

# Pyspark

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Gmail YouTube Maps Excel Exercises | Exc... NCS|Home: Nation... stock market part 2... Antriksh Jigyasa Signin GoCharting - World... BANKNIFTY: 45468...
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!pip install pyspark
Collecting pyspark
  Downloading pyspark-3.4.1.tar.gz (310.8 MB)
    310.8/310.8 MB 4.6 MB/s eta 0:00:00
  Preparing metadata (setup.py) ... done
Requirement already satisfied: py4j==0.10.9.7 in /usr/local/lib/python3.10/dist-packages (from pyspark) (0.10.9.7)
Building wheels for collected packages: pyspark
  Building wheel for pyspark (setup.py) ... done
  Created wheel for pyspark: filename=pyspark-3.4.1-py2.py3-none-any.whl size=311285387 sha256=df446e1f102de8a4d589fc169bca01600463dca42625fa4e20a16677e4aef5e
  Stored in directory: /root/.cache/pip/wheels/0d/77/a3/ff2f74cc9ab41f8f594dabf0579c2a7c6de920d584206e0834
Successfully built pyspark
Installing collected packages: pyspark
Successfully installed pyspark-3.4.1

[ ] from pyspark.sql import SparkSession

[ ] spark=SparkSession.builder.appName('Dataframe').getOrCreate()

[ ] spark

SparkSession - in-memory
SparkContext
Spark UI
Version
  v3.4.1
Master
  local[*]
AppName
  Dataframe

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Dataframe

[ ] import pandas as pd

Food=spark.read.option('header','true').csv('FoodExcel11.txt',sep='\t')
Food.show()

+---+
| No | Restaurant Name | Restaurant Type | Address | Phone No | Cuisine | orders_count | min_price | Dining_Available | online_order_Available | Payment_Mode | Ratings | Rating_Count |
+---+
| 1 | City Pride | Veg | Kothrud | 9223344221 | Indian, Chinese, ... | 45 | 300 | Yes | No | Both | 4 | 40 |
| 2 | Divine | Non-Veg | Koregaon Park | 9222445555 | Biryani | 40 | 290 | No | Yes | Online | 2.5 | 35 |
| 3 | Tiranga | Veg & Non-Veg | Kothrud | 8513445456 | Chinese, Indian, Bi... | 54 | 350 | Yes | Yes | Both | 4.9 | 50 |
| 4 | Delhi kitchen | Veg & Non-Veg | Aundh | 8165661215 | North Indian | 51 | 280 | No | Yes | Both | 3 | 48 |
| 5 | Marriott | Non-Veg | SB Road | 9933442211 | Indian, Chinese, ... | 45 | 250 | Yes | No | Offline | 3 | 45 |
| 6 | Vaishali Hotel | Veg | PC Road | 9786461456 | South Indian | 64 | 300 | Yes | Yes | Both | 4.8 | 60 |
| 7 | Regency Hotel | Veg | Baner | 9234556622 | Chinese, Indian, Bi... | 60 | 350 | No | Yes | Both | 5 | 58 |
| 8 | Mandarin Oriental | Veg | Karvenagar | 9433225511 | Chinese, Indian, Bi... | 48 | 280 | Yes | Yes | Offline | 4 | 47 |
| 9 | Four Seasons Hotel | Non-Veg | Deccan | 956633241 | North Indian | 47 | 250 | Yes | Yes | Online | 3.1 | 47 |
| 10 | Rancho Casino | Veg | Vimanagar | 9877664532 | Chinese | 43 | 300 | Yes | No | Online | 4 | 40 |
| 11 | Clarion Hotel and... | Non-Veg | Katraj | 9654324677 | Indian, Chinese, ... | 65 | 350 | No | Yes | Both | 4.9 | 64 |
| 12 | Natraj | Veg & Non-Veg | Swargate | 9578754655 | Chinese, Indian, Bi... | 45 | 300 | Yes | Yes | Both | 3.5 | 44 |
| 13 | Continental Hotel... | Non-Veg | Hadapsar | 9543245677 | Chinese, Indian, Bi... | 58 | 340 | No | Yes | Both | 4 | 57 |
| 14 | Ritz Plaza Hotel | Non-Veg | Wakad | 9545362253 | Indian, Chinese, ... | 56 | 280 | Yes | Yes | Offline | 4 | 55 |
| 15 | Nisarg | Non-Veg | Erandwane | 8451645423 | Chinese, Indian, Bi... | 59 | 380 | Yes | Yes | Both | 4 | 55 |
| 16 | W Hotel | Veg | Kondhwa | 9435662245 | North Indian | 35 | 300 | No | Yes | Online | 3 | 25 |
| 17 | Atmosphere 6 | Veg & Non-Veg | Vimanagar | 448464755 | Biryani | 70 | 450 | Yes | Yes | Both | 5 | 70 |
| 18 | St Regis Hotels | Veg & Non-Veg | Kothrud | 8437463733 | Fast Food, Chinese... | 25 | 300 | Yes | No | Offline | 1 | 23 |
| 19 | Hyatt | Veg & Non-Veg | Kalyani nagar | 7746464748 | Indian, Chinese, ... | 70 | 400 | Yes | Yes | Both | 4 | 65 |
| 20 | 1000 Oaks | Veg & Non-Veg | Camp | 9884687586 | Biryani | 60 | 300 | No | Yes | Online | 4.5 | 58 |
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[ ] ## Check the schema
Food.printSchema()

