Pyspark


```
!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=df446e1f102de8a49d589fc169bca01600463dca42625fa4e20a16677e4aef5e
  Stored in directory: /root/.cache/pip/wheels/0d/77/a3/ff2f74cc9ab41f8f594dabf0579c2a7c6de920d584206e0034
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


```
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|       CityPride|            Veg|      Kothrud|9223344221|Indian, Chinese, ...|          45|      300|             Yes|                   No|        Both|      4|          40|
|  2|         Divine|        Non-Veg| KoregaonPark|9322445555|             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|      SBRoad|9933442211|Indian, Chinese, ...|          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|      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|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...|          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|Indian, Chinese, ...|          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|      280|             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, Chines...|          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|
+---+---------------+---------------+-------------+----------+--------------------+------------+---------+----------------+---------------------+------------+-------+------------+
only showing top 20 rows
```

```
### Check the schema
Food.printSchema()
```

+ Code   + Text   All changes saved   Reconnect ▾

```
| 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, Chines...|   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
+---+-----------------+--------------+
only showing top 20 rows
```

```
### 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)
```

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

Activate Windows
Go to Settings to activate Windows.

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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()
```

```
+---+-----------------+--------------+-------------+----------+--------------------+------------+---------+----------------+----------------------+------------+-------+------------+
| 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|
|  2|           Divine|       Non-Veg| KoregaonPark|9322445555|             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|    3.0|          48|
|  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|    4.8|          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|
|  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|    4.0|          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|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|
| 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, Chines...|          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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```

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```
type(Food)
```

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colab.research.google.com/drive/12gPTSmnnoAxfvGABoa4JdZzl0yTpoJXy#scrollTo=ixtsMdu1c-2a
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```
            19|      Hyatt | Veg & Non-Veg|Kalyani nagar|7746464748|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|
        +---+-------------+-------------+-------------+----------+----------------+--------+------+------+-------------+-------+-----+
        only showing top 20 rows
```

```
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='Coriender 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|
```

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colab.research.google.com/drive/12gPTSmnnoAxfvGABoa4JdZzl0yTpoJXy#scrollTo=ixtsMdu1c-2a
Gmail ▶ YouTube Maps Excel Exercises | Exc... NCS|Home: Nation... stock market part 2... Antriksh Jigyasa Signin GoCharting - World... BANKNIFTY: 45468....

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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|
|               Natraj|     Swargate|
|     Continental Hotel...|   Hadapsar|
|      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'),
```

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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|
+---------------------+-------------+
only showing top 20 rows
```

```
[ ] 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|           null|           null|   null| 8.296981675366667E9|       null|48.833333333333336| 308.333333333333|              null|            null|        null|              null|46.566666666667|
| stddev|8.803408430829505|           null|           null|   null|1.5176051801679897E9|       null|12.913727882222544|49.902203208450345|              null|            null|        null|1.00940405771135|13.17438301462698|
|    min|                1|    1000 Oaks  |           null|   null|          4484464755|    Biryani|        23|               250|                No|              No|        Both|              1.0|               20|
|    max|               30|       W Hotel  | Veg & Non-Veg |   Warje|        9933442211|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|          CityPride|          Veg|    Kothrud|9223344221|    Indian, Chinese, ...|          45|      300|             Yes|                    No|        Both|    4.0|          40|
|  2|            Divine|      Non-Veg|KoregaonPark|9322445555|             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|             Yes|                   Yes|        Both|    3.0|          48|
|  5|          Marriott|      Non-Veg|     SBRoad|9933442211|    Indian, Chinese, ...|          45|      250|              No|                    No|     Offline|    3.0|          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|    5.0|          58|
|  8|  Mandarin Oriental|         Veg|  Karvenagar|9433225511|Chinese,Indian,Bi...|          48|      280|             Yes|                   Yes|     Offline|    4.0|          47|
|  9|  Four Seasons Hotel|     Non-Veg|     Deccan|9566333241|         North Indian|          47|      350|             Yes|                   Yes|      Online|    3.1|          47|
| 10|      Rancho Casino|         Veg|  Vimannagar|9877664532|             Chinese|          43|      300|              No|                    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|5578754655|Chinese,Indian,Bi...|          45|      300|             Yes|                   Yes|        Both|    3.5|          44|
| 13|Continental Hotel...|     Non-Veg|     Hadapsar|9543245677|Chinese,Indian,Bi...|          58|      340|             Yes|                   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|      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|    Kothrud|8437463733|    Fast Food, Chines...|          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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```
| 18|    St Regis Hotels | Veg & Non-Veg |    Kothrud|8437463733|Fast Food, Chines...|       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|
+---+------------------+----------------
only showing top 20 rows
```

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

