AG5HTSFRREI
	4	B08CF3B7N1	Portronics Connect L 1.2M Fast Charging 3A 8 P...	Computers&Accessories Accessories&Peripherals ...	₹154	₹399	61%	4.2	16,905	[CHARGE & SYNC FUNCTION]- This cable comes wit...	AE3Q6KSUK5P75D5HFYHCRAOLODSA,AFUGIFH5ZAF
...
1460	B08L73JT31	Noir Aqua - 5pcs PP Spun Filter + 1 Spanner ...	Home&Kitchen Kitchen&HomeAppliances WaterPurif...		₹379	₹919	59%	4	1,090	SUPREME QUALITY 90 GRAM 3 LAYER THIK PP SPUN F...	AHITFY6AHALOFHOHOZEOC6XBP4FEA,AFRABBDZJZ
1461	B01M6453MB	Prestige Delight PRWO Electric Rice Cooker (1 ...	Home&Kitchen Kitchen&HomeAppliances SmallKitch...		₹2,280	₹3,045	25%	4.1	4,118	230 Volts, 400 watts, 1 Year	AFG5FM3NEMOL6BNFRV2NK5FNJCHQ,AGEINTRN6ZF
1462	B009P2LIL4	Bajaj Majesty RX10 2000 Watts Heat Convector R...	Home&Kitchen Heating,Cooling&AirQuality RoomHe...		₹2,219	₹3,080	28%	3.6	468	International design and styling Two heat sett...	AGVPWCMAHYQWJOQKMUNJ4DW3KM5Q,AF4Q3E66MY4
1463	B00J5DYCCA	Havells Ventil Air DSP 230mm Exhaust Fan (Pist...	Home&Kitchen Heating,Cooling&AirQuality Fans E...		₹1,399	₹1,890	26%	4	8,031	Fan sweep area: 230 MM ; Noise level: (40 -45...	AF2JQCLSCY3QJATWUNNHUSVUPNQQ,AFDMLUXC5L
1464	B01486F4G6	Borosil Jumbo 1000-Watt Grill Sandwich Maker (...	Home&Kitchen Kitchen&HomeAppliances SmallKitch...		₹2,863	₹3,690	22%	4.3	6,987	Brand-Borosil, Specification â€“ 23V – 5Hz;1 W...	AFGW5PT3R6ZAVQR4Y5MMWAKBZAYA,AG7QNJ2SCS

1465 rows × 16 columns

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In [4]: df.describe()
```

	product_id	product_name	category	discounted_price	actual_price	discount_percentage	rating	rating_count	about_product	user
count	1465	1465	1465	1465	1465	1465	1465	1463	1465	1465
unique	1351	1337	211	550	449	92	28	1143	1293	1465
top	B07JW9H4J1	Fire-Bolt Ninja Call Pro Plus 1.83" Smart Wat...	Computers&Accessories Accessories&Peripherals ...	₹199	₹999	50%	4.1	9,378	[CHARGE & SYNC FUNCTION]- This cable comes wit...	AHIKJUDTVJ4T6DV6IUGIFYZ5LXMPA,AE55KTFVNXFYF5FP
freq	3	5	233	53	120	56	244	9	6	

```
In [5]: df.all()
```

product_id	True
product_name	True
category	True
discounted_price	True
actual_price	True
discount_percentage	True
rating	True
rating_count	True
about_product	True
user_id	True
user_name	True
review_id	True
review_title	True
review_content	True
img_link	True
product_link	True
dtype:	bool

```
In [6]: df.duplicated()
```

0	False
1	False
2	False
3	False
4	False
...	...
1460	False
1461	False
1462	False
1463	False
1464	False
Length:	1465, dtype: bool