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[ ] | 17 | Atmosphere 6 | Veg & Non-Veg | Vimannagar | 4484464755 | Biryani | 70 | 450 | Yes | Yes | Bot  
| 18 | St Regis Hotels | Veg & Non-Veg | Kothrud | 8437463733 | Fast Food, Chinese... | 25 | 300 | Yes | No | Offlir  
| 19 | Hyatt | Veg & Non-Veg | Kalyani nagar | 7746464748 | Indian, Chinese, ... | 70 | 400 | Yes | Yes | Bot  
| 20 | 1000 Oaks | Veg & Non-Veg | Camp | 9884687586 | Biryani | 60 | 300 | No | Yes | Onlir  
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### Check the schema  
Food.printSchema()  
  
root  
|-- No: string (nullable = true)  
|-- Restaurant Name: string (nullable = true)  
|-- Restaurant Type: string (nullable = true)  
|-- Address: string (nullable = true)  
|-- Phone No: string (nullable = true)  
|-- Cuisine: string (nullable = true)  
|-- Orders_count: string (nullable = true)  
|-- Min_price: string (nullable = true)  
|-- Dining_Available: string (nullable = true)  
|-- Online_order_Available: string (nullable = true)  
|-- Payment_Mode: string (nullable = true)  
|-- Ratings: string (nullable = true)  
|-- Rating_Count: string (nullable = true)
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[ ] Food=spark.read.csv('FoodExcel11.txt',header=True,inferSchema=True,sep='\\t')  
Food.show()
```

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-- min_price: string (nullable = true)  
|-- Dining_Available: string (nullable = true)  
|-- Online_order_Available: string (nullable = true)  
|-- Payment_Mode: string (nullable = true)  
|-- Ratings: string (nullable = true)  
|-- Rating_Count: string (nullable = true)
```

```
[ ] Food=spark.read.csv('FoodExcel11.txt',header=True,inferSchema=True,sep='\\t')  
Food.show()
```

```
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| No | Restaurant Name | Restaurant Type | Address | Phone No | Cuisine | orders_count | min_price | Dining_Available | online_order_Available | Payment_Mode | Ratings | Rating_Count |  
+---+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| 1 | CityPride | Veg | Kothrud | 9222344221 | Indian, Chinese, ... | 45 | 300 | Yes | No | Both | 4.0 | 40 |  
| 2 | Divine | Non-Veg | KoregaonPark | 9222445555 | Biryani | 40 | 250 | No | Yes | Online | 2.5 | 35 |  
| 3 | Tiranga | Veg & Non-Veg | Kothrud | 8513445456 | Chinese, Indian, Bi... | 54 | 350 | Yes | Yes | Both | 4.9 | 50 |  
| 4 | Delhi Kitchen | Veg & Non-Veg | Aundh | 8165661215 | North Indian | 51 | 280 | No | Yes | Both | 3.0 | 40 |  
| 5 | Marriott | Non-Veg | SBRoad | 9933442211 | Indian, Chinese, ... | 45 | 250 | Yes | No | Offline | 3.0 | 45 |  
| 6 | Vaishali Hotel | Veg | FC Road | 9786461456 | South Indian | 64 | 300 | Yes | Yes | Both | 4.0 | 60 |  
| 7 | Regency Hotel | Veg | Baner | 9234556622 | Chinese, Indian, Bi... | 60 | 350 | No | Yes | Both | 5.0 | 50 |  
| 8 | Mandarin Oriental | Veg | Karvenagar | 9433225511 | Chinese, Indian, Bi... | 48 | 200 | Yes | Yes | Offline | 4.0 | 47 |  
| 9 | Four Seasons Hotel | Non-Veg | Deccan | 956633241 | North Indian | 47 | 250 | Yes | Yes | Online | 3.1 | 47 |  
| 10 | Rancho Casino | Veg | Vimannagar | 9877664532 | Chinese | 43 | 300 | Yes | No | Online | 4.0 | 40 |  
| 11 | Clarion Hotel and... | Non-Veg | Katraj | 9654324677 | Indian, Chinese, ... | 65 | 350 | No | Yes | Both | 4.9 | 64 |  
| 12 | Natraj | Veg & Non-Veg | Swargate | 9578754655 | Chinese, Indian, Bi... | 45 | 300 | Yes | Yes | Both | 3.5 | 44 |  
| 13 | Continental Hotel... | Non-Veg | Hadapsar | 9543245677 | Chinese, Indian, Bi... | 58 | 340 | No | Yes | Both | 4.0 | 57 |  
| 14 | Ritz Plaza Hotel | Non-Veg | Wakad | 9545362253 | Indian, Chinese, ... | 56 | 200 | Yes | Yes | Offline | 4.0 | 55 |  
| 15 | Nisarg | Non-Veg | Erandwane | 8451645423 | Chinese, Indian, Bi... | 59 | 300 | Yes | Yes | Both | 4.0 | 55 |  