```
| No|Restaurant Full 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|
|  2|             Divine|       Non-Veg|KoregaonPark|9322445555|             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|    3.0|          48|
|  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|    4.8|          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|
|  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|    4.0|          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|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|
| 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, Chines...|       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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Null Operation

Null operation

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Null Operation

```
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/No...| 45|300|Yes| No|  Both|   4|  40|
|null|                null|     Non-Veg|KoregaonPark|9322445555|             Biryani| 40|290| No|Yes|Online| 2.5|  35|
|null|                null|         null|    Kothrud|8513445456|Chinese/Indian/Bi...| 54|350|Yes|Yes|  Both| 4.9|  50|
|null|                null|         null|       null|8165661215|       North Indian| 51|280| No|Yes|  Both|   3|  48|
|null|                null|         null|       null|      null|Indian/Chinese/No...| 45|250|Yes|No|Offline|   4|  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|Yes|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.columns
```

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[ ] Food1.columns

```
['_c0',
 '_c1',
 '_c2',
 '_c3',
 '_c4',
 '_c5',
 '_c6',
 '_c7',
 '_c8',
 '_c9',
 '_c10',
 '_c11',
 '_c12']
```

```python
Food1=Food1.withColumnRenamed('_c0','No')\
.withColumnRenamed('_c1','Restaurant Name')\
.withColumnRenamed('_c2','Restaurant Type')\
.withColumnRenamed('_c3','Address')\
.withColumnRenamed('_c4','Phone No')\
.withColumnRenamed('_c5','Cuisine')\
```

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```python
Food1=Food1.withColumnRenamed('_c0','No')\
.withColumnRenamed('_c1','Restaurant Name')\
.withColumnRenamed('_c2','Restaurant Type')\
.withColumnRenamed('_c3','Address')\
.withColumnRenamed('_c4','Phone No')\
.withColumnRenamed('_c5','Cuisine')\
.withColumnRenamed('_c6','Orders_count')\
.withColumnRenamed('_c7','Min_price')\
.withColumnRenamed('_c8','Dining_Available')\
.withColumnRenamed('_c9','Online_order_Available')\
.withColumnRenamed('_c10','Payment Mode')\
.withColumnRenamed('_c11','Ratings')\
.withColumnRenamed('_c12','Rating_Count')
```

[ ] Food1.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	null	Non-Veg	KoregaonPark	9322445555	Biryani	40	290	No	Yes	Online	2.5	35
null	null	null	Kothrud	8513445456	Chinese/Indian/Bi...	54	350	Yes	Yes	Both	4.9	50
null	null	null	null	8165661215	North Indian	51	280	No	Yes	Both	3	48
null	null	null	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	Yes	null	null	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	Chinese/Indian/Bi...	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	Yes	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.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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Gmail   YouTube   Maps   Excel Exercises | Exc...   NCS|Home: Nation...   stock market part 2...   Antriksh Jigyasa   Signin   GoCharting - World...   BANKNIFTY: 45468...

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```
[ ] |         Atmosphere 6|
    |      St Regis Hotels |
    |               Hyatt |
    |            1000 Oaks|
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```

```
[ ] Food1.na.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|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|
|  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|      280|              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()
```

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|             No|                  Yes|      Online|    2.5|          35|
|null|          values|           null|    Kothrud|8513445456|Chinese/Indian/Bi...|        54|      350|            Yes|                  Yes|        Both|    4.9|          50|
|null|          values|           null|       null|8165661215|    North Indian|        51|      280|             No|                  Yes|        Both|      3|          48|
|null|          values|           null|       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 Mo|
+----+----------------+----------------+-----------+----------+----------------+------------+---------+---------------+-------------------+----------+
| No|  Restaurant Name|Restaurant Type|    Address| Phone No|         Cuisine|Orders_count|Min_price|Dining_Available|Online_order_Avai...|Payment_Mc|
|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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Imputer

```
| 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|
only showing top 20 rows
```

Imputer

```python
from pyspark.ml.feature import Imputer
```

```python
imputer = Imputer(
    inputCols=['Orders_count','Min_price','Rating_Count'],
    outputCols=["{}_imputed".format(c) for c in ['Orders_count','Min_price','Rating_Count']]
).setStrategy("median")
```