```
In [7]: df.drop_duplicates()
```

	product_id	product_name	category	discounted_price	actual_price	discount_percentage	rating	rating_count	about_product	
0	B07JW9H4J1	Wayona Nylon Braided USB to Lightning Fast Cha...	Computers&Accessories Accessories&Peripherals ...	₹399	₹1,099	64%	4.2	24,269	High Compatibility : Compatible With iPhone 12...	AG3D604STAQKAY2UVGEUV46KN35Q,AHMY5CJWJMMI
1	B098NS6PVG	Ambrane Unbreakable 60W / 3A Fast Charging 1.5...	Computers&Accessories Accessories&Peripherals ...	₹199	₹349	43%	4.0	43,994	Compatible with all Type C enabled devices, be...	AECPFYFQVRUWC3KGNLJIOREFP5LQ,AGYYVPDD7YC
2	B096MSW6CT	Source Fast Phone Charging Cable & Data Sync U...	Computers&Accessories Accessories&Peripherals ...	₹199	₹1,899	90%	3.9	7,928	[Fast Charger& Data Sync] -With built-in safet...	AGU3BBQ2V2DDAMOAKGFAWDDQ6QHA,AESFLDV2PT
3	B08HDJ86NZ	boAt Deuce USB 300 2 in 1 Type-C & Micro USB S...	Computers&Accessories Accessories&Peripherals ...	₹329	₹699	53%	4.2	94,363	The boAt Deuce USB 300 2 in 1 cable is compati...	AEWAZDZZJLQUYVOVGBEUKSLXHQ5A,AG5HTSFRREI
4	B08CF3B7N1	Portronics Connect L 1.2M Fast Charging 3A 8 P...	Computers&Accessories Accessories&Peripherals ...	₹154	₹399	61%	4.2	16,905	[CHARGE & SYNC FUNCTION]- This cable comes wit...	AE3Q6KSUK5P75D5HFYHCRAOLODSA,AFUGIFH5ZAF
...
1460	B08L73JT31	Noir Aqua - 5pcs PP Spun Filter + 1 Spanner ...	Home&Kitchen Kitchen&HomeAppliances WaterPurif...	₹379	₹919	59%	4	1,090	SUPREME QUALITY 90 GRAM 3 LAYER THIK PP SPUN F...	AHITFY6AHALOFHOHOZEOC6XBP4FEA,AFRABBDZJZ
1461	B01M6453MB	Prestige Delight PRWO Electric Rice Cooker (1 ...	Home&Kitchen Kitchen&HomeAppliances SmallKitch...	₹2,280	₹3,045	25%	4.1	4,118	230 Volts, 400 watts, 1 Year	AFG5FM3NEMOL6BNFRV2NK5FNJCHQ,AGEINTRN6ZF
1462	B009P2LIL4	Bajaj Majesty RX10 2000 Watts Heat Convector R...	Home&Kitchen Heating,Cooling&AirQuality RoomHe...	₹2,219	₹3,080	28%	3.6	468	International design and styling Two heat sett...	AGVPWCMAHYQWJOQKMUNJ4DW3KM5Q,AF4Q3E66MY4
1463	B00J5DYCCA	Havells Ventil Air DSP 230mm Exhaust Fan (Pist...	Home&Kitchen Heating,Cooling&AirQuality Fans E...	₹1,399	₹1,890	26%	4	8,031	Fan sweep area: 230 MM ; Noise level: (40 -45...	AF2JQCLSCY3QJATWUNNHUSVUPNQQ,AFDMLUXC5L
1464	B01486F4G6	Borosil Jumbo 1000-Watt Grill Sandwich Maker (...	Home&Kitchen Kitchen&HomeAppliances SmallKitch...	₹2,863	₹3,690	22%	4.3	6,987	Brand-Borosil, Specification â€“ 23V – 5Hz;1 W...	AFGW5PT3R6ZAVQR4Y5MMWAKBZAYA,AG7QNJ2SCS

1465 rows × 16 columns

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In [8]: df.isnull()
```

	product_id	product_name	category	discounted_price	actual_price	discount_percentage	rating	rating_count	about_product	user_id	user_name	review_id	review_title	review_content	img_link	product_link
0	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
...
1460	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
1461	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
1462	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
1463	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
1464	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False