| 16 | W Hotel | Veg | Kondhwa | 9435662245 | North Indian | 35 | 300 | No | Yes | Online | 3.0 | 25 |  
| 17 | Atmosphere 6 | Veg & Non-Veg | Vimannagar | 4484464755 | Biryani | 70 | 450 | Yes | Yes | Both | 5.0 | 70 |  
| 18 | St Regis Hotels | Veg & Non-Veg | Kothrud | 8437463733 | Fast Food, Chinese... | 25 | 300 | Yes | No | Offline | 1.0 | 23 |  
| 19 | Hyatt | Veg & Non-Veg | Kalyani nagar | 7746464748 | Indian, Chinese, ... | 70 | 400 | Yes | Yes | Both | 4.0 | 65 |  
| 20 | 1000 Oaks | Veg & Non-Veg | Camp | 9884687586 | Biryani | 60 | 300 | No | Yes | Online | 4.5 | 58 |  
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[ ]

19	Hyatt	Veg & Non-Veg	Kalyani nagar	7746464/48	Indian, Chinese, ...	70	400	Yes	Yes	Both	4.0
20	1000 Oaks	Veg & Non-Veg	Camp	9884687586	Biryani	60	300	No	Yes	Online	4.5

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type(Food)

pyspark.sql.dataframe.DataFrame

[ ]

Food.head(3)

[Row(No=1, Restaurant Name='CityPride ', Restaurant Type='Veg', Address='Kothrud', Phone No=9223344221, Cuisine='Indian, Chinese, North Indian, South Indian', Orders\_count=45, Min\_price=300, Dining\_Available='Yes', Online\_order\_Available='No', Payment\_Mode='Both', Ratings=4.0, Rating\_Count=40), Row(No=2, Restaurant Name='Divine', Restaurant Type='Non-Veg', Address='KoregaonPark', Phone No=9322445555, Cuisine='Biryani', Orders\_count=40, Min\_price=290, Dining\_Available='No', Online\_order\_Available='Yes', Payment\_Mode='Online', Ratings=2.5, Rating\_Count=35), Row(No=3, Restaurant Name='Tiranga', Restaurant Type='Veg & Non-Veg', Address='Kothrud', Phone No=8513445456, Cuisine='Chinese,Indian,Biryani,North Indian', Orders\_count=54, Min\_price=350, Dining\_Available='Yes', Online\_order\_Available='Yes', Payment\_Mode='Both', Ratings=4.9, Rating\_Count=50)]

[ ]

Food.tail(2)

[Row(No=29, Restaurant Name='EatClub', Restaurant Type='Veg & Non-Veg ', Address='Mahalunge', Phone No=6464654966, Cuisine='Fast Food, Chinese, Beverages', Orders\_count=43, Min\_price=260, Dining\_Available='No', Online\_order\_Available='Yes', Payment\_Mode='Online', Ratings=3.9, Rating\_Count=43), Row(No=30, Restaurant Name='Coriander Kitchen', Restaurant Type='Veg & Non-Veg ', Address='Sangamvadi', Phone No=5964464984, Cuisine='Chinese,Indian,Biryani,North Indian', Orders\_count=50, Min\_price=300, Dining\_Available='Yes', Online\_order\_Available='Yes', Payment\_Mode='Both', Ratings=4.9, Rating\_Count=49)]

[ ]

Food.select('Restaurant Name','Address').show()

Restaurant Name	Address
CityPride	Kothrud
Divine	KoregaonPark
Tiranga	Kothrud
Delhi Kitchen	Aundh
Marriott	SBRoad
Vaishali Hotel	FC Road
Regency Hotel	Baner
Mandarin Oriental	Karvenagar
Four Seasons Hotel	Deccan
Rancho Casino	Vimannagar
Clarion Hotel and...	Katraj
Continental Hotel...	Swargate
Ritz Plaza Hotel	Hadapsar
Nisarg	Erandwane
W Hotel	Kondhwa
Atmosphere 6	Vimannagar
St Regis Hotels	Kothrud
Hyatt	Kalyani nagar
1000 Oaks	Camp

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[ ]

Food.select('Restaurant Name','Address').show()

Restaurant Name	Address
CityPride	Kothrud
Divine	KoregaonPark
Tiranga	Kothrud
Delhi Kitchen	Aundh
Marriott	SBRoad
Vaishali Hotel	FC Road
Regency Hotel	Baner
Mandarin Oriental	Karvenagar
Four Seasons Hotel	Deccan
Rancho Casino	Vimannagar
Clarion Hotel and...	Katraj
Continental Hotel...	Swargate
Ritz Plaza Hotel	Hadapsar
Nisarg	Erandwane
W Hotel	Kondhwa
Atmosphere 6	Vimannagar
St Regis Hotels	Kothrud
Hyatt	Kalyani nagar
1000 Oaks	Camp

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Food.dtypes

[('No', 'int'), ('Restaurant Name', 'string'), ('Restaurant Type', 'string')]

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Ritz Plaza Hotel

Wakad

Nisarg

