Ola.

June 18, 2025

```
import pandas as pd
     import numpy as nb
     import seaborn as sb
     import matplotlib.pyplot as plt
[2]: df=pd.read_csv("Bengaluru Ola.csv")
[3]:
     df
[3]:
                                                       Booking Status
                                                                        Customer ID
                   Date
                              Time
                                    Booking ID
     0
             28/01/2024
                           6:00:00
                                    CNR1721175
                                                               Success
                                                                              329258
     1
             26/01/2024
                           3:00:00
                                    CNR2871422
                                                 Cancelled by Driver
                                                                              201414
     2
             15/01/2024
                                                 Cancelled by Driver
                          16:00:00
                                    CNR6875935
                                                                              301629
     3
             02/01/2024
                          22:00:00
                                                 Cancelled by Driver
                                    CNR6798834
                                                                              319684
     4
             30/01/2024
                                                           Incomplete
                          22:00:00
                                    CNR9661713
                                                                              330283
     49994
            02/01/2024
                           0:00:00
                                    CNR7299340
                                                               Success
                                                                              454202
     49995
            27/01/2024
                           2:00:00
                                    CNR0378586
                                                               Success
                                                                              349873
     49996
             17/01/2024
                          23:00:00
                                    CNR2461856
                                                 Cancelled by Driver
                                                                              880053
     49997
             18/01/2024
                          22:00:00
                                    CNR9524579
                                                                              752806
                                                               Success
     49998
            28/01/2024
                          14:00:00
                                    CNR3698787
                                                               Success
                                                                              159552
           Vehicle Type Pickup Location Drop Location
                                                           Avg VTAT
                                                                      Avg CTAT
     0
                    Auto
                                   Area-3
                                                   Area-2
                                                                5.42
                                                                         18.46
     1
                    Mini
                                   Area-7
                                                   Area-6
                                                                NaN
                                                                           NaN
     2
                    Bike
                                  Area-40
                                                 Area-24
                                                                NaN
                                                                           NaN
     3
            Prime Sedan
                                  Area-11
                                                 Area-24
                                                                NaN
                                                                           NaN
     4
                                                 Area-45
                    Bike
                                  Area-41
                                                                NaN
                                                                           NaN
                                                                ... ...
                                                                          2.42
     49994
                   eBike
                                  Area-39
                                                 Area-34
                                                               11.53
     49995
                    Auto
                                  Area-17
                                                 Area-21
                                                                5.56
                                                                          9.05
     49996
                    Auto
                                  Area-37
                                                 Area-43
                                                                NaN
                                                                           NaN
                   eBike
     49997
                                  Area-48
                                                 Area-29
                                                               5.15
                                                                         13.72
     49998
                    Bike
                                   Area-1
                                                 Area-37
                                                               14.89
                                                                         28.07
            Reason for Cancelling by Customer Cancelled Rides by Driver
     0
                                             NaN
                                                                           0
     1
                                             NaN
                                                                            1
```

```
2
                                         NaN
                                                                        1
3
                                        NaN
                                                                        1
4
                                                                        0
                                         NaN
49994
                                        NaN
                                                                        0
49995
                                        NaN
                                                                        0
49996
                                        NaN
                                                                        1
49997
                                        NaN
                                                                        0
49998
                                                                        0
                                        NaN
            Reason for Cancelling by Driver Incomplete Rides
0
                                                                0
1
             The customer was coughing/sick
2
              Personal & Car related issues
                                                                0
3
             The customer was coughing/sick
                                                                0
4
                                           NaN
                                                                1
49994
                                           NaN
                                                                0
                                                                0
49995
                                           NaN
                                                                0
49996
       More than permitted people in there
49997
                                                                0
                                           NaN
49998
                                           NaN
                                                                0
                                                  Payment Method Ride Distance \
       Incomplete Rides Reason Booking Value
0
                                         868.06
                                                                            28.50
                             NaN
                                                           Wallet
1
                             NaN
                                                                              NaN
                                             NaN
                                                               NaN
                             NaN
                                             NaN
                                                               NaN
                                                                              NaN
3
                             NaN
                                             NaN
                                                               NaN
                                                                              NaN
                     Other Issue
4
                                             NaN
                                                               NaN
                                                                              NaN
49994
                             NaN
                                         1217.43
                                                              Card
                                                                            10.52
                                         1369.51
                                                               UPI
                                                                            11.04
49995
                             NaN
                                                                              NaN
49996
                             NaN
                                             NaN
                                                               NaN
                                                               UPI
49997
                             NaN
                                         1930.49
                                                                            14.49
49998
                                         1534.66
                                                                             4.60
                             NaN
                                                              Cash
       Driver Ratings
                         Customer Rating
0
                    4.4
                                      4.4
1
                   NaN
                                      NaN
2
                   NaN
                                      NaN
3
                   NaN
                                      NaN
4
                   NaN
                                      NaN
49994
                   4.1
                                      3.2
                                      4.3
49995
                   5.0
49996
                   NaN
                                      {\tt NaN}
                                      4.5
49997
                   3.1
```

49998 3.3 4.1

[49999 rows x 21 columns]

```
[4]: df.info()
```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 49999 entries, 0 to 49998
Data columns (total 21 columns):

| # | Column | Non-Null Count | Dtype |
|----|-----------------------------------|----------------|---------|
| 0 | Date | 49999 non-null | object |
| 1 | Time | 49999 non-null | • |
| 2 | Booking ID | 49999 non-null | • |
| 3 | Booking Status | 49999 non-null | object |
| 4 | Customer ID | 49999 non-null | int64 |
| 5 | Vehicle Type | 49999 non-null | object |
| 6 | Pickup Location | 49999 non-null | object |
| 7 | Drop Location | 49999 non-null | object |
| 8 | Avg VTAT | 33484 non-null | float64 |
| 9 | Avg CTAT | 33484 non-null | float64 |
| 10 | Cancelled by Customer | 49999 non-null | int64 |
| 11 | Reason for Cancelling by Customer | 3799 non-null | object |
| 12 | Cancelled Rides by Driver | 49999 non-null | int64 |
| 13 | Reason for Cancelling by Driver | 9610 non-null | object |
| 14 | Incomplete Rides | 49999 non-null | int64 |
| 15 | Incomplete Rides Reason | 3106 non-null | object |
| 16 | Booking Value | 33484 non-null | float64 |
| 17 | Payment Method | 33484 non-null | object |
| 18 | Ride Distance | 33484 non-null | float64 |
| 19 | Driver Ratings | 33484 non-null | float64 |
| 20 | Customer Rating | 33484 non-null | float64 |

dtypes: float64(6), int64(4), object(11)

memory usage: 8.0+ MB

[5]: df.shape

[5]: (49999, 21)

[6]: df.head()

| [6]: | Date | Time | Booking ID | Booking Status | Customer ID | \ |
|------|------------|----------|------------|---------------------|-------------|---|
| 0 | 28/01/2024 | 6:00:00 | CNR1721175 | Success | 329258 | |
| 1 | 26/01/2024 | 3:00:00 | CNR2871422 | Cancelled by Driver | 201414 | |
| 2 | 15/01/2024 | 16:00:00 | CNR6875935 | Cancelled by Driver | 301629 | |
| 3 | 02/01/2024 | 22:00:00 | CNR6798834 | Cancelled by Driver | 319684 | |
| 4 | 30/01/2024 | 22:00:00 | CNR9661713 | Incomplete | 330283 | |

```
5.42
                                                                    18.46
     0
                Auto
                               Area-3
                                              Area-2
     1
                Mini
                               Area-7
                                              Area-6
                                                            NaN
                                                                       NaN
     2
                Bike
                              Area-40
                                             Area-24
                                                            NaN
                                                                       NaN
     3
        Prime Sedan
                              Area-11
                                             Area-24
                                                            NaN
                                                                      NaN
               Bike
                              Area-41
                                             Area-45
                                                           NaN
                                                                      NaN
        Reason for Cancelling by Customer Cancelled Rides by Driver
     0
                                        NaN
     1
                                        NaN
                                                                       1
     2
                                        NaN
                                                                       1
     3
                                        NaN
                                                                       1
                                        NaN
                                                                       0
        Reason for Cancelling by Driver Incomplete Rides
                                                              Incomplete Rides Reason
     0
                                                                                   NaN
                                                           0
     1
         The customer was coughing/sick
                                                                                   NaN
     2
                                                           0
          Personal & Car related issues
                                                                                   NaN
     3
         The customer was coughing/sick
                                                           0
                                                                                   NaN
                                      NaN
                                                                           Other Issue
       Booking Value Payment Method Ride Distance Driver Ratings
                                                                        Customer Rating
     0
              868.06
                                Wallet
                                                 28.5
                                                                   4.4
                                                                                      4.4
     1
                  NaN
                                   NaN
                                                  NaN
                                                                   NaN
                                                                                      NaN
     2
                                   NaN
                  NaN
                                                  NaN
                                                                   NaN
                                                                                      NaN
     3
                  NaN
                                   NaN
                                                  NaN
                                                                   NaN
                                                                                      NaN
                  NaN
                                   NaN
                                                  NaN
                                                                   NaN
                                                                                      NaN
     [5 rows x 21 columns]
[7]: df.tail()
[7]:
                   Date
                              Time
                                    Booking ID
                                                      Booking Status
                                                                      Customer ID
     49994
            02/01/2024
                          0:00:00
                                    CNR7299340
                                                              Success
                                                                             454202
     49995
                          2:00:00
            27/01/2024
                                    CNR0378586
                                                              Success
                                                                             349873
     49996
            17/01/2024
                         23:00:00
                                    CNR2461856
                                                 Cancelled by Driver
                                                                             880053
     49997
            18/01/2024
                         22:00:00
                                    CNR9524579
                                                              Success
                                                                             752806
     49998
            28/01/2024
                         14:00:00
                                    CNR3698787
                                                              Success
                                                                             159552
           Vehicle Type Pickup Location Drop Location
                                                          Avg VTAT
                                                                     Avg CTAT
     49994
                   eBike
                                  Area-39
                                                 Area-34
                                                              11.53
                                                                          2.42
     49995
                    Auto
                                  Area-17
                                                 Area-21
                                                               5.56
                                                                          9.05
     49996
                    Auto
                                  Area-37
                                                 Area-43
                                                                NaN
                                                                           NaN
     49997
                   eBike
                                                                         13.72
                                  Area-48
                                                 Area-29
                                                               5.15
     49998
                    Bike
                                   Area-1
                                                 Area-37
                                                              14.89
                                                                         28.07 ...
            Reason for Cancelling by Customer Cancelled Rides by Driver \
```

Avg VTAT

Avg CTAT

Vehicle Type Pickup Location Drop Location

```
49994
                                             NaN
                                                                           0
     49995
                                             NaN
                                                                           0
     49996
                                             NaN
                                                                           1
                                                                           0
     49997
                                             NaN
     49998
                                             NaN
                                                                           0
                Reason for Cancelling by Driver Incomplete Rides
     49994
                                               NaN
                                                                   0
                                                                   0
     49995
                                               NaN
     49996
            More than permitted people in there
                                                                   0
     49997
                                                                   0
                                               NaN
     49998
                                               NaN
                                                                   0
            Incomplete Rides Reason Booking Value
                                                      Payment Method Ride Distance \
     49994
                                  NaN
                                             1217.43
                                                                 Card
                                                                               10.52
     49995
                                                                  UPI
                                  NaN
                                             1369.51
                                                                               11.04
     49996
                                  NaN
                                                                  NaN
                                                                                 NaN
                                                 NaN
     49997
                                             1930.49
                                                                  UPI
                                                                               14.49
                                  NaN
                                                                                4.60
     49998
                                  NaN
                                             1534.66
                                                                 Cash
            Driver Ratings
                             Customer Rating
     49994
                        4.1
                                           3.2
     49995
                        5.0
                                           4.3
     49996
                        NaN
                                          NaN
     49997
                        3.1
                                           4.5
     49998
                        3.3
                                           4.1
     [5 rows x 21 columns]
     df.describe()
[8]:
              Customer ID
                                 Avg VTAT
                                                Avg CTAT
                                                           Cancelled by Customer
                                                                     49999.000000
     count
             49999.000000
                             33484.000000
                                            33484.000000
            550979.937539
                                10.481654
                                               15.564320
                                                                          0.075982
     mean
     std
            258855.930945
                                 5.490853
                                                8.365313
                                                                          0.264971
     min
            100001.000000
                                                                          0.00000
                                 1.000000
                                                1.000000
     25%
            328740.500000
                                 5.730000
                                                8.310000
                                                                          0.00000
     50%
            552598.000000
                                10.460000
                                               15.610000
                                                                          0.00000
     75%
            773970.000000
                                15.240000
                                               22.790000
                                                                          0.00000
     max
            999991.000000
                                20.000000
                                               30.000000
                                                                          1.000000
            Cancelled Rides by Driver
                                         Incomplete Rides
                                                            Booking Value
                          49999.000000
     count
                                              49999.000000
                                                              33484.000000
                               0.192204
                                                  0.062121
                                                               1023.374286
     mean
     std
                               0.394036
                                                  0.241378
                                                                563.595072
     min
                               0.000000
                                                  0.000000
                                                                 50.100000
     25%
                               0.00000
                                                  0.000000
                                                                532.942500
```

| | 50% 75% max | | 0.000000 0.000000 1.000000 | 0.000000 0.000000 1.000000 | 1023.350000 1514.677500 2000.000000 |
|-------|--|--|---|---|---|
| | count mean std min 25% 50% 75% max | Ride Distance 33484.000000 25.447143 14.175953 1.000000 13.100000 25.460000 37.670000 50.000000 | Driver Ratings 33484.00000 4.00304 0.57968 3.00000 4.00000 4.50000 5.00000 | Customer Rating 33484.000000 4.001726 0.579177 3.000000 3.500000 4.000000 4.5000000 5.0000000 | |
| [9]: | df.isn | ull().sum() | | | |
| [9]: | Custome Vehicle Pickup Drop Le Avg VT. Avg CT. Cancel Reason Cancel Reason Incomp Booking Paymen Ride Driver | g Status er ID e Type Location ocation AT AT led by Custome for Cancelling led Rides by Dr for Cancelling lete Rides lete Rides lete Rides Reas g Value t Method istance Ratings er Rating | by Customer iver by Driver | 0 0 0 0 0 0 0 0 0 16515 16515 16515 0 46200 0 40389 0 46893 16515 16515 16515 | |
| [10]: | df['Av | g VTAT']=df['Av | g VTAT'].fillna(| (0) | |
| [11]: | df.isn | ull().sum() | | | |
| [11]: | Date Time Booking Booking | g ID g Status | | 0 0 0 0 | |

| Customer ID | 0 |
|-----------------------------------|-------|
| Vehicle Type | 0 |
| Pickup Location | 0 |
| Drop Location | 0 |
| Avg VTAT | 0 |
| Avg CTAT | 16515 |
| Cancelled by Customer | 0 |
| Reason for Cancelling by Customer | 46200 |
| Cancelled Rides by Driver | 0 |
| Reason for Cancelling by Driver | 40389 |
| Incomplete Rides | 0 |
| Incomplete Rides Reason | 46893 |
| Booking Value | 16515 |
| Payment Method | 16515 |
| Ride Distance | 16515 |
| Driver Ratings | 16515 |
| Customer Rating | 16515 |
| dtype: int64 | |

[12]: df['Avg CTAT'].fillna(1,inplace=True)

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\1426927941.py:1:

FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.