1465 rows × 16 columns

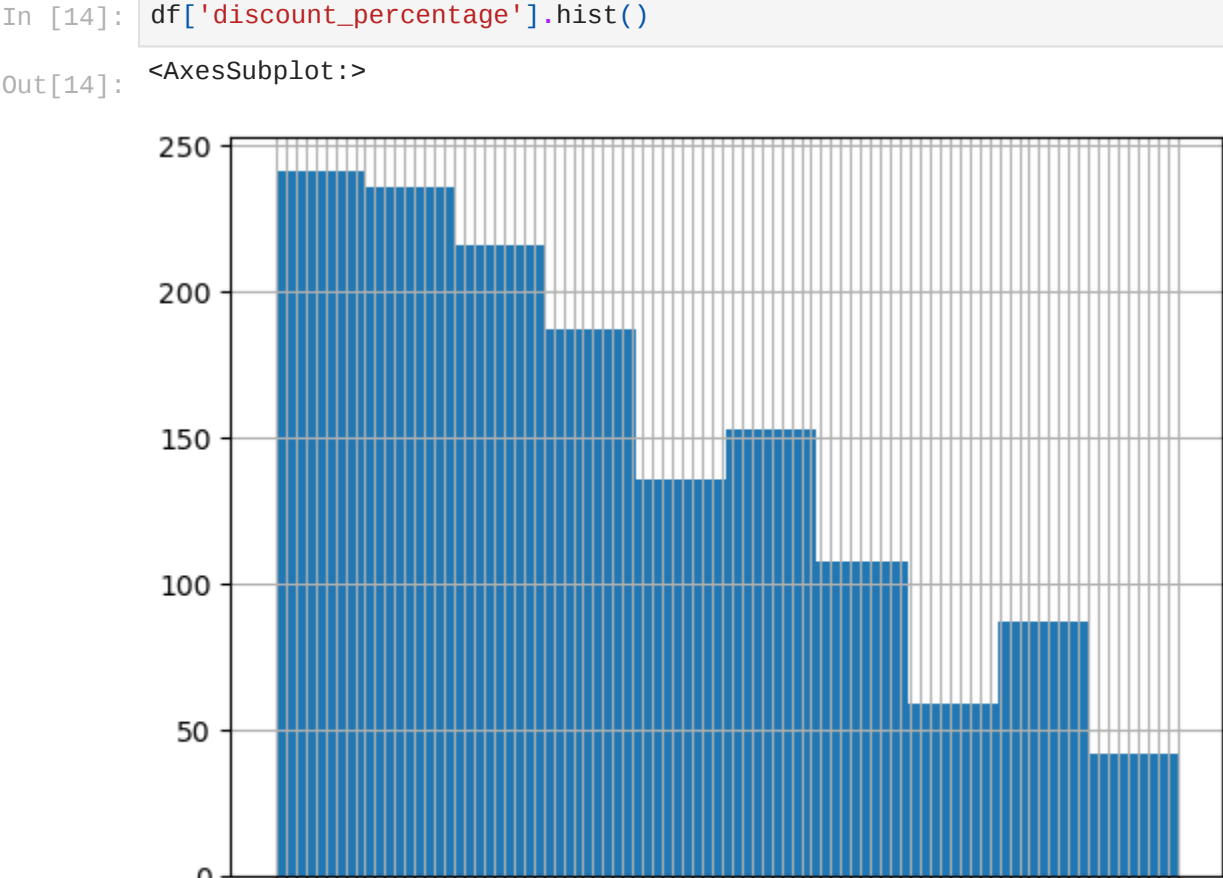
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In [9]: del df['rating_count']
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In [10]: df
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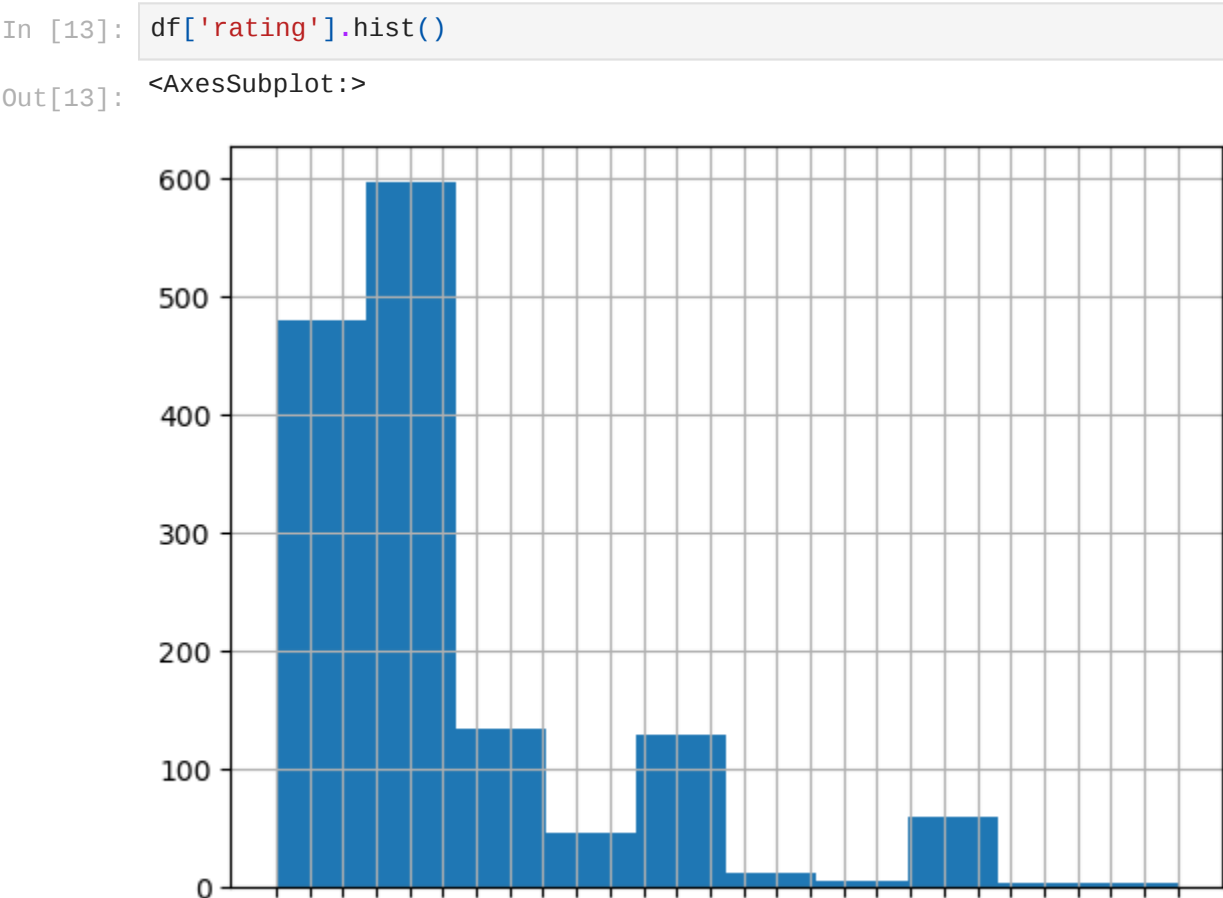
	product_id	product_name	category	discounted_price	actual_price	discount_percentage	rating	about_product	user_id
0	B07JW9H4J1	Wayona Nylon Braided USB to Lightning Fast Cha...	Computers&Accessories Accessories&Peripherals ...	₹399	₹1,099	64%	4.2	High Compatibility : Compatible With iPhone 12...	AG3D604STAQKAY2UVGEUV46KN35Q,AHMY5CJWJMMK5BJRBB...
1	B098NS6PVG	Ambrane Unbreakable 60W / 3A Fast Charging 1.5...	Computers&Accessories Accessories&Peripherals ...	₹199	₹349	43%	4.0	Compatible with all Type C enabled devices, be...	AECPFYFQVRUWC3KGNLJIOREFP5LQ,AGYYVPDD7YGYFNBX...