Erandwane

W Hotel

Kondhwa

Atmosphere 6

Vimannagar

St Regis Hotels

Kothrud

Hyatt

Kalyani nagar

1000 Oaks

Camp

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[ ]

Food.dtypes

[('No', 'int'),

('Restaurant Name', 'string'),

('Restaurant Type', 'string'),

('Address', 'string'),

('Phone No', 'bigint'),

('Cuisine', 'string'),

('Orders\_count', 'int'),

('Min\_price', 'int'),

('Dining\_Available', 'string'),

('Online\_order\_Available', 'string'),

('Payment\_Mode', 'string'),

('Ratings', 'double'),

('Rating\_Count', 'int')]

[ ]

Food.describe().show()

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('Ratings', 'double'),

('Rating\_Count', 'int')]

[ ]

Food.describe().show()

	summary	No	Restaurant Name	Restaurant Type	Address	Phone No	Cuisine	Orders_count	Min_price	Dining_Available	Online_order_Available	Payment_Mode	Ratings	Rating_Count
count		30	30	30	30	30	30	30	30	30	30	30	30	30
mean		15.5												
stddev		8.8034084												
min		1	1000 Oaks	Veg	Aundh	448464755	Biryani	23	250	No	No	Both	1.0	20
max		30	W Hotel	Veg & Non-Veg	Marje	993444211	South Indian	70	450	Yes	Yes	Online	5.0	70

[ ]

Food.show()

	No	Restaurant Name	Restaurant Type	Address	Phone No	Cuisine	Orders_count	Min_price	Dining_Available	Online_order_Available	Payment_Mode	Ratings	Rating_Count
1	1	CityPride	Veg	Kothrud	922344421	Indian, Chinese, ...	45	300	Yes	No	Both	4.0	40
2	2	Diline	Non-Veg	KoregaonPark	932445555	Biryani	40	200	No	Yes	Online	2.5	35
3	3	Tiranga	Veg & Non-Veg	Kothrud	851344545	Chinese, Indian, Bi...	54	350	Yes	Yes	Both	4.9	50
4	4	Delhi Kitchen	Veg & Non-Veg	Aundh	8165661215	North Indian	51	280	No	Yes	Both	3.0	48
5	5	Harriott	Non-Veg	SBRoad	993344211	Indian, Chinese, ...	45	250	Yes	No	Offline	3.0	45
6	6	Vaishali Hotel	Veg	FC Road	978646456	South Indian	64	300	Yes	Yes	Both	4.8	60
7	7	Regency Hotel	Veg	Baner	9234556622	Chinese, Indian, Bi...	60	350	No	Yes	Both	5.0	58
8	8	Mandarin Oriental	Veg	Karvemagar	9433225511	Chinese, Indian, Bi...	48	280	Yes	Yes	Offline	4.0	47
9	9	Four Seasons Hotel	Non-Veg	Deccan	9566333241	North Indian	47	250	Yes	Yes	Online	3.1	47
10	10	Rancho Casino	Veg	Vimannagar	9877664532	Chinese	43	300	Yes	No	Online	4.0	40
11	11	Clarion Hotel and...	Non-Veg	Katraj	965432467	Indian, Chinese, ...	65	350	No	Yes	Both	4.9	64
12	12	Batra's	Veg & Non-Veg	Swargate	5578754625	Chinese, Indian, Bi...	45	300	Yes	Yes	Both	3.5	44
13	13	Continental Hotel...	Non-Veg	Hadapsar	9543245677	Chinese, Indian, Bi...	58	340	No	Yes	Both	4.0	57
14	14	Ritz Plaza Hotel	Non-Veg	Wakad	9545362253	Indian, Chinese, ...	56	280	Yes	Yes	Offline	4.0	55
15	15	Nisarg	Non-Veg	Erandwane	9451645423	Chinese, Indian, Bi...	50	300	Yes	Yes	Both	4.0	55
16	16	W Hotel	Veg	Kondhwa	9435662245	North Indian	35	300	No	Yes	Online	3.0	25
17	17	Atmosphere 6	Veg & Non-Veg	Vimannagar	448464755	Biryani	70	450	Yes	Yes	Both	5.0	70
18	18	St Regis Hotels	Veg & Non-Veg	Kothrud	8437463733	Fast Food, Chines...	25	300	Yes	No	Offline	1.0	23
19	19	Hyatt	Veg & Non-Veg	Kalyani nagar	7746464748	Indian, Chinese, ...	70	400	Yes	Yes	Both	4.0	65
20	20	1000 Oaks	Veg & Non-Veg	Camp	9884687586	Biryani	60	300	No	Yes	Online	4.5	58

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[ ]

### Rename the columns

Food.withColumnRenamed('Restaurant Name','Restaurant Full Name').show()

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[ ] 18 St Regis Hotels Veg & Non-Veg Kothrud 843746373 Fast Food, Chinese... 25 300 Yes No Offline 1.0 23
    19 Hyatt Veg & Non-Veg Kalyani nagar 7746464748 Indian, Chinese, ... 70 400 Yes Yes Both 4.0 65
    20 1000 Oaks Veg & Non-Veg Camp 9884687586 Biryani 60 300 No Yes Online 4.5 58

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[ ] ## Rename the columns
Food.withColumnRenamed('Restaurant Name','Restaurant Full Name').show()
```