The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the original object.

df['Avg CTAT'].fillna(1,inplace=True)

| [13]: df.isnull().sum() | | |
|-------------------------|------|--|
| [13]: Date | 0 | |
| Time | 0 | |
| Booking ID | 0 | |
| Booking Status | 0 | |
| Customer ID | 0 | |
| Vehicle Type | 0 | |
| Pickup Location | 0 | |
| Drop Location | 0 | |
| Avg VTAT | 0 | |
| Avg CTAT | 0 | |
| Cancelled by Custom | er 0 | |

```
Reason for Cancelling by Customer
                                     46200
Cancelled Rides by Driver
Reason for Cancelling by Driver
                                      40389
Incomplete Rides
Incomplete Rides Reason
                                     46893
Booking Value
                                      16515
Payment Method
                                      16515
Ride Distance
                                      16515
Driver Ratings
                                      16515
Customer Rating
                                      16515
dtype: int64
```

[14]: df['Reason for Cancelling by Driver']=df['Reason for Cancelling by Driver'].

[15]: df.isnull().sum()

| [15]: | Date | 0 |
|-------|-----------------------------------|-------|
| | Time | 0 |
| | Booking ID | 0 |
| | Booking Status | 0 |
| | Customer ID | 0 |
| | Vehicle Type | 0 |
| | Pickup Location | 0 |
| | Drop Location | 0 |
| | Avg VTAT | 0 |
| | Avg CTAT | 0 |
| | Cancelled by Customer | 0 |
| | Reason for Cancelling by Customer | 46200 |
| | Cancelled Rides by Driver | 0 |
| | Reason for Cancelling by Driver | 0 |
| | Incomplete Rides | 0 |
| | Incomplete Rides Reason | 46893 |
| | Booking Value | 16515 |
| | Payment Method | 16515 |
| | Ride Distance | 16515 |
| | Driver Ratings | 16515 |
| | Customer Rating | 16515 |
| | dtype: int64 | |
| | | |

[16]: df['Reason for Cancelling by Customer'].fillna('Traffic',inplace=True)

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\252031365.py:1: FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.

The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the original object.

df['Reason for Cancelling by Customer'].fillna('Traffic',inplace=True)

| : df.isr | null().sum() | | | | | |
|----------------|--------------------------|------------|--------------|---------------------|-------------|---|
| : Date | | | | 0 | | |
| Time | | | | 0 | | |
| Bookin | ng ID | | | 0 | | |
| | ng Status | | | 0 | | |
| Custon | • | | | 0 | | |
| Vehicl | Le Type | | | 0 | | |
| | Location | | | 0 | | |
| _ | ocation | | | 0 | | |
| Avg VI | | | | 0 | | |
| Avg Cl | | | | 0 | | |
| _ | led by Cust | omer | | 0 | | |
| Reason | n for Cancell | ing by Cus | tomer | 0 | | |
| Cancel | led Rides by | Driver | | 0 | | |
| Reason | n for Cancell | ing by Dri | ver | 0 | | |
| Incomp | olete Rides | | | 0 | | |
| Incomp | olete Rides R | leason | 468 | 93 | | |
| Bookin | ng Value | | 165 | 15 | | |
| Paymer | nt Method | | 165 | 15 | | |
| Ride D |)istance | | 165 | 15 | | |
| Driver | Ratings | | 165 | 15 | | |
| Custon | ner Rating | | 165 | 15 | | |
| dtype: | int64 | | | | | |
| : df | | | | | | |
| : | Date | Time | Booking ID | Booking Status | Customer ID | \ |
| 0 | 28/01/2024 | 6:00:00 | CNR1721175 | Success | 329258 | |
| 1 | 26/01/2024 | 3:00:00 | CNR2871422 | Cancelled by Driver | 201414 | |
| 2 | 15/01/2024 | 16:00:00 | CNR6875935 | Cancelled by Driver | 301629 | |
| 3 | 02/01/2024 | | CNR6798834 | Cancelled by Driver | 319684 | |
| 4 | 30/01/2024 | 22:00:00 | CNR9661713 | Incomplete | 330283 | |
| ••• | ••• | ••• | ••• | | | |
| 49994 | 02/01/2024 | 0:00:00 | CNR7299340 | Success | 454202 | |
| 49995 | 27/01/2024 | 2:00:00 | CNR0378586 | Success | 349873 | |
| | | 23:00:00 | CNR2461856 | Cancelled by Driver | 880053 | |
| 49996 | 17/01/2024 | 23.00.00 | CIVILETOTOGO | odnostica by bilver | 00000 | |
| 49996 49997 | 17/01/2024 18/01/2024 | 22:00:00 | CNR9524579 | Success | 752806 | |

```
Vehicle Type Pickup Location Drop Location
                                                     Avg VTAT
                                                                 Avg CTAT
0
               Auto
                                                           5.42
                                                                    18.46
                              Area-3
                                             Area-2
                                                          0.00
1
               Mini
                              Area-7
                                             Area-6
                                                                     1.00
2
               Bike
                             Area-40
                                                          0.00
                                            Area-24
                                                                     1.00
3
       Prime Sedan
                             Area-11
                                            Area-24
                                                          0.00
                                                                     1.00
4
               Bike
                             Area-41
                                            Area-45
                                                          0.00
                                                                     1.00
49994
              eBike
                             Area-39
                                            Area-34
                                                         11.53
                                                                     2.42
49995
                                                          5.56
                                                                     9.05
               Auto
                             Area-17
                                            Area-21
49996
               Auto
                             Area-37
                                            Area-43
                                                          0.00
                                                                     1.00
              eBike
                             Area-48
                                            Area-29
                                                                    13.72
49997
                                                          5.15
49998
               Bike
                              Area-1
                                            Area-37
                                                         14.89
                                                                    28.07 ...
       Reason for Cancelling by Customer Cancelled Rides by Driver
0
                                   Traffic
                                   Traffic
1
                                                                       1
2
                                   Traffic
                                                                      1
3
                                   Traffic
4
                                   Traffic
                                                                      0
49994
                                                                      0
                                   Traffic
49995
                                   Traffic
                                                                      0
49996
                                   Traffic
                                                                      1
49997
                                   Traffic
                                                                      0
49998
                                   Traffic
                                                                      0
           Reason for Cancelling by Driver Incomplete Rides
0
                                Health Issue
                                                               0
1
            The customer was coughing/sick
                                                               0
2
              Personal & Car related issues
                                                               0
3
            The customer was coughing/sick
                                                               0
4
                                Health Issue
                                                               1
49994
                                Health Issue
                                                               0
49995
                                Health Issue
                                                               0
49996
       More than permitted people in there
                                                               0
49997
                                Health Issue
                                                               0
49998
                                Health Issue
                                                               0
       Incomplete Rides Reason Booking Value
                                                 Payment Method Ride Distance
0
                                         868.06
                                                          Wallet
                                                                           28.50
                             NaN
1
                             NaN
                                            NaN
                                                              NaN
                                                                             NaN
2
                             NaN
                                            NaN
                                                              NaN
                                                                             NaN
3
                             NaN
                                            NaN
                                                              NaN
                                                                             NaN
4
                    Other Issue
                                            NaN
                                                              NaN
                                                                             NaN
49994
                             NaN
                                        1217.43
                                                             Card
                                                                           10.52
```

| 49995 | | NaN | 1369.51 | UPI | 11.04 |
|--------|------------------|----------|---------|------|-------|
| 49996 | | NaN | NaN | NaN | NaN |
| 49997 | | NaN | 1930.49 | UPI | 14.49 |
| 49998 | | NaN | 1534.66 | Cash | 4.60 |
| | Driver Ratings | Customer | Rating | | |
| 0 | 4.4 | | 4.4 | | |
| 1 | NaN | | NaN | | |
| 2 | NaN | | NaN | | |
| 3 | NaN | | NaN | | |
| 4 | NaN | | NaN | | |
| | ••• | | ••• | | |
| 49994 | 4.1 | | 3.2 | | |
| 49995 | 5.0 | | 4.3 | | |
| 49996 | NaN | | NaN | | |
| 49997 | 3.1 | | 4.5 | | |
| 49998 | 3.3 | | 4.1 | | |
| ΓΔαααα | rows x 21 colum | nel | | | |
| LTJJJJ | TOWS A ZI COIUII | 112] | | | |

```
[19]: df.isnull().sum()
[19]: Date
                                                 0
      Time
                                                 0
```

Booking ID 0 Booking Status 0 Customer ID 0 Vehicle Type 0 Pickup Location 0 Drop Location 0 Avg VTAT 0 Avg CTAT 0 Cancelled by Customer Reason for Cancelling by Customer 0 Cancelled Rides by Driver 0 Reason for Cancelling by Driver 0 Incomplete Rides 0 Incomplete Rides Reason 46893 Booking Value 16515 Payment Method 16515 Ride Distance 16515 Driver Ratings 16515 Customer Rating 16515 dtype: int64

[20]: df['Incomplete Rides Reason'].fillna('Critical Situation',inplace=True)

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\578893116.py:1: FutureWarning:

A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.

The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the original object.

df['Incomplete Rides Reason'].fillna('Critical Situation',inplace=True)

| 21]: df.isnull().sum() | | | |
|--------------------------|---------------|-------|--|
| [<mark>21]: Date</mark> | | 0 | |
| Time | | 0 | |
| Booking ID | | 0 | |
| Booking Status | | 0 | |
| Customer ID | | 0 | |
| Vehicle Type | | 0 | |
| Pickup Location | | 0 | |
| Drop Location | | 0 | |
| Avg VTAT | | 0 | |
| Avg CTAT | | 0 | |
| Cancelled by Custome | er | 0 | |
| Reason for Cancelling | g by Customer | 0 | |
| Cancelled Rides by Di | river | 0 | |
| Reason for Cancelling | g by Driver | 0 | |
| Incomplete Rides | | 0 | |
| Incomplete Rides Reas | son | 0 | |
| Booking Value | | 16515 | |
| Payment Method | | 16515 | |
| Ride Distance | | 16515 | |
| Driver Ratings | | 16515 | |
| Customer Rating | | 16515 | |
| dtype: int64 | | | |

[22]: df['Booking Value'].fillna(1000.00,inplace=True)

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\339474169.py:1: FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.

The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using

'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the original object.

df['Booking Value'].fillna(1000.00,inplace=True)

[23]: df['Payment Method'].fillna('online',inplace=True)

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\1307734987.py:1:
FutureWarning: A value is trying to be set on a copy of a DataFrame or

FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.

The behavior will change in pandas 3.0. This implace method will never work because the intermediate object on which we are setting values always behaves as a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the original object.

df['Payment Method'].fillna('online',inplace=True)

[24]: df.isnull().sum() [24]: Date 0 Time 0 0 Booking ID Booking Status 0 Customer ID 0 Vehicle Type 0 Pickup Location 0 Drop Location 0 Avg VTAT 0 Avg CTAT 0 Cancelled by Customer 0 Reason for Cancelling by Customer 0 Cancelled Rides by Driver 0 Reason for Cancelling by Driver 0 Incomplete Rides 0 Incomplete Rides Reason 0 Booking Value 0 0 Payment Method Ride Distance 16515 Driver Ratings 16515 Customer Rating 16515 dtype: int64

[]:

[25]: df['Ride Distance'].fillna(30,inplace=True)

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\3087966065.py:1: FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.