2	B096MSW6CT	Source Fast Phone Charging Cable & Data Sync U...	Computers&Accessories Accessories&Peripherals ...	₹199	₹1,899	90%	3.9	[Fast Charger& Data Sync] -With built-in safet...	AGU3BBQ2V2DDAMOAKGFAWDDQ6QHA,AESFLDV2PT363T2AQ...
3	B08HDJ86NZ	boAt Deuce USB 300 2 in 1 Type-C & Micro USB S...	Computers&Accessories Accessories&Peripherals ...	₹329	₹699	53%	4.2	The boAt Deuce USB 300 2 in 1 cable is compati...	AEWAZDZZJLQUYVOVGBEUKSLXHQ5A,AG5HTSFRRE6NL3M5S...
4	B08CF3B7N1	Portronics Connect L 1.2M Fast Charging 3A 8 P...	Computers&Accessories Accessories&Peripherals ...	₹154	₹399	61%	4.2	[CHARGE & SYNC FUNCTION]- This cable comes wit...	AE3Q6KSUK5P75D5HFYHCRAOLODSA,AFUGIFH5ZAFXRDSZH...
...
1460	B08L73JT31	Noir Aqua - 5pcs PP Spun Filter + 1 Spanner ...	Home&Kitchen Kitchen&HomeAppliances WaterPurif...	₹379	₹919	59%	4	SUPREME QUALITY 90 GRAM 3 LAYER THIK PP SPUN F...	AHITFY6AHALOFHOHOZEOC6XBP4FEA,AFRABBDZJZQB6Z4U...
1461	B01M6453MB	Prestige Delight PRWO Electric Rice Cooker (1 ...	Home&Kitchen Kitchen&HomeAppliances SmallKitch...	₹2,280	₹3,045	25%	4.1	230 Volts, 400 watts, 1 Year	AFG5FM3NEMOL6BNFRV2NK5FNJCHQ,AGEINTRN6Z563RMLH...