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[ ]

Null Operation

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[ ] Food1 = spark.read.csv('FoodExcel12.txt')  
Food1.show()
```

	_c0	_c1	_c2	_c3	_c4	_c5_c6_c7_c8_c9	_c10_c11_c12
[null]	CityPride	Veg	Kothrud	9223344221	Indian/Chinese/Wo...	45300	Yes No Both 4 40
[null]		Non-Veg	KoregaonPark	9322445555	Biryani	40200	No Yes Online 2.5 35
[null]			kothrud	8513445456	Chinese/Indian/Bi...	54300	Yes Yes Both 4.9 50
[null]			null	1695661215	North Indian	51200	No Yes Both 3 40
[null]			null	null	Indian/Chinese/Wo...	45250	Yes No Offline 3 45
6	Vaishali Hotel	Veg	FC Road	9786441456	South Indian	64300	Yes Yes Both 4.8 60
7	Regency Hotel	Veg	Baner	9234556622	Chinese/Indian/Bi...	60350	No Yes Both null null
8	Handerlin Oriental	Veg	Karvenagar	9433225511	Chinese/Indian/Bi...	40200	Yes null null 4 47
9	Four Seasons Hotel	Non-Veg	Deccan	9566332401	North Indian	47250	Yes Yes Online 3.1 47
10	Rancho Casino	Veg	Vimannagar	9877664532	Chinese	43300	Yes No Online 4 40
11	Clarion hotel and...	Non-Veg	Katraj	9654324677	Indian/Chinese/Wo...	65350	No Yes Both 4.9 64
12	Natraj	Veg & Non-Veg	Swargate	9578754655	Chinese/Indian/Bi...	45300	Yes Yes Both 3.5 44
13	Continental Hotel...	Non-Veg	Hedapada	9543245677	Chinese/Indian/Bi...	58240	No Yes Both 4 57
14	Ritz Plaza Hotel	Non-Veg	Wakad	9545382253	Indian/Chinese/Wo...	56200	Yes Yes Offline 4 55
15	Nisarg	Non-Veg	Erandwane	9451645423	Chinese/Indian/Bi...	59300	Yes Yes Both 4 55
16	W Hotel	Veg	Kondhua	9435662245	North Indian	35300	No Yes Online 3 25
17	Atmosphere 6 Veg & Non-Veg		Vimannagar	9448464755	Biryani	70450	Yes Yes Both 5 70
18	St Regis Hotels Veg & Non-Veg		Kothrud	9437463793	Fast Food/Chinese...	25300	Yes No Offline 1 23
19	Hyatt	Veg & Non-Veg	Kalyani nagar	7746444748	Indian/Chinese/Wo...	70400	Yes Yes Both 4 65
20	1000 Oaks	Veg & Non-Veg	Camp	9884687586	Biryani	60300	No Yes Online 4.5 50

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[ ] Food1.columns

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[ ] Food1.columns

['No',
 'Restaurant Name',
 'Restaurant Type',
 'Address',
 'Phone No',
 'cuisine',
 'Orders_count',
 'Min_price',
 'Dining_Available',
 'Online_order_Available',
 'Payment_Mode',
 'Ratings',
 'Rating_Count']

[ ] Food1.select('Restaurant Name').show()

+-----+
| Restaurant Name |
+-----+
| CityPride |
| null |
| null |
| null |
| null |
| Vaishali Hotel |
| Regency Hotel |
| Mandarin Oriental |
| Four Seasons Hotel |
| Rancho Casino |
| Clarion Hotel and... |
| Natraj |
| Continental Hotel... |
| Ritz Plaza Hotel |
| Nisarg |
| W Hotel |
| Atmosphere 6 |
| St Regis Hotels |
| Hyatt |
| 1000 Oaks |
+-----+

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[ ] Atmosphere 6
St Regis Hotels
Hyatt
1000 Oaks
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[ ] Food1.drop(how="any",subset=['Restaurant Name']).show()

+-----+
| No | Restaurant Name | Restaurant Type | Address | Phone No | cuisine | Orders_count | Min_price | Dining_Available | Online_order_Available | Payment_Mode | Ratings | Rating_Count |
+-----+
| null | CityPride | Veg | Kothrud | 9223344221 | Indian/Chinese/No... | 45 | 300 | Yes | No | Both | 4 | 40 |
| 6 | Vaishali Hotel | Veg | FC Road | 9786461456 | South Indian | 64 | 300 | Yes | Yes | Both | 4.8 | 60 |
| 7 | Regency Hotel | Veg | Baner | 9234556622 | Chinese/Indian/Bi... | 60 | 350 | No | Yes | Both | null | null |
| 8 | Mandarin Oriental | Veg | Karvenagar | 9433225511 | Chinese/Indian/Bi... | 48 | 280 | Yes | null | null | 4 | 47 |
| 9 | Four Seasons Hotel | Non-Veg | Deccan | 9566333241 | North Indian | 47 | 250 | Yes | Yes | Online | 3.1 | 47 |
| 10 | Rancho Casino | Veg | Vimanagar | 9877564532 | Chinese | 43 | 300 | Yes | No | Online | 4 | 40 |
| 11 | Clarion Hotel and... | Non-Veg | Natraj | 9654324677 | Indian/Chinese/No... | 65 | 350 | No | Yes | Both | 4.9 | 64 |
| 12 | Natraj | Veg & Non-Veg | Swargate | 5578754655 | Chinese/Indian/Bi... | 45 | 300 | Yes | Yes | Both | 3.5 | 44 |
| 13 | Continental Hotel... | Non-Veg | Hadapsar | 9543245677 | Chinese/Indian/Bi... | 58 | 340 | No | Yes | Both | 4 | 57 |
| 14 | Ritz Plaza Hotel | Non-Veg | Wakad | 9545362253 | Indian/Chinese/No... | 56 | 280 | Yes | Yes | Offline | 4 | 55 |
| 15 | Nisarg | Non-Veg | Erandwane | 8451645423 | Chinese/Indian/Bi... | 59 | 300 | Yes | Yes | Both | 4 | 55 |
| 16 | W Hotel | Veg | Kondhwa | 9435662245 | North Indian | 35 | 300 | No | Yes | Online | 3 | 25 |
| 17 | Atmosphere 6 | Veg & Non-Veg | Vimanagar | 4464464755 | Biryani | 70 | 450 | Yes | Yes | Both | 5 | 70 |
| 18 | St Regis Hotels | Veg & Non-Veg | Kothrud | 8437463733 | Fast Food/Chinese... | 25 | 300 | Yes | No | Offline | 1 | 23 |
| 19 | Hyatt | Veg & Non-Veg | Kalyani nagar | 7746464748 | Indian/Chinese/No... | 70 | 400 | Yes | Yes | Both | 4 | 65 |
| 20 | 1000 Oaks | Veg & Non-Veg | Camp | 9884687586 | Biryani | 60 | 300 | No | Yes | Online | 4.5 | 58 |
| 21 | Belmond | Veg | Aundh | 8474738992 | Chinese | 30 | 250 | No | Yes | Offline | 2 | 28 |
| 22 | Rosewood Hotels &... | Non-Veg | Warje | 8337828282 | Chinese/Indian/Bi... | 45 | 290 | Yes | No | Both | 3 | 43 |
| 23 | Ritz-Carlton Hotel | Veg | PuneCity | 8399292838 | Indian/Chinese/No... | 31 | 200 | No | Yes | Offline | 2.9 | 30 |
| 24 | Kokani | Veg & Non-Veg | Kothrud | 7378929289 | Chinese/Indian/Bi... | 55 | 300 | No | Yes | Both | 3.9 | 55 |
+-----+

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[ ] Food1.count()
```