The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the original object.

```
df['Ride Distance'].fillna(30,inplace=True)
[26]: df['Customer Rating']=df['Customer Rating'].fillna(4.0)
[27]: df.isnull().sum()
[27]: Date
                                                 0
                                                 0
      Time
                                                 0
      Booking ID
      Booking Status
                                                 0
      Customer ID
      Vehicle Type
                                                 0
      Pickup Location
                                                 0
      Drop Location
                                                 0
      Avg VTAT
                                                 0
      Avg CTAT
                                                 0
      Cancelled by Customer
                                                 0
      Reason for Cancelling by Customer
                                                 0
      Cancelled Rides by Driver
                                                 0
      Reason for Cancelling by Driver
                                                 0
      Incomplete Rides
                                                 0
      Incomplete Rides Reason
                                                 0
      Booking Value
                                                 0
                                                 0
      Payment Method
      Ride Distance
                                                 0
      Driver Ratings
                                             16515
      Customer Rating
                                                 0
      dtype: int64
[28]: df["Driver Ratings"]=df["Driver Ratings"].fillna(4.5)
[29]: df
```

```
[29]:
                              Time Booking ID
                                                       Booking Status Customer ID \
                    Date
             28/01/2024
      0
                           6:00:00
                                    CNR1721175
                                                              Success
                                                                             329258
      1
             26/01/2024
                           3:00:00 CNR2871422
                                                 Cancelled by Driver
                                                                             201414
      2
             15/01/2024
                          16:00:00
                                                  Cancelled by Driver
                                     CNR6875935
                                                                             301629
      3
                                                  Cancelled by Driver
             02/01/2024
                          22:00:00
                                     CNR6798834
                                                                             319684
             30/01/2024
                          22:00:00
                                                           Incomplete
                                     CNR9661713
                                                                             330283
      49994
             02/01/2024
                           0:00:00
                                   CNR7299340
                                                              Success
                                                                             454202
      49995
             27/01/2024
                           2:00:00
                                    CNR0378586
                                                              Success
                                                                             349873
      49996
             17/01/2024
                          23:00:00
                                     CNR2461856
                                                  Cancelled by Driver
                                                                             880053
      49997
             18/01/2024
                          22:00:00
                                     CNR9524579
                                                              Success
                                                                             752806
      49998 28/01/2024
                          14:00:00
                                                              Success
                                     CNR3698787
                                                                             159552
            Vehicle Type Pickup Location Drop Location Avg VTAT
                                                                      Avg CTAT
                     Auto
                                                                         18.46
      0
                                    Area-3
                                                   Area-2
                                                               5.42
      1
                     Mini
                                    Area-7
                                                   Area-6
                                                               0.00
                                                                          1.00
      2
                     Bike
                                   Area-40
                                                  Area-24
                                                               0.00
                                                                          1.00
      3
             Prime Sedan
                                                               0.00
                                                                          1.00
                                   Area-11
                                                 Area-24
      4
                     Bike
                                                 Area-45
                                                               0.00
                                                                          1.00
                                   Area-41
      49994
                    eBike
                                   Area-39
                                                  Area-34
                                                              11.53
                                                                          2.42
                                                               5.56
                                                                          9.05
      49995
                     Auto
                                   Area-17
                                                  Area-21
      49996
                     Auto
                                   Area-37
                                                  Area-43
                                                               0.00
                                                                          1.00
      49997
                    eBike
                                   Area-48
                                                  Area-29
                                                               5.15
                                                                         13.72
      49998
                     Bike
                                    Area-1
                                                              14.89
                                                                         28.07 ...
                                                  Area-37
             Reason for Cancelling by Customer Cancelled Rides by Driver
      0
                                         Traffic
                                                                           0
      1
                                         Traffic
      2
                                         Traffic
                                                                           1
      3
                                         Traffic
                                                                           1
      4
                                         Traffic
                                                                           0
      49994
                                         Traffic
                                                                           0
                                         Traffic
                                                                           0
      49995
      49996
                                         Traffic
                                                                           0
      49997
                                         Traffic
      49998
                                         Traffic
                 Reason for Cancelling by Driver Incomplete Rides
      0
                                      Health Issue
      1
                  The customer was coughing/sick
                                                                    0
                    Personal & Car related issues
      2
                                                                    0
      3
                  The customer was coughing/sick
                                                                    0
      4
                                      Health Issue
                                                                    1
      49994
                                      Health Issue
                                                                    0
```

```
49995
                                      Health Issue
                                                                   0
      49996
             More than permitted people in there
                                                                   0
      49997
                                      Health Issue
                                                                   0
      49998
                                      Health Issue
                                                                   0
             Incomplete Rides Reason Booking Value
                                                     Payment Method Ride Distance \
      0
                   Critical Situation
                                              868.06
                                                               Wallet
                                                                               28.50
      1
                   Critical Situation
                                             1000.00
                                                               online
                                                                               30.00
      2
                   Critical Situation
                                             1000.00
                                                               online
                                                                               30.00
      3
                   Critical Situation
                                             1000.00
                                                               online
                                                                               30.00
      4
                          Other Issue
                                             1000.00
                                                               online
                                                                               30.00
      49994
                   Critical Situation
                                             1217.43
                                                                 Card
                                                                               10.52
                                                                  UPI
      49995
                   Critical Situation
                                             1369.51
                                                                               11.04
                   Critical Situation
                                                                               30.00
      49996
                                             1000.00
                                                               online
                                                                  UPI
      49997
                   Critical Situation
                                             1930.49
                                                                               14.49
                   Critical Situation
                                                                 Cash
                                                                                4.60
      49998
                                             1534.66
             Driver Ratings
                              Customer Rating
      0
                         4.4
                                           4.4
      1
                         4.5
                                           4.0
      2
                         4.5
                                           4.0
      3
                         4.5
                                           4.0
      4
                         4.5
                                           4.0
      49994
                         4.1
                                           3.2
      49995
                                           4.3
                         5.0
      49996
                         4.5
                                           4.0
      49997
                         3.1
                                           4.5
      49998
                         3.3
                                           4.1
      [49999 rows x 21 columns]
[30]: df.head(5)
[30]:
               Date
                          Time
                                Booking ID
                                                  Booking Status
                                                                   Customer ID \
      0 28/01/2024
                       6:00:00
                                CNR1721175
                                                          Success
                                                                         329258
      1 26/01/2024
                       3:00:00
                                CNR2871422
                                             Cancelled by Driver
                                                                         201414
                                             Cancelled by Driver
      2 15/01/2024
                      16:00:00
                                CNR6875935
                                                                         301629
      3 02/01/2024
                      22:00:00
                                CNR6798834
                                             Cancelled by Driver
                                                                         319684
      4 30/01/2024
                      22:00:00
                                CNR9661713
                                                       Incomplete
                                                                         330283
        Vehicle Type Pickup Location Drop Location Avg VTAT Avg CTAT
                                                                    18.46
      0
                 Auto
                               Area-3
                                              Area-2
                                                           5.42
      1
                Mini
                               Area-7
                                              Area-6
                                                           0.00
                                                                     1.00 ...
                                                                     1.00 ...
      2
                Bike
                              Area-40
                                             Area-24
                                                           0.00
      3 Prime Sedan
                              Area-11
                                                                     1.00 ...
                                             Area-24
                                                           0.00
```

| | 4 | Bike | Ar | rea-41 | Area-45 | 0.0 | 0 1. | 00 | | |
|-------|--|-------------------------|---|-------------------------------|---|--------|-----------|--------|--------|-------|
| | | Reason for C | ancelling | hy Customer | Cancelled | Ridas | hy Driver | \ | | |
| | 0 | neason for C | ancerring | Traffic | Cancelled | ittues | Dy Diiver | | | |
| | 1 | | | Traffic | | | 1 | | | |
| | 2 | | | Traffic | | | 1 | | | |
| | 3 | | | Traffic | | | 1 | | | |
| | 4 | | | Traffic | | | 0 | | | |
| | | | | | | | | | | |
| | | Reason for C | ancelling | by Driver In | ncomplete 1 | Rides | Incomplet | e Ride | s Rea | son \ |
| | 0 | | • | alth Issue | • | 0 | _ | ical S | | |
| | 1 | The custome | r was coug | hing/sick | | 0 | Crit | ical S | Situat | ion |
| | 2 | Personal & | - | | | 0 | Crit | ical S | Situat | ion |
| | 3 | The custome | r was coug | hing/sick | | 0 | Crit | ical S | Situat | ion |
| | 4 | | - | alth Issue | | 1 | | Oth | er Is | sue |
| | | | | | | | | | | |
| | | Booking Value | Payment | Method Ride | Distance | Driver | Ratings | Custo | mer R | ating |
| | 0 | 868.06 | | Wallet | 28.5 | | 4.4 | | | 4.4 |
| | 1 | 1000.00 | | online | 30.0 | | 4.5 | | | 4.0 |
| | 2 | 1000.00 | | online | 30.0 | | 4.5 | | | 4.0 |
| | 3 | 1000.00 | | online | 30.0 | | 4.5 | | | 4.0 |
| | 4 | 1000.00 | | online | 30.0 | | 4.5 | | | 4.0 |
| [31]: | Da 28 Ti 6: Bo CN Bo Su Cu 39 Ve | /01/202409/01 | /202410/01 2:00:0022: 55705CNR01 uccessSucc | ./202422/01/3 00:0010:00:0 | 0012:00:00. 4056CNR931. uccessCanc. | | | | | |
| | | ea-3Area-34Ar | ea-35Area- | -29Area-42Are | ea-15Area | | | | | |
| | | op Location | 004 | 404 404 | 404- | | | | | |
| | | ea-2Area-11Ar ~ VTAT | ea-22Area- | -49Area-10Are | ea-48Area | •• | | | | |
| | | g VTAT | | | | | | | | |
| | | 938.22 CTAT | | | | | | | | |
| | | g CTAT | | | | | | | | |

76346.03

Cancelled by Customer

518

Reason for Cancelling by Customer

Traffic

Cancelled Rides by Driver

1338

Reason for Cancelling by Driver Health IssueHealth IssueHealth

Iss...

Incomplete Rides

454

Incomplete Rides Reason Critical SituationCritical

SituationCritical S...

Booking Value

7180612.58

Payment Method

 ${\tt WalletCardUPICardWalletCashonlineUPICardonline...}$

Ride Distance

192543.2

Driver Ratings

29574.0

Customer Rating

28419.4

dtype: object

[32]: df[df['Vehicle Type'] == 'Bike'].value_counts()

| [32]: | Data | T: D. | alaina TD | Daalain m | | | C 1 | TD | Wahi ala |
|-------|--------------|--------------|-----------|-----------|------------|--------|------------|------|-------------|
| [32]: | | Time Bo | • | _ | | | | | |
| | | • | - | | • | • | | | by Customer |
| | Reason for (| Cancelling b | y Custome | er | Canc | elled | Rides by I | Driv | ver Reason |
| | for Cancell: | ing by Drive | r Incomp | olete Rid | les Incomp | lete R | ides Reaso | on | Booking |
| | Value Paymo | ent Method | Ride Dist | ance Dr | iver Ratin | gs Cu | stomer Rat | ting | 5 |
| | 31/01/2024 | 0:00:00 CN | R9106501 | Success | | | 713692 | | Bike |
| | Area-21 | Area-1 | 5 | 10.76 | 16.80 | 0 | | | |
| | Traffic | | | | 0 | | | | Health |
| | Issue | | 0 | | Critic | al Sit | uation | | 221.45 |
| | Cash | 1.26 | 4 | 1.8 | 4.1 | | | 1 | |
| | 01/01/2024 | 0:00:00 CN | R0182483 | Cancell | ed by Cust | omer | 321326 | | Bike |
| | Area-30 | Area-2 | 6 | 0.00 | 1.00 | 1 | | | |
| | Change of p | lans | | | 0 | | | | Health |
| | Issue | | 0 | | Critic | al Sit | uation | | 1000.00 |
| | online | 30.00 | 4 | 1.5 | 4.0 | | | 1 | |
| | | CN | R0736513 | Success | | | 944975 | | Bike |
| | Area-27 | Area-3 | 8 | 19.38 | 3.29 | 0 | | | |
| | Traffic | | | | 0 | | | | Health |
| | Issue | | 0 | | Critic | al Sit | uation | | 438.73 |
| | Cash | 41.45 | 4 | 1.5 | 4.9 | | | 1 | |
| | | CN | R1428423 | Success | | | 403869 | | Bike |

```
Traffic
                                                                                  Health
      Issue
                                                    Critical Situation
                                                                              101.52
      Wallet
                       1.19
                                      3.9
                                                       4.5
                            CNR2283026 Success
                                                                296651
                                                                              Bike
                                       13.40
      Area-4
                       Area-40
                                                  25.69
      Traffic
                                                      0
                                                                                  Health
      Issue
                                                                              1967.61
                                 0
                                                    Critical Situation
      Cash
                      35.52
                                                       4.4
                                      4.0
                                                                           1
                            CNR8924669 Success
                                                                280936
                                                                              Bike
      Area-12
                        Area-10
                                       4.91
                                                  4.70
                                                            0
      Traffic
                                                                                  Health
      Issue
                                                    Critical Situation
                                                                              1230.87
      Card
                       44.92
                                      3.4
                                                       3.7
                                                                           1
                            CNR7676214 Success
                                                                664766
                                                                              Bike
      Area-25
                                       8.47
                       Area-30
                                                  24.40
                                                            0
      Traffic
                                                                                  Health
                                                    Critical Situation
      Issue
                                 0
                                                                              1344.06
      Card
                                      4.6
                                                       4.8
                            CNR6897816 Success
                                                                              Bike
                                                                480196
      Area-22
                                       3.65
                                                  10.58
                                                            0
                       Area-5
      Traffic
                                                                                  Health
      Issue
                                                    Critical Situation
                                                                              826.79
      Wallet
                      49.50
                                      4.2
                                                       4.4
                                                                           1
                            CNR4718636 Cancelled by Customer 587007
                                                                              Bike
                                       0.00
                                                  1.00
                       Area-6
      Driver is not moving towards pickup location 0
                                                                                  Health
      Issue
                                                    Critical Situation
                                                                              1000.00
      online
                      30.00
                                      4.5
                                                       4.0
                                                                           1
                            CNR4620663 Success
                                                                              Bike
                                                                466768
      Area-50
                                       8.83
                       Area-5
                                                  5.90
      Traffic
                                                      0
                                                                                  Health
      Issue
                                 0
                                                    Critical Situation
                                                                              1013.42
      Wallet
                      23.63
                                                       4.2
      Name: count, Length: 7223, dtype: int64
[33]: (df['Vehicle Type']=='Auto').sum()
[33]: np.int64(7098)
[34]: (df['Vehicle Type']=='Mini').sum()
[34]: np.int64(7010)
[35]: (df['Vehicle Type']=='Bike').sum()
```

27.34

1.16

Area-11

Area-8

```
[35]: np.int64(7223)
[36]: (df['Vehicle Type'] == 'Prime Sedan').sum()
[36]: np.int64(7179)
[37]: (df['Vehicle Type']=='eBike').sum()
[37]: np.int64(7097)
[38]: df['Vehicle Type'].nunique()
[38]: 7
     df.duplicated()
[39]: 0
               False
               False
      1
      2
               False
      3
               False
               False
      49994
               False
      49995
               False
      49996
               False
      49997
               False
      49998
               False
      Length: 49999, dtype: bool
[40]: df.drop_duplicates(inplace=True)
[41]: df.head()
[41]:
                                                 Booking Status
                                                                 Customer ID \
               Date
                         Time
                               Booking ID
      0 28/01/2024
                      6:00:00
                               CNR1721175
                                                        Success
                                                                       329258
                                            Cancelled by Driver
      1 26/01/2024
                      3:00:00
                               CNR2871422
                                                                       201414
      2 15/01/2024
                     16:00:00 CNR6875935
                                            Cancelled by Driver
                                                                       301629
      3 02/01/2024
                     22:00:00 CNR6798834
                                            Cancelled by Driver
                                                                       319684
                     22:00:00 CNR9661713
      4 30/01/2024
                                                     Incomplete
                                                                       330283
        Vehicle Type Pickup Location Drop Location Avg VTAT
                                                               Avg CTAT
      0
                Auto
                              Area-3
                                             Area-2
                                                         5.42
                                                                   18.46
                              Area-7
                                                         0.00
                                                                   1.00 ...
      1
                Mini
                                             Area-6
                Bike
                             Area-40
                                            Area-24
                                                         0.00
                                                                   1.00
      3
        Prime Sedan
                             Area-11
                                            Area-24
                                                         0.00
                                                                   1.00 ...
                Bike
                             Area-41
                                            Area-45
                                                         0.00
                                                                   1.00
```