```python
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|9566333241|        North Indian|          47|      250|             Yes|                   Yes|      Online|    3.1|          47|                  47|              250|                  47|
| 10|     Rancho Casino|            Veg|  Vimannagar|9877664532|             Chinese|          43|      300|             Yes|                   Yes|        Both|    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|          W Hotel|            Veg|     Kondhwa|9435662245|         North Indian|          35|      300|              No|                   Yes|      Online|    3.0|          25|                  35|              300|                  25|
| 17|      Atmosphere 6| Veg & Non-Veg|  Vimannagar|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|
only showing top 20 rows
```

```python
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|9566333241|        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|
```

```python
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|  Vimannagar|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|   Hinjawadi|7373882828|Indian, Chinese, ...|          69|      400|              No|                   Yes|        Both|    5.0|          65|
| 30|  Coriender Kitchen| Veg & Non-Veg|   Sangamwadi|5964464984|Chinese,Indian,Bi...|          50|      300|             Yes|                   Yes|        Both|    4.9|          49|
```
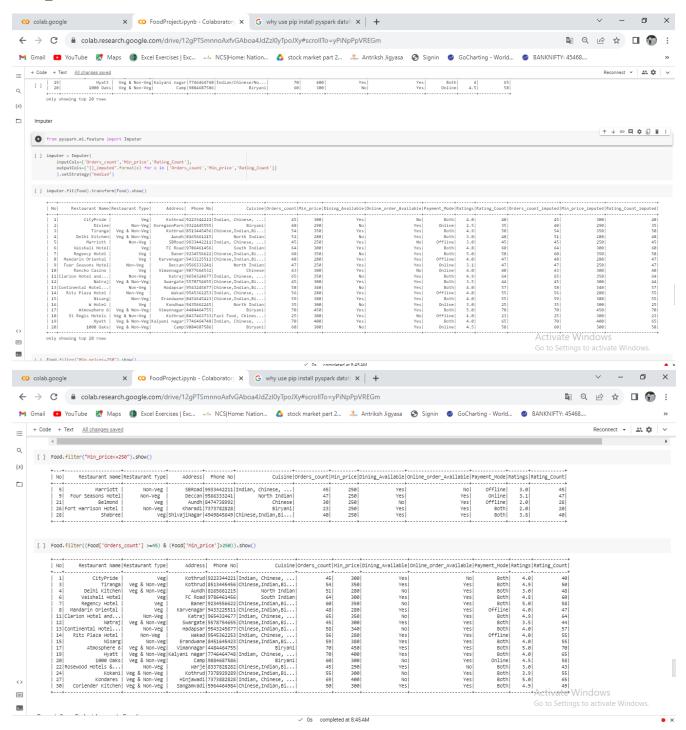
Pyspark GroupBy And Aggregate Functions

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```
[ ] | 27|        Kondares | Veg & Non-Veg |   Hinjawadi|7373882828|Indian, Chinese, ...|    69|   400|    No|    Yes|    Both|   5.0|    65|
    | 30|  Coriender Kitchen| Veg & Non-Veg |  Sangamvadi|5964464984|Chinese,Indian,Bi...|    50|   300|   Yes|    Yes|    Both|   4.9|    49|
```

Pyspark GroupBy And Aggregate Functions

```
[ ] 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|    5|
|        Non-Veg|    2|
|        Non-Veg|    5|
|            Veg|    1|
|            Veg|    4|
|        Non-Veg|    2|
+---------------+-----+
```

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Gmail   YouTube   Maps   Excel Exercises | Exc...   NCS|Home: Nation...   stock market part 2...   Antriksh Jigyasa   Signin   GoCharting - World...   BANKNIFTY: 45468....

+ Code   + Text   All changes saved   Reconnect

```
        Non-Veg|    2|
        Non-Veg|    5|
            Veg|    1|
            Veg|    4|
        Non-Veg|    2|
+---------------+-----+
```

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

```
+------------+-----+
|Payment_Mode|count|
+------------+-----+
|        Both|   17|
|      Online|    7|
|     Offline|    6|
+------------+-----+
```

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

```
+-----------------+
|sum(Orders_count)|
+-----------------+
|             1465|
+-----------------+
```

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

```
+--------------+-------------------+
|sum(Min_price)|count(Orders_count)|
+--------------+-------------------+
|          9250|                 30|
+--------------+-------------------+
```

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