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```
[ ] Food1.count()
```

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30
```

```
[ ] Food1.na.fill({'values','Restaurant Name'}).show()
```

No	Restaurant Name	Restaurant Type	Address	Phone No	Cuisine	Orders_count	Min_price	Dining_Available	Online_order_Available	Payment Mode	Ratings	Rating_Count
[null]	CityPride	Veg	Kothrud	9223344221	Indian/Chinese/No...	45	300	Yes	No	Both	4	40
[null]	values	Non-Veg	KoregaonPark	9322445555	Biryani	40	290	Yes	Yes	Online	2.5	35
[null]	values	null	Kothrud	8513445456	Chinese/Indian/BI...	54	350	Yes	Yes	Both	4.9	50
[null]	values	null	[816566215]	North Indian	51	200	No	Yes	Both	3	40	
[null]	values	null	[null]	Indian/Chinese/No...	45	250	Yes	No	Offline	3	45	
6	Vaishali Hotel	Veg	FC Road	9786461456	South Indian	64	300	Yes	Yes	Both	4.8	60
7	Regency Hotel	Veg	Baner	9234556622	Chinese/Indian/BI...	60	350	No	Yes	Both	null	null
8	Mandarin Oriental	Veg	Karvenagar	9433225511	Chinese/Indian/BI...	48	280	Yes	null	null	4	47
9	Four Seasons Hotel	Non-Veg	Deccan	9566333241	North Indian	47	250	Yes	Yes	Online	3.1	47
10	Rancho Casino	Veg	Vimannagar	9877664532	Chinese	43	300	Yes	No	Online	4	40
11	Clarion Hotel and...	Non-Veg	Katraj	9654324677	Indian/Chinese/No...	65	350	No	Yes	Both	4.9	64
12	Natraj	Veg & Non-Veg	Swargate	5578754655	Chinese/Indian/BI...	45	300	Yes	Yes	Both	3.5	44
13	Continental Hotel...	Non-Veg	Hadapsar	9543245677	Chinese/Indian/BI...	58	340	No	Yes	Both	4	57
14	Ritz Plaza Hotel	Non-Veg	Wakad	9545362253	Indian/Chinese/No...	56	280	Yes	Yes	Offline	4	55
15	Nisarg	Non-Veg	Erandwane	8451645423	Chinese/Indian/BI...	59	380	Yes	Yes	Both	4	55
16	W Hotel	Veg	Kondhwa	9435662245	North Indian	35	300	No	Yes	Online	3	25
17	Atmosphere 6	Veg & Non-Veg	Vimannagar	4484464755	Biryani	70	450	Yes	Yes	Both	5	70
18	St Regis Hotels	Veg & Non-Veg	Kothrud	8437463733	Fast Food/Chinese...	25	300	Yes	No	Offline	1	23
19	Hyatt	Veg & Non-Veg	Kalyani nagar	7746464748	Indian/Chinese/No...	70	400	Yes	Yes	Both	4	65
20	1000 Oaks	Veg & Non-Veg	Camp	9884687586	Biryani	60	300	No	Yes	Online	4.5	58

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```
[ ] Food1.na.drop(thresh=3).show()
```

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Food1.na.drop(thresh=10).show()
```