Reason for Cancelling by Customer Cancelled Rides by Driver $\$

```
1
                                    Traffic
                                                                     1
      2
                                    Traffic
                                                                     1
      3
                                    Traffic
                                                                     1
      4
                                    Traffic
                                                                     0
         Reason for Cancelling by Driver Incomplete Rides
                                                           Incomplete Rides Reason \
      0
                            Health Issue
                                                                  Critical Situation
                                                         0
                                                         0
                                                                  Critical Situation
      1
          The customer was coughing/sick
      2
           Personal & Car related issues
                                                         0
                                                                  Critical Situation
                                                                  Critical Situation
      3
          The customer was coughing/sick
                                                         0
      4
                            Health Issue
                                                                         Other Issue
        Booking Value Payment Method Ride Distance Driver Ratings Customer Rating
      0
               868.06
                                Wallet
                                                28.5
                                                                  4.4
                                                                                   4.4
              1000.00
                                online
                                                30.0
                                                                  4.5
                                                                                   4.0
      1
      2
                                online
                                                30.0
                                                                  4.5
                                                                                   4.0
              1000.00
      3
              1000.00
                                online
                                                30.0
                                                                  4.5
                                                                                   4.0
              1000.00
                                online
                                                30.0
                                                                  4.5
                                                                                   4.0
      4
      [5 rows x 21 columns]
[42]: df.rename(columns={'Booking Status' : 'booking_status'},inplace=True)
[43]: df.head()
                                                 booking_status Customer ID \
[43]:
                         Time Booking ID
               Date
      0 28/01/2024
                      6:00:00 CNR1721175
                                                        Success
                                                                       329258
      1 26/01/2024
                      3:00:00 CNR2871422 Cancelled by Driver
                                                                       201414
      2 15/01/2024
                     16:00:00 CNR6875935 Cancelled by Driver
                                                                       301629
      3 02/01/2024 22:00:00 CNR6798834 Cancelled by Driver
                                                                       319684
      4 30/01/2024 22:00:00 CNR9661713
                                                     Incomplete
                                                                       330283
        Vehicle Type Pickup Location Drop Location Avg VTAT
                                                               Avg CTAT
                Auto
                               Area-3
                                             Area-2
                                                         5.42
                                                                   18.46
      0
                                                         0.00
                                                                    1.00 ...
      1
                Mini
                               Area-7
                                             Area-6
                                                                    1.00 ...
      2
                Bike
                             Area-40
                                            Area-24
                                                         0.00
        Prime Sedan
                             Area-11
                                            Area-24
                                                         0.00
                                                                    1.00 ...
      3
                Bike
                             Area-41
                                            Area-45
                                                         0.00
                                                                    1.00 ...
         Reason for Cancelling by Customer Cancelled Rides by Driver
      0
                                    Traffic
                                                                     0
                                    Traffic
                                                                     1
      1
      2
                                    Traffic
                                                                     1
      3
                                    Traffic
                                                                     1
                                    Traffic
                                                                     0
```

Traffic

0

0

```
0
                                                                  Critical Situation
                            Health Issue
      1
          The customer was coughing/sick
                                                         0
                                                                  Critical Situation
      2
          Personal & Car related issues
                                                                  Critical Situation
                                                         0
      3
          The customer was coughing/sick
                                                         0
                                                                  Critical Situation
                            Health Issue
                                                          1
                                                                         Other Issue
        Booking Value Payment Method Ride Distance Driver Ratings
                                                                      Customer Rating
      0
               868.06
                                                28.5
                                                                  4.4
                                                                                   4.4
                                Wallet
      1
              1000.00
                                online
                                                30.0
                                                                  4.5
                                                                                   4.0
      2
              1000.00
                                online
                                                30.0
                                                                  4.5
                                                                                   4.0
      3
              1000.00
                                online
                                                30.0
                                                                  4.5
                                                                                   4.0
              1000.00
                                online
                                                30.0
                                                                  4.5
                                                                                   4.0
      [5 rows x 21 columns]
[44]: df.rename(columns={'Customer ID':'customer_id'},inplace=True)
[45]: df.head()
[45]:
               Date
                         Time Booking ID
                                                 booking_status
                                                                  customer_id \
      0 28/01/2024
                      6:00:00 CNR1721175
                                                                       329258
                                                        Success
                      3:00:00 CNR2871422
                                            Cancelled by Driver
      1 26/01/2024
                                                                       201414
      2 15/01/2024
                    16:00:00 CNR6875935
                                            Cancelled by Driver
                                                                       301629
                                            Cancelled by Driver
      3 02/01/2024
                     22:00:00 CNR6798834
                                                                       319684
      4 30/01/2024 22:00:00 CNR9661713
                                                     Incomplete
                                                                       330283
        Vehicle Type Pickup Location Drop Location Avg VTAT
                                                               Avg CTAT
                Auto
                              Area-3
                                             Area-2
                                                         5.42
                                                                   18.46
                Mini
                               Area-7
                                             Area-6
                                                         0.00
                                                                    1.00
      1
      2
                Bike
                             Area-40
                                            Area-24
                                                         0.00
                                                                    1.00 ...
                                                                    1.00 ...
      3
         Prime Sedan
                             Area-11
                                            Area-24
                                                         0.00
      4
                Bike
                             Area-41
                                            Area-45
                                                         0.00
                                                                    1.00
         Reason for Cancelling by Customer Cancelled Rides by Driver
      0
                                    Traffic
                                                                     0
      1
                                    Traffic
                                                                     1
                                    Traffic
      2
                                                                     1
      3
                                    Traffic
                                                                     1
      4
                                                                     0
                                    Traffic
         Reason for Cancelling by Driver Incomplete Rides Incomplete Rides Reason \
                            Health Issue
      0
                                                         0
                                                                  Critical Situation
          The customer was coughing/sick
                                                         0
                                                                  Critical Situation
      1
      2
          Personal & Car related issues
                                                         0
                                                                  Critical Situation
                                                                  Critical Situation
      3
          The customer was coughing/sick
                                                         0
      4
                            Health Issue
                                                         1
                                                                         Other Issue
```

Reason for Cancelling by Driver Incomplete Rides

Incomplete Rides Reason \

| U | 868.06 |) | wallet | 28.5 | | 4.4 | 4.4 |
|---------|----------------------|------------|------------------|--------------|-----------------------|--------------|------------|
| 1 | 1000.00 |) | online | 30.0 | | 4.5 | 4.0 |
| 2 | 1000.00 |) | online | 30.0 | | 4.5 | 4.0 |
| 3 | 1000.00 |) | online | 30.0 | | 4.5 | 4.0 |
| 4 | | | online | 30.0 | | 4.5 | 4.0 |
| [{ | 5 rows x 21 c | olumns] | | | | | |
| 6] : d: | f.rename(colu | mns={'Vehi | cle Type':'v | vehicle_typ | oe'},inplace | =True) | |
| 7] : d: | f.head() | | | | | | |
| 7]: | Date | Time | Booking ID | book | ing status | customer_id | \ |
| 0 | | 6:00:00 | _ | | Success | 329258 | |
| 1 | | | CNR2871422 | Cancelled | l by Driver | 201414 | |
| 2 | | | CNR6875935 | | by Driver | 301629 | |
| 3 | | | CNR6798834 | | by Driver | 319684 | |
| 4 | | | CNR9661713 | | Incomplete | 330283 | |
| | vehicle_type | Dielan Ie | estion Dron | Togation | Λτισ <i>\</i> /\ΤΛΤ Λ | TO CTAT | \ |
| 0 | Venicie_type Auto | _ | Area-3 | Area-2 | 5.42 | · | ` |
| | | | | | | | |
| 1 | | | Area-7 | Area-6 | 0.00 | 1.00 | |
| 2 | | | rea-40 | Area-24 | 0.00 | 1.00 | |
| 3 | | | rea-11 | Area-24 | 0.00 | 1.00 | |
| 4 | | | rea-41 | Area-45 | 0.00 | 1.00 | |
| | Reason for (| Cancelling | by Customer | | l Rides by D | | |
| 0 | | | Traffic | | | 0 | |
| 1 | | | Traffic | | | 1 | |
| 2 | | | Traffic | | | 1 | |
| 3 | | | Traffic | | | 1 | |
| 4 | | | Traffic | | | 0 | |
| | Reason for (| Cancelling | by Driver I | Incomplete | Rides Inco | mplete Rides | Reason ' |
| 0 | | | alth Issue | | 0 | Critical Si | |
| 1 | The custome | er was cou | ghing/sick | | 0 | Critical Si | tuation |
| 2 | Personal 8 | k Car rela | ted issues | | 0 | Critical Si | tuation |
| 3 | The custome | er was cou | ghing/sick | | 0 | Critical Si | tuation |
| 4 | | Не | alth Issue | | 1 | Othe | r Issue |
| | | e Pavment | Method Ride | e Distance | Driver Rat | ings Custom | er Rating |
| | Booking Value | J | | | | | |
| 0 | Booking Value 868.06 | • | Wallet | 28.5 | | 4.4 | 4.4 |
| 0 | • | 5 | Wallet online | 28.5 30.0 | | 4.4 4.5 | 4.4 4.0 |
| | 868.06 | 5 D | | | | | |

Booking Value Payment Method Ride Distance Driver Ratings Customer Rating

28.5

4.4

4.4

Wallet

0

868.06

```
30.0
      4
              1000.00
                               online
                                                                 4.5
                                                                                   4.0
      [5 rows x 21 columns]
[48]: df.rename(columns={'Pickup Location': 'pickup location'},inplace=True)
[49]: df.head()
[49]:
               Date
                         Time Booking ID
                                                 booking_status
                                                                 customer_id \
                      6:00:00 CNR1721175
                                                                       329258
         28/01/2024
                                                        Success
      1 26/01/2024
                      3:00:00 CNR2871422 Cancelled by Driver
                                                                       201414
                                            Cancelled by Driver
      2 15/01/2024
                     16:00:00 CNR6875935
                                                                       301629
                     22:00:00 CNR6798834 Cancelled by Driver
      3 02/01/2024
                                                                       319684
      4 30/01/2024
                     22:00:00 CNR9661713
                                                     Incomplete
                                                                       330283
        vehicle_type pickup_location Drop Location Avg VTAT
                                                              Avg CTAT
      0
                Auto
                              Area-3
                                             Area-2
                                                         5.42
                                                                  18.46
                Mini
                              Area-7
                                             Area-6
                                                         0.00
                                                                   1.00 ...
      1
                                                         0.00
                                                                    1.00 ...
                Bike
                             Area-40
                                            Area-24
        Prime Sedan
                                            Area-24
                                                         0.00
                                                                    1.00 ...
                             Area-11
                Bike
                             Area-41
                                            Area-45
                                                         0.00
                                                                    1.00 ...
         Reason for Cancelling by Customer Cancelled Rides by Driver \
      0
                                   Traffic
                                                                     1
      1
                                    Traffic
      2
                                    Traffic
                                                                     1
      3
                                    Traffic
                                                                     1
                                    Traffic
                                                                     0
         Reason for Cancelling by Driver Incomplete Rides Incomplete Rides Reason \
      0
                            Health Issue
                                                         0
                                                                 Critical Situation
                                                         0
                                                                 Critical Situation
      1
         The customer was coughing/sick
                                                                 Critical Situation
      2
          Personal & Car related issues
                                                         0
                                                                 Critical Situation
      3
          The customer was coughing/sick
                                                         0
                            Health Issue
                                                                         Other Issue
        Booking Value Payment Method Ride Distance Driver Ratings
                                                                     Customer Rating
               868.06
                               Wallet
      0
                                                28.5
                                                                                   4.4
      1
              1000.00
                               online
                                                30.0
                                                                 4.5
                                                                                   4.0
      2
                               online
                                                30.0
              1000.00
                                                                  4.5
                                                                                   4.0
      3
              1000.00
                               online
                                                30.0
                                                                 4.5
                                                                                   4.0
              1000.00
                               online
                                                30.0
                                                                  4.5
                                                                                   4.0
      [5 rows x 21 columns]
```