1462	B009P2LIL4	Bajaj Majesty RX10 2000 Watts Heat Convector R...	Home&Kitchen Heating,Cooling&AirQuality RoomHe...	₹2,219	₹3,080	28%	3.6	International design and styling Two heat sett...	AGVPWCMAHYQWJOQKMUNJ4DW3KM5Q,AF4Q3E66MY4SR7YQZ...
1463	B00J5DYCCA	Havells Ventil Air DSP 230mm Exhaust Fan (Pist...	Home&Kitchen Heating,Cooling&AirQuality Fans E...	₹1,399	₹1,890	26%	4	Fan sweep area: 230 MM ; Noise level: (40 -45...	AF2JQCLSCY3QJATWUNNHUSVUPNQQ,AFDMLUXC5LS5RXDJS...
1464	B01486F4G6	Borosil Jumbo 1000-Watt Grill Sandwich Maker (...	Home&Kitchen Kitchen&HomeAppliances SmallKitch...	₹2,863	₹3,690	22%	4.3	Brand-Borosil, Specification â€“ 23V – 5Hz;1 W...	AFGW5PT3R6ZAVQR4Y5MMWAKBZAYA,AG7QNJ2SCS5V55VY...

1465 rows × 15 columns

```
In [14]: df['discount_percentage'].hist()
```



```
In [13]: df['rating'].hist()
```



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In [ ]:
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