No	Restaurant Name	Restaurant Type	Address	Phone No	Cuisine	Orders_count	Min_price	Dining_Available	Online_order_Available	Payment Mode
[null]	CityPride	Veg	Kothrud	9223344221	Indian, Chinese, ...	45	300	Yes	No	Bc
[null]	null	Non-Veg	KoregaonPark	9322445555	Biryani	40	290	No	Yes	Onli
[null]	null	null	Kothrud	8513445456	Chinese,Indian,BI...	54	350	Yes	Yes	Bc
6	Vaishali Hotel	Veg	FC Road	9786461456	South Indian	64	300	Yes	Yes	Bc
7	Regency Hotel	Veg	Baner	9234556622	Chinese,Indian,BI...	60	350	No	Yes	Bc
8	Mandarin Oriental	Veg	Karvenagar	9433225511	Chinese,Indian,BI...	48	280	Yes	null	nu
9	Four Seasons Hotel	Non-Veg	Deccan	9566333241	North Indian	47	250	Yes	Yes	Onli
10	Rancho Casino	Veg	Vimannagar	9877664532	Chinese	43	300	Yes	No	Onli
11	Clarion Hotel and...	Non-Veg	Katraj	9654324677	Indian, Chinese, ...	65	350	No	Yes	Bc
12	Natraj	Veg & Non-Veg	Swargate	5578754655	Chinese,Indian,BI...	45	300	Yes	Yes	Bc
13	Continental Hotel...	Non-Veg	Hadapsar	9543245677	Chinese,Indian,BI...	58	340	No	Yes	Bc
14	Ritz Plaza Hotel	Non-Veg	Wakad	9545362253	Indian, Chinese, ...	56	280	Yes	Yes	Offli
15	Nisarg	Non-Veg	Erandwane	8451645423	Chinese,Indian,BI...	59	380	Yes	Yes	Bc
16	W Hotel	Veg	Kondhwa	9435662245	North Indian	35	300	No	Yes	Onli
17	Atmosphere 6	Veg & Non-Veg	Vimannagar	4484464755	Biryani	70	450	Yes	Yes	Bc
18	St Regis Hotels	Veg & Non-Veg	Kothrud	8437463733	Fast Food, Chines...	25	300	Yes	No	Offli
19	Hyatt	Veg & Non-Veg	Kalyani nagar	7746464748	Indian, Chinese, ...	70	400	Yes	Yes	Bc
20	1000 Oaks	Veg & Non-Veg	Camp	9884687586	Biryani	60	300	No	Yes	Onli
21	Belmond	Veg	Aundh	8474738992	Chinese	30	250	No	Yes	Offli

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```
[ ] 19 | Hyatt | Veg & Non-Veg | Kalyani nagar | 7746464748 | Indian/Chinese/No... | 70 | 400 | Yes | Yes | Both | 4 | 65 |  
20 | 1000 Oaks | Veg & Non-Veg | Camp | 9884687586 | Biryani | 60 | 300 | No | Yes | Online | 4.5 | 58 |  
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```

Imputer

```
from pyspark.ml.feature import Imputer  
  
[ ] imputer = Imputer(  
    inputCols=['Orders_count','Min_price','Rating_Count'],  
    outputCols=['{}_imputed'.format(c) for c in ['Orders_count','Min_price','Rating_Count']]  
    ).setStrategy("median")  
  
[ ] imputer.fit(Food).transform(Food).show()
```

No	Restaurant Name	Restaurant Type	Address	Phone No	Cuisine	Orders_count	Min_price	Dining_Available	Online_order_Available	Payment_Mode	Ratings	Rating_Count	Orders_count_imputed	Min_price_imputed	Rating_Count_imputed
1	CityPride	Veg	Kothrud   9223344221		Indian, Chinese, ...	45	300	Yes	No	Both	4.0	40	45	300	40
2	Divine	Non-Veg	KoregaonPark   9322445555		Biryani	40	290	No	Yes	Online	2.5	35	40	290	35
3	Tiranga	Veg & Non-Veg	Kothrud   8513445456		Chinese, Indian, Bi...	54	350	Yes	Yes	Both	4.9	50	54	350	50
4	Delhi Kitchen	Veg & Non-Veg	Aundh   8165661215		North Indian	51	280	No	Yes	Both	3.0	48	51	280	48
5	Marriott	Non-Veg	SBRoad   9933442211		Indian, Chinese, ...	45	250	Yes	No	Offline	3.0	45	45	250	45
6	Vaishali Hotel	Veg	FC Road   9786461456		South Indian	64	300	Yes	Yes	Both	4.8	60	64	300	60
7	Regency Hotel	Veg	Baner   9234556622		Chinese, Indian, Bi...	60	350	No	Yes	Both	5.0	58	60	350	58
8	Mandarin Oriental	Veg	Karvenagar   9433225511		Chinese, Indian, Bi...	48	280	Yes	Yes	Offline	4.0	47	48	280	47
9	Four Seasons Hotel	Non-Veg	Deccan   956633241		North Indian	47	250	Yes	Yes	Online	3.1	47	47	250	47
10	Rancho Casino	Veg	Vimanagar   9877664755		Chinese	43	300	Yes	No	Online	4.0	40	43	300	40
11	Clarion Hotel and...	Non-Veg	Katraj   9654324677		Indian, Chinese, ...	65	350	No	Yes	Both	4.9	64	65	350	64
12	Natraj	Veg & Non-Veg	Swargate   5578754655		Chinese, Indian, Bi...	45	300	Yes	Yes	Both	3.5	44	45	300	44
13	Continental Hotel...	Non-Veg	Hadapsar   9543245677		Chinese, Indian, Bi...	58	340	No	Yes	Both	4.0	57	58	340	57
14	Ritz Plaza Hotel	Non-Veg	Wakad   9545362253		Indian, Chinese, ...	56	280	Yes	Yes	Offline	4.0	55	56	280	55
15	Nisarg	Non-Veg	Erandwane   8451645423		Chinese, Indian, Bi...	59	380	Yes	Yes	Both	4.0	55	59	380	55
16	M Hotel	Veg	Kondhwa   9435662245		North Indian	35	300	No	Yes	Online	3.0	25	35	300	25
17	Atmosphere 6	Veg & Non-Veg	Vimanagar   4484464755		Biryani	70	450	Yes	Yes	Both	5.0	70	70	450	70
18	St Regis Hotels	Veg & Non-Veg	Kothrud   8437463733		Fast Food, Chines...	25	300	Yes	No	Offline	1.0	23	25	300	23
19	Hyatt	Veg & Non-Veg	Kalyani nagar   7746464748		Indian, Chinese, ...	70	400	Yes	Yes	Both	4.0	65	70	400	65
20	1000 Oaks	Veg & Non-Veg	Camp   9884687586		Biryani	60	300	No	Yes	Online	4.5	58	60	300	58