[50]: df.rename(columns={'Drop Location':'drop_location'},inplace=True)

```
[51]: df.rename(columns={'Booking ID':'booking_id'},inplace=True)
[52]: df.head()
[52]:
               Date
                         Time booking_id
                                                 booking_status
                                                                 customer_id \
      0 28/01/2024
                      6:00:00 CNR1721175
                                                        Success
                                                                       329258
      1 26/01/2024
                      3:00:00 CNR2871422 Cancelled by Driver
                                                                       201414
                                            Cancelled by Driver
      2 15/01/2024
                     16:00:00 CNR6875935
                                                                       301629
      3 02/01/2024
                                            Cancelled by Driver
                     22:00:00 CNR6798834
                                                                       319684
      4 30/01/2024
                                                     Incomplete
                     22:00:00 CNR9661713
                                                                       330283
        vehicle_type pickup_location drop_location Avg VTAT Avg CTAT
      0
                Auto
                              Area-3
                                             Area-2
                                                         5.42
                                                                   18.46
                              Area-7
                                                         0.00
                                                                   1.00
      1
                Mini
                                             Area-6
      2
                Bike
                             Area-40
                                            Area-24
                                                         0.00
                                                                   1.00 ...
       Prime Sedan
                             Area-11
                                            Area-24
                                                         0.00
                                                                   1.00 ...
                Bike
                             Area-41
                                            Area-45
                                                         0.00
                                                                   1.00
         Reason for Cancelling by Customer Cancelled Rides by Driver
      0
                                    Traffic
                                    Traffic
                                                                     1
      1
      2
                                    Traffic
                                                                     1
      3
                                    Traffic
                                                                     1
      4
                                    Traffic
                                                                     0
         Reason for Cancelling by Driver Incomplete Rides
                                                            Incomplete Rides Reason \
                            Health Issue
      0
                                                                 Critical Situation
      1
          The customer was coughing/sick
                                                         0
                                                                 Critical Situation
      2
          Personal & Car related issues
                                                         0
                                                                 Critical Situation
      3
          The customer was coughing/sick
                                                         0
                                                                 Critical Situation
                            Health Issue
      4
                                                                        Other Issue
        Booking Value Payment Method Ride Distance Driver Ratings Customer Rating
                                                                 4.4
      0
               868.06
                               Wallet
                                                28.5
                                                                                   4.4
                                                30.0
      1
              1000.00
                               online
                                                                 4.5
                                                                                   4.0
      2
              1000.00
                               online
                                                30.0
                                                                 4.5
                                                                                   4.0
      3
              1000.00
                               online
                                                30.0
                                                                 4.5
                                                                                   4.0
              1000.00
                                                30.0
                               online
                                                                 4.5
                                                                                   4.0
      [5 rows x 21 columns]
[53]: df[['Date','Time','booking_id','booking_status','customer_id','vehicle_type','pickup_location'
[53]:
                   Date
                             Time booking_id
                                                     booking_status customer_id \
      0
             28/01/2024
                          6:00:00 CNR1721175
                                                            Success
                                                                           329258
                          3:00:00 CNR2871422
      1
             26/01/2024
                                                Cancelled by Driver
                                                                           201414
      2
             15/01/2024
                         16:00:00
                                                Cancelled by Driver
                                   CNR6875935
                                                                           301629
```

| 3 | 02/01/2024 | 22:00:00 | CNR6798834 | Cancelled | 319684 | |
|-------|--------------|-----------|--------------|-----------|------------|--------|
| 4 | 30/01/2024 | 22:00:00 | CNR9661713 | - | Incomplete | 330283 |
| | ••• | ••• | ••• | ••• | ••• | • |
| 49994 | 02/01/2024 | 0:00:00 | CNR7299340 | | Success | 454202 |
| 49995 | 27/01/2024 | 2:00:00 | CNR0378586 | | Success | 349873 |
| 49996 | 17/01/2024 | 23:00:00 | CNR2461856 | Cancelled | by Driver | 880053 |
| 49997 | 18/01/2024 | 22:00:00 | CNR9524579 | | Success | 752806 |
| 49998 | 28/01/2024 | 14:00:00 | CNR3698787 | | Success | 159552 |
| | | | | | | |
| | vehicle_type | pickup_lo | cation drop_ | location | | |
| 0 | Auto | | Area-3 | Area-2 | | |
| 1 | Mini | | Area-7 | Area-6 | | |
| 2 | Bike | A: | rea-40 | Area-24 | | |
| 3 | Prime Sedan | A: | rea-11 | Area-24 | | |
| 4 | Bike | A: | rea-41 | Area-45 | | |
| ••• | ••• | ••• | ••• | | | |
| 49994 | eBike | A: | rea-39 | Area-34 | | |
| 49995 | Auto | A: | rea-17 | Area-21 | | |
| 49996 | Auto | A: | rea-37 | Area-43 | | |
| 49997 | eBike | A: | rea-48 | Area-29 | | |
| 49998 | Bike | | Area-1 | Area-37 | | |
| | | | | | | |

[49999 rows x 8 columns]

[54]: df[df['Time']=='22:00:00'].count()

| [54]: | Date | 2087 |
|-------|-----------------------------------|------|
| | Time | 2087 |
| | booking_id | 2087 |
| | booking_status | 2087 |
| | customer_id | 2087 |
| | vehicle_type | 2087 |
| | pickup_location | 2087 |
| | drop_location | 2087 |
| | Avg VTAT | 2087 |
| | Avg CTAT | 2087 |
| | Cancelled by Customer | 2087 |
| | Reason for Cancelling by Customer | 2087 |
| | Cancelled Rides by Driver | 2087 |
| | Reason for Cancelling by Driver | 2087 |
| | Incomplete Rides | 2087 |
| | Incomplete Rides Reason | 2087 |
| | Booking Value | 2087 |
| | Payment Method | 2087 |
| | Ride Distance | 2087 |
| | Driver Ratings | 2087 |
| | Customer Rating | 2087 |

dtype: int64

```
[55]: df[df['Time']=='23:00:00'].count()
[55]: Date
                                            2006
      Time
                                            2006
      booking_id
                                            2006
      booking_status
                                            2006
                                            2006
      customer_id
      vehicle type
                                            2006
      pickup_location
                                            2006
      drop_location
                                            2006
      Avg VTAT
                                            2006
      Avg CTAT
                                            2006
                                            2006
      Cancelled by Customer
      Reason for Cancelling by Customer
                                            2006
      Cancelled Rides by Driver
                                            2006
      Reason for Cancelling by Driver
                                            2006
      Incomplete Rides
                                            2006
      Incomplete Rides Reason
                                            2006
      Booking Value
                                            2006
      Payment Method
                                            2006
      Ride Distance
                                            2006
      Driver Ratings
                                            2006
      Customer Rating
                                            2006
      dtype: int64
[56]: df.head()
[56]:
                         Time booking id
                                                                 customer id \
               Date
                                                 booking status
      0 28/01/2024
                                                        Success
                                                                      329258
                      6:00:00 CNR1721175
      1 26/01/2024
                      3:00:00 CNR2871422 Cancelled by Driver
                                                                      201414
      2 15/01/2024
                     16:00:00 CNR6875935
                                            Cancelled by Driver
                                                                      301629
      3 02/01/2024
                     22:00:00 CNR6798834
                                           Cancelled by Driver
                                                                      319684
      4 30/01/2024 22:00:00 CNR9661713
                                                     Incomplete
                                                                      330283
        vehicle_type pickup_location drop_location Avg VTAT Avg CTAT
                                                                  18.46
      0
                Auto
                              Area-3
                                             Area-2
                                                         5.42
                                                         0.00
                                                                   1.00
      1
                Mini
                              Area-7
                                             Area-6
                Bike
                             Area-40
                                                         0.00
                                                                   1.00 ...
      2
                                            Area-24
                                                                   1.00
        Prime Sedan
                             Area-11
                                            Area-24
                                                         0.00
                Bike
                             Area-41
                                            Area-45
                                                         0.00
                                                                   1.00 ...
         Reason for Cancelling by Customer Cancelled Rides by Driver \
      0
                                   Traffic
                                                                    0
      1
                                   Traffic
                                                                    1
      2
                                   Traffic
                                                                    1
```

```
3
                                    Traffic
                                                                      1
      4
                                                                     0
                                    Traffic
         Reason for Cancelling by Driver Incomplete Rides
                                                            Incomplete Rides Reason \
      0
                             Health Issue
                                                                  Critical Situation
          The customer was coughing/sick
                                                          0
                                                                  Critical Situation
      1
      2
           Personal & Car related issues
                                                          0
                                                                  Critical Situation
          The customer was coughing/sick
                                                          0
                                                                  Critical Situation
      3
                             Health Issue
                                                          1
                                                                          Other Issue
        Booking Value Payment Method Ride Distance Driver Ratings Customer Rating
      0
               868.06
                                Wallet
                                                 28.5
                                                                  4.4
      1
              1000.00
                                online
                                                 30.0
                                                                  4.5
                                                                                    4.0
                                                 30.0
      2
              1000.00
                                online
                                                                  4.5
                                                                                    4.0
      3
              1000.00
                                online
                                                 30.0
                                                                  4.5
                                                                                    4.0
      4
              1000.00
                                online
                                                 30.0
                                                                  4.5
                                                                                    4.0
      [5 rows x 21 columns]
[57]: df[df['Date']=='28/01/2024'].count()
[57]: Date
                                             1664
                                             1664
      Time
      booking_id
                                             1664
      booking_status
                                             1664
      customer_id
                                             1664
      vehicle_type
                                             1664
      pickup_location
                                             1664
      drop_location
                                             1664
      Avg VTAT
                                             1664
      Avg CTAT
                                             1664
      Cancelled by Customer
                                             1664
      Reason for Cancelling by Customer
                                             1664
      Cancelled Rides by Driver
                                             1664
      Reason for Cancelling by Driver
                                             1664
      Incomplete Rides
                                             1664
      Incomplete Rides Reason
                                             1664
      Booking Value
                                             1664
      Payment Method
                                             1664
      Ride Distance
                                             1664
      Driver Ratings
                                             1664
      Customer Rating
                                             1664
      dtype: int64
[58]: df[(df['Date'] \ge '01/01/2024') \& (df['Date'] \le '31/01/2024')].head(5)
```

```
Time booking_id
[58]:
               Date
                                                 booking_status customer_id \
         28/01/2024
                      6:00:00 CNR1721175
                                                        Success
                                                                       329258
      1 26/01/2024
                      3:00:00 CNR2871422
                                            Cancelled by Driver
                                                                       201414
      2 15/01/2024
                     16:00:00 CNR6875935
                                            Cancelled by Driver
                                                                       301629
                                            Cancelled by Driver
      3 02/01/2024
                     22:00:00
                               CNR6798834
                                                                       319684
      4 30/01/2024
                     22:00:00
                               CNR9661713
                                                     Incomplete
                                                                       330283
        vehicle_type pickup_location drop_location Avg VTAT
                                                               Avg CTAT
                              Area-3
                                                         5.42
                                                                   18.46
      0
                Auto
                                             Area-2
                                                         0.00
      1
                Mini
                              Area-7
                                             Area-6
                                                                   1.00 ...
      2
                Bike
                             Area-40
                                            Area-24
                                                         0.00
                                                                   1.00 ...
        Prime Sedan
                             Area-11
                                            Area-24
                                                         0.00
                                                                   1.00
      3
                                                                    1.00
                Bike
                             Area-41
                                            Area-45
                                                         0.00
         Reason for Cancelling by Customer Cancelled Rides by Driver
      0
                                    Traffic
      1
                                    Traffic
                                                                     1
      2
                                    Traffic
                                                                     1
      3
                                    Traffic
                                                                     1
      4
                                    Traffic
                                                                     0
         Reason for Cancelling by Driver Incomplete Rides Incomplete Rides Reason \
                            Health Issue
      0
                                                         0
                                                                 Critical Situation
         The customer was coughing/sick
                                                         0
                                                                 Critical Situation
      1
      2
          Personal & Car related issues
                                                         0
                                                                 Critical Situation
          The customer was coughing/sick
                                                         0
                                                                 Critical Situation
      3
                            Health Issue
                                                         1
                                                                         Other Issue
        Booking Value Payment Method Ride Distance
                                                      Driver Ratings
                                                                      Customer Rating
      0
               868.06
                                Wallet
                                                28.5
                                                                  4.4
                                                30.0
      1
              1000.00
                                online
                                                                  4.5
                                                                                   4.0
      2
              1000.00
                               online
                                                30.0
                                                                 4.5
                                                                                   4.0
      3
              1000.00
                                online
                                                30.0
                                                                 4.5
                                                                                   4.0
              1000.00
                               online
                                                30.0
                                                                  4.5
                                                                                   4.0
      [5 rows x 21 columns]
[59]: df[(df['Time']>='16:00:00') & (df['Time']<='21:00:00')].sort_index().head()
[59]:
                          Time booking_id
                                                    booking_status customer_id \
                Date
          15/01/2024
                     16:00:00
                                CNR6875935
                                               Cancelled by Driver
      2
                                                                          301629
          14/01/2024 20:00:00 CNR8720322
      5
                                                        Incomplete
                                                                          787277
                                                           Success
      6
          17/01/2024
                      21:00:00
                                                                          329974
                                CNR8611757
      13 23/01/2024
                      21:00:00
                                CNR4422948
                                                           Success
                                                                          976638
      16 25/01/2024 16:00:00 CNR5645592 Cancelled by Customer
                                                                          237235
```

vehicle_type pickup_location drop_location Avg VTAT Avg CTAT ... \

```
0.00
      2
                 Bike
                               Area-40
                                              Area-24
                                                                      1.00
      5
           Prime Plus
                               Area-46
                                              Area-21
                                                            0.00
                                                                      1.00
      6
          Prime Sedan
                               Area-38
                                              Area-26
                                                           19.95
                                                                      5.01
                                Area-4
                                              Area-42
                                                                      3.70
      13
                 Bike
                                                            1.28
      16
                 Mini
                               Area-16
                                              Area-17
                                                            0.00
                                                                      1.00 ...
          Reason for Cancelling by Customer Cancelled Rides by Driver
      2
                                     Traffic
      5
                                     Traffic
                                                                       0
      6
                                     Traffic
                                                                       0
      13
                                     Traffic
                                                                       0
      16
                           AC is not working
                                                                       0
          Reason for Cancelling by Driver Incomplete Rides Incomplete Rides Reason \
      2
            Personal & Car related issues
                                                                    Critical Situation
                                                            0
      5
                              Health Issue
                                                                     Vehicle Breakdown
                                                            1
      6
                              Health Issue
                                                            0
                                                                    Critical Situation
      13
                              Health Issue
                                                            0
                                                                    Critical Situation
      16
                                                            0
                              Health Issue
                                                                    Critical Situation
         Booking Value Payment Method Ride Distance Driver Ratings \
      2
               1000.00
                                 online
                                                 30.00
                                                                    4.5
      5
               1000.00
                                 online
                                                 30.00
                                                                    4.5
                                   Card
                                                                    4.5
      6
                348.04
                                                 25.18
      13
                988.65
                                 Wallet
                                                 37.92
                                                                    3.5
      16
               1000.00
                                 online
                                                 30.00
                                                                    4.5
          Customer Rating
      2
                       4.0
      5
                       4.0
                       4.7
      6
                       3.8
      13
      16
                       4.0
      [5 rows x 21 columns]
[60]: result=df[(df['Time']>='15:00:00') & (df['Time']<='18:00:00')].count()
      print(result)
     Date
                                            8476
     Time
                                            8476
     booking_id
                                            8476
     booking status
                                            8476
     customer_id
                                            8476
     vehicle_type
                                            8476
     pickup_location
                                            8476
     drop_location
                                            8476
     Avg VTAT
                                            8476
```

```
Avg CTAT
                                            8476
     Cancelled by Customer
                                            8476
     Reason for Cancelling by Customer
                                            8476
     Cancelled Rides by Driver
                                            8476
     Reason for Cancelling by Driver
                                            8476
     Incomplete Rides
                                            8476
     Incomplete Rides Reason
                                            8476
     Booking Value
                                            8476
     Payment Method
                                            8476
     Ride Distance
                                            8476
     Driver Ratings
                                            8476
     Customer Rating
                                            8476
     dtype: int64
[61]: df[df['Date'].between('01/01/2024','10/01/2024')].count()
[61]: Date
                                            16475
      Time
                                            16475
      booking_id
                                            16475
      booking status
                                            16475
      customer_id
                                            16475
      vehicle_type
                                            16475
      pickup_location
                                            16475
      drop_location
                                            16475
      Avg VTAT
                                            16475
      Avg CTAT
                                            16475
      Cancelled by Customer
                                            16475
      Reason for Cancelling by Customer
                                            16475
      Cancelled Rides by Driver
                                            16475
      Reason for Cancelling by Driver
                                            16475
      Incomplete Rides
                                            16475
      Incomplete Rides Reason
                                            16475
      Booking Value
                                            16475
      Payment Method
                                            16475
      Ride Distance
                                            16475
      Driver Ratings
                                            16475
      Customer Rating
                                            16475
      dtype: int64
[62]: df [df['Date'].between('11/01/2024','20/01/2024')].count()
[62]: Date
                                            16817
      Time
                                            16817
                                            16817
      booking_id
      booking_status
                                            16817
      customer_id
                                            16817
      vehicle_type
                                            16817
      pickup_location
                                            16817
```

```
drop_location
                                      16817
Avg VTAT
                                      16817
Avg CTAT
                                      16817
Cancelled by Customer
                                      16817
Reason for Cancelling by Customer
                                      16817
Cancelled Rides by Driver
                                      16817
Reason for Cancelling by Driver
                                      16817
Incomplete Rides
                                      16817
Incomplete Rides Reason
                                      16817
Booking Value
                                      16817
Payment Method
                                      16817
Ride Distance
                                      16817
Driver Ratings
                                      16817
Customer Rating
                                      16817
dtype: int64
```

[63]: df[df['Date'].between('21/01/2024','31/01/2024')].count()

```
[63]: Date
                                             16707
      Time
                                             16707
      booking_id
                                             16707
      booking_status
                                             16707
      customer_id
                                             16707
      vehicle_type
                                             16707
      pickup_location
                                             16707
      drop_location
                                             16707
      Avg VTAT
                                             16707
      Avg CTAT
                                             16707
      Cancelled by Customer
                                             16707
      Reason for Cancelling by Customer
                                             16707
      Cancelled Rides by Driver
                                             16707
      Reason for Cancelling by Driver
                                             16707
      Incomplete Rides
                                             16707
      Incomplete Rides Reason
                                             16707
      Booking Value
                                             16707
      Payment Method
                                             16707
      Ride Distance
                                             16707
      Driver Ratings
                                             16707
      Customer Rating
                                             16707
```

dtype: int64

[64]: df[df['Date'].between('01/01/2024','31/01/2024')].count()

```
[64]: Date 49999
Time 49999
booking_id 49999
booking_status 49999
```

```
49999
customer_id
                                      49999
vehicle_type
pickup_location
                                      49999
drop_location
                                      49999
Avg VTAT
                                      49999
Avg CTAT
                                      49999
Cancelled by Customer
                                      49999
Reason for Cancelling by Customer
                                      49999
Cancelled Rides by Driver
                                      49999
Reason for Cancelling by Driver
                                      49999
Incomplete Rides
                                      49999
Incomplete Rides Reason
                                      49999
Booking Value
                                      49999
Payment Method
                                      49999
Ride Distance
                                      49999
Driver Ratings
                                      49999
Customer Rating
                                      49999
dtype: int64
```

[65]: df['DateTime']=pd.to_datetime(df['Date']+' '+df['Time'])

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\1743183297.py:1: UserWarning: Parsing dates in %d/%m/%Y %H:%M:%S format when dayfirst=False (the default) was specified. Pass `dayfirst=True` or specify a format to silence this warning.

df['DateTime']=pd.to_datetime(df['Date']+' '+df['Time'])

[66]: df

| [66]: | | Date | Time | booking_id | boo | king_statu | s custome | r id | \ |
|-------|-------|--------------|----------|------------|----------|------------|-----------|------|---|
| | 0 | 28/01/2024 | 6:00:00 | CNR1721175 | | Succes | | 9258 | ` |
| | 1 | 26/01/2024 | 3:00:00 | CNR2871422 | Cancelle | d by Drive | r 20 | 1414 | |
| | 2 | 15/01/2024 | 16:00:00 | CNR6875935 | Cancelle | d by Drive | r 30 | 1629 | |
| | 3 | 02/01/2024 | 22:00:00 | CNR6798834 | Cancelle | d by Drive | r 31 | 9684 | |
| | 4 | 30/01/2024 | 22:00:00 | CNR9661713 | | Incomplet | e 33 | 0283 | |
| | ••• | ••• | ••• | | | ••• | ••• | | |
| | 49994 | 02/01/2024 | 0:00:00 | CNR7299340 | | Succes | s 45 | 4202 | |
| | 49995 | 27/01/2024 | 2:00:00 | CNR0378586 | | Succes | s 34 | 9873 | |
| | 49996 | | 23:00:00 | CNR2461856 | Cancelle | d by Drive | r 88 | 0053 | |
| | 49997 | 18/01/2024 | 22:00:00 | CNR9524579 | | Succes | s 75 | 2806 | |
| | 49998 | 28/01/2024 | 14:00:00 | CNR3698787 | | Succes | s 15 | 9552 | |
| | | | | | 1 | A 77TT ATT | A CTAT | , | |
| | | vehicle_type | | - | _ | · · | • | ••• | \ |
| | 0 | Auto | | Area-3 | Area-2 | 5.42 | 18.46 | ••• | |
| | 1 | Mini | | Area-7 | Area-6 | 0.00 | 1.00 | ••• | |
| | 2 | Bike | A | rea-40 | Area-24 | 0.00 | 1.00 | ••• | |
| | 3 | Prime Sedan | A | rea-11 | Area-24 | 0.00 | 1.00 | ••• | |
| | 4 | Bike | A | rea-41 | Area-45 | 0.00 | 1.00 | ••• | |
| | ••• | ••• | ••• | • | | | | | |

| 49994 | eBike | Area-39 | Area-34 | 11.53 | 2.42 | | | | |
|--------------|---|------------|--------------|--------------------|------------|-----------|---|--|--|
| 49995 | Auto | Area-17 | Area-21 | 5.56 | 9.05 | | | | |
| 49996 | Auto | Area-37 | Area-43 | 0.00 | 1.00 | | | | |
| 49997 | eBike | Area-48 | Area-29 | 5.15 | 13.72 | | | | |
| 49998 | Bike | Area-1 | Area-37 | 14.89 | 28.07 | | | | |
| | | | | | | | | | |
| | Cancelled Rides by | | Reason for | Cancelling by | | | | | |
| 0 | | 0 | | | h Issue | | | | |
| 1 | | 1 | | mer was coughi | - | | | | |
| 2 | | 1 | | & Car related | | | | | |
| 3 | | 1 | The custor | mer was coughi | • | | | | |
| 4 | | 0 | | Healt | h Issue | | | | |
| | | ••• | | • | | | | | |
| 49994 | | 0 | | | h Issue | | | | |
| 49995 | | 0 | | | h Issue | | | | |
| 49996 | | | e than perm | itted people i | | | | | |
| 49997 | | 0 | | | h Issue | | | | |
| 49998 | | 0 | | Healt! | h Issue | | | | |
| | Incomplete Rides Incomplete Rides Reason Booking Value Payment Method ' | | | | | | | | |
| 0 | o Incomplete kides i | _ | Situation | 868.06 | • | allet | \ | | |
| 1 | 0 | | Situation | 1000.00 | | nline | | | |
| 2 | | | Situation | | | nline | | | |
| 3 | 0 | | Situation | 1000.00 1000.00 | | nline | | | |
| 4 | 1 | | ther Issue | 1000.00 | | nline | | | |
| 4 | | U | ther issue | 1000.00 | | пттпе | | | |
| 49994 | 0 | Critical | Situation | 1217.43 | | Card | | | |
| 49995 | 0 | | Situation | 1369.51 | | UPI | | | |
| 49996 | 0 | | Situation | 1000.00 | 0 | nline | | | |
| 49997 | 0 | | Situation | 1930.49 | _ | UPI | | | |
| 49998 | 0 | | Situation | 1534.66 | | Cash | | | |
| 2000 | • | 00_0 | | 200 2100 | | 0 4 5 1 1 | | | |
| | Ride Distance Driv | er Ratings | Customer Rat | ting | DateTime | | | | |
| 0 | 28.50 | 4.4 | | 4.4 2024-01-2 | 8 06:00:00 | | | | |
| 1 | 30.00 | 4.5 | | 4.0 2024-01-2 | 6 03:00:00 | | | | |
| 2 | 30.00 | 4.5 | | 4.0 2024-01-1 | 5 16:00:00 | | | | |
| 3 | 30.00 | 4.5 | | 4.0 2024-01-0 | 2 22:00:00 | | | | |
| 4 | 30.00 | 4.5 | | 4.0 2024-01-3 | 0 22:00:00 | | | | |
| | ••• | ••• | ••• | ••• | | | | | |
| 49994 | 10.52 | 4.1 | | 3.2 2024-01-0 | 2 00:00:00 | | | | |
| 49995 | 11.04 | 5.0 | | 4.3 2024-01-2 | 7 02:00:00 | | | | |
| 49996 | 30.00 | 4.5 | | 4.0 2024-01-1 | 7 23:00:00 | | | | |
| 49997 | 14.49 | 3.1 | | 4.5 2024-01-1 | 3 22:00:00 | | | | |
| 49998 | 4.60 | 3.3 | | 4.1 2024-01-2 | 8 14:00:00 | | | | |
| | | | | | | | | | |

[49999 rows x 22 columns]

[67]: Date Time booking_id booking_status customer_id \ 0 28/01/2024 6:00:00 CNR1721175 Success 329258 1 26/01/2024 3:00:00 CNR2871422 Cancelled by Driver 201414 2 Cancelled by Driver 15/01/2024 16:00:00 CNR6875935 301629 3 02/01/2024 Cancelled by Driver 22:00:00 CNR6798834 319684 4 30/01/2024 22:00:00 CNR9661713 Incomplete 330283 49994 02/01/2024 0:00:00 CNR7299340 454202 Success 49995 27/01/2024 2:00:00 CNR0378586 349873 Success 49996 17/01/2024 23:00:00 CNR2461856 Cancelled by Driver 880053 49997 18/01/2024 22:00:00 CNR9524579 Success 752806 49998 28/01/2024 14:00:00 CNR3698787 Success 159552 vehicle_type pickup_location drop_location Avg VTAT Avg CTAT 0 Auto Area-3 Area-2 5.42 18.46 Mini Area-7 Area-6 0.00 1.00 1 2 Bike Area-40 Area-24 0.00 1.00 3 Prime Sedan 0.00 1.00 Area-11 Area-24 4 Bike Area-41 Area-45 0.00 1.00 2.42 49994 eBike Area-39 Area-34 11.53 49995 Auto Area-17 Area-21 5.56 9.05 49996 Auto Area-37 Area-43 0.00 1.00 49997 eBike Area-48 Area-29 5.15 13.72 49998 Bike Area-37 14.89 28.07 Area-1 Cancelled Rides by Driver Reason for Cancelling by Driver \ 0 Health Issue 1 The customer was coughing/sick 1 2 1 Personal & Car related issues 3 The customer was coughing/sick 1 4 0 Health Issue Health Issue 49994 0 49995 0 Health Issue 49996 1 More than permitted people in there 49997 0 Health Issue 49998 Health Issue Incomplete Rides Incomplete Rides Reason Booking Value Payment Method \ 0 0 Critical Situation 868.06 Wallet 0 1 Critical Situation 1000.00 online 2 0 Critical Situation 1000.00 online 3 0 Critical Situation 1000.00 online 4 Other Issue 1000.00 online

[67]: df[df['DateTime'].between('01/01/2024 12:00:00','31/01/2024 11:59:59')]

```
49994
                             0
                                    Critical Situation
                                                               1217.43
                                                                                  Card
      49995
                             0
                                    Critical Situation
                                                               1369.51
                                                                                   UPI
      49996
                             0
                                    Critical Situation
                                                               1000.00
                                                                                online
      49997
                             0
                                    Critical Situation
                                                                                   UPI
                                                               1930.49
      49998
                             0
                                    Critical Situation
                                                               1534.66
                                                                                  Cash
             Ride Distance Driver Ratings Customer Rating
                                                                        DateTime
                     28.50
                                       4.4
                                                         4.4 2024-01-28 06:00:00
      0
      1
                     30.00
                                       4.5
                                                         4.0 2024-01-26 03:00:00
      2
                                       4.5
                                                         4.0 2024-01-15 16:00:00
                     30.00
      3
                     30.00
                                       4.5
                                                         4.0 2024-01-02 22:00:00
      4
                     30.00
                                       4.5
                                                         4.0 2024-01-30 22:00:00
                                                         3.2 2024-01-02 00:00:00
      49994
                     10.52
                                       4.1
                                       5.0
      49995
                     11.04
                                                         4.3 2024-01-27 02:00:00
                                       4.5
      49996
                     30.00
                                                         4.0 2024-01-17 23:00:00
                     14.49
                                       3.1
                                                         4.5 2024-01-18 22:00:00
      49997
      49998
                      4.60
                                       3.3
                                                         4.1 2024-01-28 14:00:00
      [49162 rows x 22 columns]
[68]: df['Date'] = pd.to_datetime(df['Date'])
      df['Time'] = pd.to_datetime(df['Time'], format='%H:%M:%S').dt.time
     C:\Users\admin\AppData\Local\Temp\ipykernel_13040\850320488.py:1: UserWarning:
     Parsing dates in %d/%m/%Y format when dayfirst=False (the default) was
     specified. Pass `dayfirst=True` or specify a format to silence this warning.
       df['Date'] = pd.to_datetime(df['Date'])
[69]: df['Date']
[69]: 0
              2024-01-28
      1
              2024-01-26
      2
              2024-01-15
      3
              2024-01-02
      4
              2024-01-30
      49994
              2024-01-02
      49995
              2024-01-27
      49996
              2024-01-17
      49997
              2024-01-18
      49998
              2024-01-28
      Name: Date, Length: 49999, dtype: datetime64[ns]
[70]: df.groupby('booking_status').sum(numeric_only=True)
```