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Food.filter("Min\_price<250").show()

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```
[ ] Food.filter("Min_price<250").show()
```

No	Restaurant Name	Restaurant Type	Address	Phone No	Cuisine	Orders_count	Min_price	Dining_Available	Online_order_Available	Payment_Mode	Ratings	Rating_Count
5	Marriott	Non-Veg	SBRoad   9933442211		Indian, Chinese, ...	45	250	Yes	No	Offline	3.0	45
9	Four Seasons Hotel	Non-Veg	Deccan   956633241		North Indian	47	250	Yes	Yes	Online	3.1	47
21	Belmond	Veg	Aundh   8474738992		Chinese	30	250	No	Yes	Offline	2.0	28
26	Fort Harrison Hotel	Non-Veg	Kharadi   7373782828		Biryani	23	250	Yes	Yes	Both	2.0	20
28	Shabree	Veg   Shivajinagar   4949845649		Chinese, Indian, Bi...	40	250	Yes	Yes	Both	3.8	40	

```
[ ] Food.filter((Food['Orders_count'] >= 45) & (Food['Min_price'] > 250)).show()
```

No	Restaurant Name	Restaurant Type	Address	Phone No	Cuisine	Orders_count	Min_price	Dining_Available	Online_order_Available	Payment_Mode	Ratings	Rating_Count
1	CityPride	Veg	Kothrud   9223344221		Indian, Chinese, ...	45	300	Yes	No	Both	4.0	40
3	Tiranga	Veg & Non-Veg	Kothrud   8513445456		Chinese, Indian, Bi...	54	350	Yes	Yes	Both	4.9	50
4	Delhi Kitchen	Veg & Non-Veg	Aundh   8165661215		North Indian	51	280	No	Yes	Both	3.0	48
6	Vaishali Hotel	Veg	FC Road   9786461456		South Indian	64	300	Yes	Yes	Both	4.8	60
7	Regency Hotel	Veg	Baner   9234556622		Chinese, Indian, Bi...	60	350	No	Yes	Both	5.0	58
8	Mandarin Oriental	Veg	Karvenagar   9433225511		Chinese, Indian, Bi...	48	280	Yes	Yes	Offline	4.0	47
11	Clarion Hotel and...	Non-Veg	Katraj   9654324677		Indian, Chinese, ...	65	350	No	Yes	Both	4.9	64
12	Natraj	Veg & Non-Veg	Swargate   5578754655		Chinese, Indian, Bi...	45	300	Yes	Yes	Both	3.5	44
13	Continental Hotel...	Non-Veg	Hadapsar   9543245677		Chinese, Indian, Bi...	58	340	No	Yes	Both	4.0	57
14	Ritz Plaza Hotel	Non-Veg	Wakad   9545362253		Indian, Chinese, ...	56	280	Yes	Yes	Offline	4.0	55
15	Nisarg	Non-Veg	Erandwane   8451645423		Chinese, Indian, Bi...	59	380	Yes	Yes	Both	4.0	55
17	Atmosphere 6	Veg & Non-Veg	Vimanagar   4484464755		Biryani	70	450	Yes	Yes	Both	5.0	70
19	Hyatt	Veg & Non-Veg	Kalyani nagar   7746464748		Indian, Chinese, ...	70	400	Yes	Yes	Both	4.0	65
20	1000 Oaks	Veg & Non-Veg	Camp   9884687586		Biryani	60	300	No	Yes	Online	4.5	58
22	Rosewood Hotels & ...	Non-Veg	Warje   8337828282		Chinese, Indian, Bi...	45	290	Yes	No	Both	3.0	43
24	Kokani	Veg & Non-Veg	Kothrud   7378929289		Chinese, Indian, Bi...	55	300	No	Yes	Both	3.9	55
27	Kondares	Veg & Non-Veg	Hinjewadi   7373882828		Indian, Chinese, ...	69	400	No	Yes	Both	5.0	65
30	Coriander Kitchen	Veg & Non-Veg	Sangamwadi   5964464984		Chinese, Indian, Bi...	50	380	Yes	Yes	Both	4.9	49

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```
[ ] spark=SparkSession.builder.appName('Agg').getOrCreate()

[ ] spark

SparkSession - in-memory
SparkContext
Spark UI
Version
v3.4.1
Master
local[*]
AppName
Dataframe

[ ] Food.groupby('Restaurant_Type').count().show()
```

Restaurant_Type	count
Veg & Non-Veg	5
Veg & Non-Veg	6
Veg & Non-Veg	5
Non-Veg	2
Non-Veg	5
Veg	1
Veg	4
Non-Veg	2

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```
[ ] Food.groupby('Payment_Mode').count().show()

[ ] Food.agg({'Orders_count': 'sum'}).show()

[ ] Food.agg({'Min_price': 'sum', 'Orders_count': 'count'}).show()
```

Payment_Mode	count
Both	17
Online	7
Offline	6

sum(Orders_count)
1465

sum(Min_price)	count(Orders_count)
9250	30

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