| [70]: | booking_status Cancelled by Customer Cancelled by Driver Incomplete Success | customer_id Avg VTAT Avg CTAT 2101886126 0.00 3799.00 5345534305 0.00 9610.00 1712090228 0.00 3106.00 18388935238 350967.71 521155.68 | | | | |
|-------|---|---|-----------------------|--|--|--|
| | Success | 16366935236 350967.71 521155.66 | | | | |
| | booking_status | Cancelled by Customer Cancelled | Rides by Driver \ | | | |
| | Cancelled by Customer | 3799 | 0 | | | |
| | Cancelled by Driver | 0 | 9610 | | | |
| | Incomplete Success | 0 | 0 | | | |
| | Биссевь | Ç | U | | | |
| | booking_status | Incomplete Rides Booking Value R | ide Distance \ | | | |
| | Cancelled by Customer | 0 3799000.00 | 113970.00 | | | |
| | Cancelled by Driver | 0 9610000.00 | 288300.00 | | | |
| | Incomplete Success | 3106 3106000.00 0 34266664.59 | 93180.00 852072.14 | | | |
| | Duccess | 0 34200004.09 | 002072.14 | | | |
| | | Driver Ratings Customer Rating | | | | |
| | booking_status | | | | | |
| | Cancelled by Customer | 17095.5 15196.0 | | | | |
| | Cancelled by Driver | 43245.0 38440.0 | | | | |
| | Incomplete Success | 13977.0 12424.0 | | | | |
| | Success | 134037.8 133993.8 | | | | |
| [71]: | df.groupby('vehicle_t | ype').sum(numeric_only=True) | | | | |
| [71]: | | _id Avg VTAT Avg CTAT Cancelled | by Customer \ | | | |
| | vehicle_type | 1001 40020 00 76246 02 | F40 | | | |
| | Auto 392289 Bike 401137 | | 518 561 | | | |
| | | 5355 49094.98 75470.81 | 550 | | | |
| | Prime Plus 399753 | | 571 | | | |
| | Prime SUV 392121 | | 529 | | | |
| | Prime Sedan 393612 | | 531 | | | |
| | eBike 388890 | 9472 49918.42 77228.30 | 539 | | | |
| | 0 11 | | Booking Value \ | | | |
| | Cancell vehicle_type | , i | | | | |
| | Auto | 1338 454 | 7180612.58 | | | |
| | Bike | 1394 415 | | | | |
| | Mini | 1318 416 | | | | |
| | Prime Plus | 1415 462 | 7354974.66 | | | |
| | Prime SUV | 1395 449 | 7257966.98 | | | |
| | | | | | | |

| | Prime Sedan | | 1406 | | 452 | 7308408.86 | |
|-------|---------------|-----------------|-------------|------------|--------------|-------------|---|
| | eBike | | 1344 | | 458 | 7227694.02 | |
| | | | | | | | |
| | | Ride Distance | Driver Rat | ings Cus | tomer Rating | | |
| | vehicle_type | | | | | | |
| | Auto | 192543.20 | 295 | 74.0 | 28419.4 | | |
| | Bike | 194421.88 | 300 | 79.1 | 28873.5 | | |
| | Mini | 189429.16 | 292 | 02.2 | 28002.9 | | |
| | Prime Plus | 194278.72 | 302 | 20.6 | 29035.1 | | |
| | Prime SUV | 192253.74 | 297 | 52.9 | 28623.8 | | |
| | Prime Sedan | 193859.23 | 299 | 58.9 | 28710.3 | | |
| | eBike | 190736.21 | 295 | 67.6 | 28388.8 | | |
| 5-07 | | | | | | | |
| [72]: | df.groupby('p | ickup_location' |).sum(numer | ric_only=T | rue) | | |
| [72]: | | customer_id | Avg VTAT | Avg CTAT | Cancelled | by Customer | \ |
| | pickup_locati | on | - | - | | | |
| | Area-1 | 576556157 | 7634.29 | 11192.36 | | 74 | |
| | Area-10 | 536267697 | 6982.81 | 10761.43 | | 83 | |
| | Area-11 | 561837661 | 7465.75 | 11876.31 | | 71 | |
| | Area-12 | 555083480 | 7479.84 | 11408.06 | | 77 | |
| | Area-13 | 548748994 | 6941.66 | 10524.06 | | 62 | |
| | Area-14 | 524543711 | 6334.85 | 9727.79 | | 73 | |
| | Area-15 | 556881458 | 7336.15 | 10681.47 | | 66 | |
| | Area-16 | 549195669 | 7039.57 | 10630.02 | | 74 | |
| | Area-17 | 550926249 | 6951.12 | 10680.48 | | 69 | |
| | Area-18 | 538295609 | 7104.89 | 10878.30 | | 57 | |
| | Area-19 | 549338763 | 7292.00 | 10417.84 | | 83 | |
| | Area-2 | 529384662 | 7106.82 | 10965.54 | | 70 | |
| | Area-20 | 559262201 | 6948.62 | 10830.50 | | 78 | |
| | Area-21 | 535773123 | 7117.27 | 11133.83 | | 67 | |
| | Area-22 | 581800737 | 7027.02 | 10996.36 | | 82 | |
| | Area-23 | 544101191 | 6992.99 | 10610.24 | | 83 | |
| | Area-24 | 574484470 | 7191.56 | 11284.83 | | 87 | |
| | Area-25 | 529481162 | 6898.39 | 10308.93 | | 84 | |
| | Area-26 | 538326669 | 6492.51 | 10283.98 | | 77 | |
| | Area-27 | 536073476 | 6303.10 | 9777.51 | | 82 | |
| | Area-28 | 525072972 | 6898.40 | 10547.83 | | 67 | |
| | Area-29 | 579362165 | 7395.40 | 11123.16 | | 72 | |
| | Area-3 | 530539971 | 6794.49 | 10253.34 | | 73 | |
| | Area-30 | 548804619 | 6848.47 | 10732.33 | | 76 | |
| | Area-31 | 529046442 | 6541.02 | 10139.15 | | 66 | |
| | Area-32 | 535047434 | 6634.71 | 10119.55 | | 62 | |
| | Area-33 | 543914161 | 7312.99 | 10778.08 | | 71 | |
| | Area-34 | 547531464 | 7021.51 | 10218.83 | | 85 | |
| | Area-35 | 527902014 | 6759.34 | 10479.30 | | 74 | |
| | Area-36 | 534788095 | 6543.95 | 9755.47 | | 80 | |
| | | | | | | | |

| Area-37 | 521755708 | 6441.98 | 9722.03 | | 73 | | |
|----------------------------|---------------|----------------------------|---------------|---------|---------------|---|--|
| Area-38 | 552314748 | 6863.41 | 11085.74 | | 70 | | |
| Area-39 | 595158618 | 158618 8000.02 12055.33 | | | | | |
| Area-4 | 587342594 | 587342594 7035.60 11345.31 | | | | | |
| Area-40 | 536322612 | 6774.84 | 10916.88 | | 76 | | |
| Area-41 | 568333268 | 6948.95 | 10626.21 | | 92 | | |
| Area-42 | 536175168 | 6756.49 | 10138.41 | | 78 | | |
| Area-43 | 548668079 | 7018.17 | 10918.74 | | 64 | | |
| Area-44 | 577806183 | 7290.40 | 11172.22 | | 79 | | |
| Area-45 | 551506229 | 6971.82 | 11121.59 | | 81 | | |
| Area-46 | 553635533 | 6992.88 | 10616.84 | | 84 | | |
| Area-47 | 556496826 | 7334.73 | 11663.37 | | 80 | | |
| | | | | | 94 | | |
| Area-48 | 573981712 | 7032.71 | 10829.89 | | | | |
| Area-49 | 540385009 | 7131.32 | 10644.32 | | 70 | | |
| Area-5 | 561543761 | 7392.90 | 11005.53 | | 77 | | |
| Area-50 | 554566646 | 7548.85 | 11226.99 | | 67 | | |
| Area-6 | 542638581 | 6974.93 | 10725.13 | | 81 | | |
| Area-7 | 531712952 | 6510.48 | 10195.68 | | 79 | | |
| Area-8 | 604127056 | 7351.04 | 11239.07 | | 76 | | |
| Area-9 | 575602138 | 7204.70 | 11304.52 | | 73 | | |
| | | | | | | | |
| | Cancelled Ric | des by Dri | ver Incomplet | e Rides | Booking Value | \ | |
| <pre>pickup_location</pre> | | | | | | | |
| Area-1 | | | 204 | 53 | 1057576.27 | | |
| Area-10 | | | 197 | 53 | 984966.43 | | |
| Area-11 | | | 172 | 72 | 2 1052214.56 | | |
| Area-12 | | | 191 | 53 | 1046744.62 | | |
| Area-13 | | | 210 | 64 | 1000400.29 | | |
| Area-14 | | | 192 | 70 | 985641.11 | | |
| Area-15 | | | 188 | 71 | 1038609.76 | | |
| Area-16 | | | 192 | 58 | 1005856.09 | | |
| Area-17 | | | 193 | 53 | 1014104.37 | | |
| Area-18 | | | 200 | 47 | 1034095.72 | | |
| Area-19 | | | 188 | 58 | 1004876.95 | | |
| Area-2 | | | 157 | 56 | 979988.72 | | |
| Area-20 | | | 183 | 64 | 1017428.00 | | |
| Area-21 | | | 164 | 63 | 978645.31 | | |
| | | | | | | | |
| Area-22 | | | 197 | 71 | 1063727.38 | | |
| Area-23 | | | 183 | 48 | 1015895.79 | | |
| Area-24 | | | 180 | 64 | 1039861.41 | | |
| Area-25 | | | 168 | 77 | 990236.58 | | |
| Area-26 | | | 194 | 74 | 1009275.26 | | |
| Area-27 | | | 216 | 59 | 962997.76 | | |
| Area-28 | | | 191 | 59 | 975952.37 | | |
| Area-29 | | | 215 | 55 | 1057825.53 | | |
| Area-3 | | | 201 | 60 | 985054.54 | | |
| Area-30 | | | 203 | 78 | 1030106.58 | | |
| | | | | | | | |

| Area-31 | | 210 | 57 | 983784.00 |
|-----------------|----------------------|------------------|------------------|------------|
| Area-32 | | 208 | 58 | 972488.62 |
| Area-33 | | 184 | 51 | 1011436.72 |
| Area-34 | | 208 | 66 | 1007915.29 |
| Area-35 | | 167 | 63 | 978320.56 |
| | | | | |
| Area-36 | | 198 | 77 | 990750.66 |
| Area-37 | | 206 | 61 | 944904.32 |
| Area-38 | | 201 | 73 | 1013283.71 |
| Area-39 | | 184 | 62 | 1115256.62 |
| Area-4 | | 217 | 73 | 1057315.16 |
| Area-40 | | 197 | 71 | 999522.86 |
| Area-41 | | 212 | 50 | 1026835.55 |
| | | | | |
| Area-42 | | 208 | 52 | 997781.74 |
| Area-43 | | 188 | 65 | 1006019.61 |
| Area-44 | | 193 | 71 | 1062822.34 |
| Area-45 | | 172 | 67 | 1012792.09 |
| Area-46 | | 176 | 61 | 1006816.25 |
| Area-47 | | 163 | 52 | 996493.07 |
| Area-48 | | 201 | 64 | 1031671.96 |
| Area-49 | | 179 | 56 | 1022374.07 |
| | | | | |
| Area-5 | | 189 | 65 | 1034912.27 |
| Area-50 | | 186 | 62 | 1036473.87 |
| Area-6 | | 188 | 61 | 1028309.78 |
| Area-7 | | 192 | 63 | 985751.91 |
| Area-8 | | 201 | 67 | 1060354.00 |
| Area-9 | | 203 | 58 | 1065196.16 |
| niou o | | 200 | 00 | 1000100.10 |
| | Dido Diatoreo | Driver Detings | Customon Doting | |
| | Ride Distance | Driver Ratings | Customer Rating | |
| pickup_location | | | | |
| Area-1 | 27909.42 | 4263.4 | 4100.5 | |
| Area-10 | 26597.67 | 4133.1 | 3953.8 | |
| Area-11 | 27607.02 | 4315.5 | 4152.3 | |
| Area-12 | 26986.45 | 4244.6 | 4067.6 | |
| Area-13 | 26268.05 | 4097.2 | 3938.0 | |
| Area-14 | 25945.51 | 3956.3 | 3799.8 | |
| Area-15 | 27390.26 | 4228.4 | 4038.0 | |
| | | | | |
| Area-16 | 27006.67 | 4150.0 | 3983.5 | |
| Area-17 | 26174.01 | 4090.9 | 3906.8 | |
| Area-18 | 26533.84 | 4101.5 | 3943.2 | |
| Area-19 | 26984.82 | 4185.1 | 4015.1 | |
| Area-2 | 25774.61 | 3998.2 | 3846.0 | |
| Area-20 | 27105.61 | 4191.6 | 4044.4 | |
| Area-21 | 26186.96 | 3994.0 | 3847.0 | |
| Area-22 | 27963.77 | 4309.2 | 4142.0 | |
| | | | | |
| Area-23 | 26806.33 | 4093.9 | 3935.1 | |
| Area-24 | | | | |
| | 27923.92 | 4266.0 | 4084.1 | |
| Area-25 | 27923.92 26107.69 | 4266.0 4075.2 | 4084.1 3922.5 | |

```
Area-26
                             25974.79
                                                 4109.5
                                                                   3949.1
      Area-27
                                                                   3837.2
                             26011.50
                                                 4023.1
      Area-28
                             26320.84
                                                 4043.7
                                                                   3874.4
      Area-29
                             27785.13
                                                 4345.4
                                                                   4171.5
      Area-3
                                                                   3920.5
                             26215.36
                                                 4081.4
      Area-30
                             26795.73
                                                 4230.0
                                                                   4027.0
                                                                   3868.5
      Area-31
                             26619.14
                                                 4035.5
      Area-32
                             26457.50
                                                 4034.3
                                                                   3888.1
      Area-33
                             26445.88
                                                 4136.7
                                                                   3988.2
      Area-34
                             27447.03
                                                 4256.1
                                                                   4043.8
      Area-35
                             25978.37
                                                 4002.2
                                                                   3851.3
      Area-36
                             26073.24
                                                 4076.4
                                                                   3897.0
      Area-37
                             25696.43
                                                 3943.7
                                                                   3802.7
      Area-38
                             27727.66
                                                 4201.2
                                                                   4039.1
      Area-39
                             29226.64
                                                 4585.4
                                                                   4410.1
      Area-4
                             28483.78
                                                 4409.8
                                                                   4220.4
      Area-40
                                                 4155.1
                                                                   3997.0
                             26847.85
      Area-41
                             27248.18
                                                 4243.6
                                                                   4062.7
      Area-42
                             26428.91
                                                 4087.5
                                                                   3941.4
                             27053.18
      Area-43
                                                 4092.1
                                                                   3962.3
      Area-44
                             27972.41
                                                 4351.4
                                                                   4165.5
      Area-45
                             26952.74
                                                 4160.7
                                                                   3996.1
      Area-46
                             26980.77
                                                 4123.6
                                                                   4040.4
      Area-47
                             26732.85
                                                 4123.2
                                                                   3960.8
      Area-48
                                                 4321.4
                                                                   4136.4
                             28408.68
      Area-49
                             26541.14
                                                 4107.7
                                                                   3931.9
      Area-5
                             27380.52
                                                 4261.2
                                                                   4082.1
      Area-50
                                                 4253.8
                                                                   4065.4
                             26914.72
      Area-6
                             27162.85
                                                 4159.9
                                                                   4023.4
      Area-7
                             26109.63
                                                 3980.6
                                                                   3840.8
      Area-8
                             28059.61
                                                 4370.9
                                                                   4188.6
      Area-9
                             28196.47
                                                 4354.1
                                                                   4150.4
[73]: result = df.groupby('booking_status').agg({
          'Date': 'last',
                               # or 'min'/'max'
           'Time': 'last',
           'Driver Ratings': 'sum'
                                        # example numerical column
      })
```

```
Date Time Driver Ratings booking_status
Cancelled by Customer 2024-01-13 20:00:00 17095.5
Cancelled by Driver 2024-01-17 23:00:00 43245.0
Incomplete 2024-01-11 15:00:00 13977.0
```

2024-01-28 14:00:00

print(result)

Success

134037.8

```
[74]: result=df.groupby('vehicle_type').agg({'Date':'first',
                                                'Time':'last',
                                               'Customer Rating': 'sum'})
      print(result)
                         Date
                                    Time
                                         Customer Rating
     vehicle_type
     Auto
                   2024-01-28
                               23:00:00
                                                   28419.4
     Bike
                   2024-01-15
                               14:00:00
                                                   28873.5
     Mini
                   2024-01-26
                               03:00:00
                                                   28002.9
     Prime Plus
                   2024-01-14
                               18:00:00
                                                   29035.1
     Prime SUV
                   2024-01-22
                                                   28623.8
                               20:00:00
     Prime Sedan
                   2024-01-02
                               08:00:00
                                                   28710.3
     eBike
                   2024-01-30
                               22:00:00
                                                   28388.8
[75]: df.drop('DateTime',axis=1,inplace=True)
[76]: df
[76]:
                  Date
                             Time
                                   booking_id
                                                     booking_status customer_id \
            2024-01-28
                         06:00:00
                                   CNR1721175
                                                                            329258
      0
                                                             Success
                                                Cancelled by Driver
                                                                           201414
      1
            2024-01-26
                         03:00:00
                                   CNR2871422
      2
                                                Cancelled by Driver
            2024-01-15
                         16:00:00
                                   CNR6875935
                                                                            301629
      3
                                                Cancelled by Driver
            2024-01-02
                         22:00:00
                                   CNR6798834
                                                                            319684
      4
            2024-01-30
                         22:00:00
                                   CNR9661713
                                                          Incomplete
                                                                            330283
      49994 2024-01-02
                         00:00:00
                                   CNR7299340
                                                             Success
                                                                            454202
      49995 2024-01-27
                         02:00:00
                                   CNR0378586
                                                                            349873
                                                             Success
      49996 2024-01-17
                         23:00:00
                                   CNR2461856
                                                Cancelled by Driver
                                                                            880053
      49997 2024-01-18
                         22:00:00
                                   CNR9524579
                                                             Success
                                                                            752806
      49998 2024-01-28
                         14:00:00
                                   CNR3698787
                                                             Success
                                                                            159552
            vehicle_type pickup_location drop_location Avg VTAT
                                                                     Avg CTAT
      0
                     Auto
                                   Area-3
                                                  Area-2
                                                               5.42
                                                                        18.46
                                                               0.00
      1
                     Mini
                                   Area-7
                                                  Area-6
                                                                          1.00
      2
                     Bike
                                  Area-40
                                                 Area-24
                                                               0.00
                                                                          1.00
      3
             Prime Sedan
                                  Area-11
                                                 Area-24
                                                               0.00
                                                                          1.00
      4
                                                 Area-45
                                                               0.00
                                                                          1.00
                     Bike
                                   Area-41
      49994
                    eBike
                                   Area-39
                                                 Area-34
                                                              11.53
                                                                          2.42
      49995
                     Auto
                                   Area-17
                                                               5.56
                                                                          9.05
                                                 Area-21
      49996
                     Auto
                                   Area-37
                                                 Area-43
                                                               0.00
                                                                          1.00
      49997
                    eBike
                                   Area-48
                                                                        13.72
                                                 Area-29
                                                               5.15
      49998
                     Bike
                                   Area-1
                                                 Area-37
                                                              14.89
                                                                        28.07 ...
             Reason for Cancelling by Customer Cancelled Rides by Driver
                                         Traffic
      0
                                                                           0
      1
                                         Traffic
                                                                           1
```

```
2
                                   Traffic
                                                                     1
3
                                   Traffic
                                                                      1
4
                                   Traffic
                                                                     0
49994
                                   Traffic
                                                                     0
49995
                                   Traffic
                                                                     0
49996
                                   Traffic
                                                                     1
49997
                                   Traffic
                                                                     0
49998
                                                                     0
                                   Traffic
           Reason for Cancelling by Driver Incomplete Rides
                                Health Issue
0
                                                              0
1
            The customer was coughing/sick
2
             Personal & Car related issues
                                                              0
3
            The customer was coughing/sick
                                                              0
4
                                Health Issue
                                                              1
49994
                                Health Issue
                                                              0
49995
                                                              0
                                Health Issue
49996
       More than permitted people in there
                                                              0
49997
                                Health Issue
                                                              0
49998
                                Health Issue
                                                              0
                                                 Payment Method Ride Distance \
       Incomplete Rides Reason Booking Value
0
            Critical Situation
                                        868.06
                                                          Wallet
                                                                          28.50
1
            Critical Situation
                                       1000.00
                                                          online
                                                                          30.00
            Critical Situation
                                                          online
                                       1000.00
                                                                          30.00
3
            Critical Situation
                                       1000.00
                                                          online
                                                                          30.00
4
                    Other Issue
                                       1000.00
                                                          online
                                                                          30.00
            Critical Situation
49994
                                       1217.43
                                                            Card
                                                                          10.52
                                                             UPI
49995
            Critical Situation
                                                                          11.04
                                       1369.51
49996
            Critical Situation
                                       1000.00
                                                          online
                                                                          30.00
49997
            Critical Situation
                                       1930.49
                                                             UPI
                                                                          14.49
49998
            Critical Situation
                                       1534.66
                                                            Cash
                                                                           4.60
       Driver Ratings
                       Customer Rating
0
                   4.4
                                     4.4
                   4.5
                                     4.0
1
2
                   4.5
                                     4.0
3
                   4.5
                                     4.0
                                     4.0
4
                   4.5
49994
                   4.1
                                     3.2
49995
                   5.0
                                     4.3
                   4.5
                                     4.0
49996
49997
                   3.1
                                     4.5
```

```
49998
                        3.3
                                          4.1
      [49999 rows x 21 columns]
[77]: result=df.groupby('booking_status').agg({'Date':'first',
                                                'Time':'last',
                                                'vehicle_type':'sum'})
      print(result)
                                  Date
                                            Time \
     booking_status
     Cancelled by Customer 2024-01-01 20:00:00
     Cancelled by Driver
                            2024-01-26 23:00:00
     Incomplete
                            2024-01-30 15:00:00
     Success
                            2024-01-28 14:00:00
                                                                   vehicle_type
     booking_status
     Cancelled by Customer Prime PluseBikeMiniMiniPrime SUVPrime SUVBikeB...
     Cancelled by Driver
                             MiniBikePrime SedanMiniPrime SedanPrime PlusPr...
     Incomplete
                             BikePrime PluseBikeMiniPrime SUVPrime SedaneBi...
     Success
                             AutoPrime SedaneBikePrime SUVPrime SedaneBikeB...
[78]: df['vehicle_type'].value_counts()
[78]: vehicle_type
     Prime Plus
                     7252
      Bike
                     7223
     Prime Sedan
                     7179
     Prime SUV
                     7140
      Auto
                     7098
      eBike
                     7097
      Mini
                     7010
      Name: count, dtype: int64
[79]: df['booking_status'].value_counts()
[79]: booking_status
      Success
                               33484
      Cancelled by Driver
                                9610
      Cancelled by Customer
                                3799
      Incomplete
                                 3106
      Name: count, dtype: int64
[80]: df['booking_status']=df['booking_status'].str.upper()
[81]: df.head()
```

```
[81]:
              Date
                        Time
                               booking_id
                                                 booking_status customer_id \
      0 2024-01-28 06:00:00
                               CNR1721175
                                                                      329258
                                                        SUCCESS
      1 2024-01-26 03:00:00
                               CNR2871422
                                           CANCELLED BY DRIVER
                                                                       201414
      2 2024-01-15 16:00:00
                               CNR6875935
                                           CANCELLED BY DRIVER
                                                                       301629
      3 2024-01-02 22:00:00
                               CNR6798834
                                           CANCELLED BY DRIVER
                                                                      319684
      4 2024-01-30 22:00:00
                               CNR9661713
                                                     INCOMPLETE
                                                                       330283
        vehicle_type pickup_location drop_location Avg VTAT
                                                                Avg CTAT
                               Area-3
                                                          5.42
                                                                   18.46
      0
                Auto
                                             Area-2
                                                                    1.00 ...
      1
                Mini
                               Area-7
                                             Area-6
                                                          0.00
      2
                Bike
                              Area-40
                                            Area-24
                                                          0.00
                                                                    1.00 ...
         Prime Sedan
                              Area-11
                                            Area-24
                                                          0.00
                                                                    1.00
      3
                                                                    1.00
                Bike
                              Area-41
                                            Area-45
                                                          0.00
         Reason for Cancelling by Customer Cancelled Rides by Driver
      0
                                    Traffic
      1
                                    Traffic
                                                                     1
      2
                                    Traffic
                                                                     1
      3
                                    Traffic
                                                                     1
      4
                                    Traffic
                                                                     0
         Reason for Cancelling by Driver Incomplete Rides Incomplete Rides Reason \
                             Health Issue
                                                                  Critical Situation
      0
                                                          0
          The customer was coughing/sick
                                                          0
                                                                  Critical Situation
      1
      2
          Personal & Car related issues
                                                          0
                                                                  Critical Situation
                                                                  Critical Situation
      3
          The customer was coughing/sick
                                                          0
                            Health Issue
                                                          1
                                                                          Other Issue
        Booking Value Payment Method Ride Distance
                                                      Driver Ratings
                                                                      Customer Rating
      0
               868.06
                                Wallet
                                                 28.5
                                                                  4.4
                                                 30.0
      1
              1000.00
                                online
                                                                  4.5
                                                                                    4.0
      2
              1000.00
                                online
                                                 30.0
                                                                  4.5
                                                                                    4.0
      3
              1000.00
                                online
                                                 30.0
                                                                  4.5
                                                                                    4.0
              1000.00
                                online
                                                 30.0
                                                                  4.5
                                                                                    4.0
      [5 rows x 21 columns]
[82]: df['vehicle_type']=df['vehicle_type'].str.upper()
[83]: df.head()
[83]:
              Date
                        Time
                               booking_id
                                                 booking_status
                                                                 customer_id
                                                        SUCCESS
                                                                       329258
      0 2024-01-28
                    06:00:00
                               CNR1721175
      1 2024-01-26
                    03:00:00
                                           CANCELLED BY DRIVER
                               CNR2871422
                                                                       201414
      2 2024-01-15
                    16:00:00
                               CNR6875935
                                           CANCELLED BY DRIVER
                                                                      301629
      3 2024-01-02
                    22:00:00
                               CNR6798834
                                           CANCELLED BY DRIVER
                                                                       319684
      4 2024-01-30 22:00:00
                               CNR9661713
                                                     INCOMPLETE
                                                                      330283
```

```
0
                AUTO
                               Area-3
                                              Area-2
                                                          5.42
                                                                    18.46
                                                                     1.00
                MINI
                               Area-7
                                              Area-6
                                                          0.00
      1
      2
                BIKE
                              Area-40
                                             Area-24
                                                          0.00
                                                                     1.00 ...
                                                                     1.00
      3
         PRIME SEDAN
                              Area-11
                                             Area-24
                                                          0.00
      4
                BTKF.
                              Area-41
                                             Area-45
                                                          0.00
                                                                     1.00 ...
         Reason for Cancelling by Customer Cancelled Rides by Driver
      0
                                    Traffic
      1
                                    Traffic
                                                                      1
      2
                                    Traffic
                                                                      1
      3
                                    Traffic
                                                                      1
      4
                                    Traffic
                                                                      0
         Reason for Cancelling by Driver Incomplete Rides
                                                            Incomplete Rides Reason \
      0
                             Health Issue
                                                          0
                                                                   Critical Situation
          The customer was coughing/sick
                                                          0
                                                                   Critical Situation
      1
          Personal & Car related issues
                                                          0
      2
                                                                   Critical Situation
      3
          The customer was coughing/sick
                                                          0
                                                                   Critical Situation
                             Health Issue
                                                                          Other Issue
                                                           1
        Booking Value Payment Method Ride Distance Driver Ratings Customer Rating
               868.06
                                                                   4.4
      0
                                Wallet
                                                 28.5
      1
              1000.00
                                online
                                                 30.0
                                                                   4.5
                                                                                     4.0
      2
              1000.00
                                online
                                                 30.0
                                                                   4.5
                                                                                     4.0
                                                 30.0
              1000.00
                                online
                                                                   4.5
                                                                                     4.0
              1000.00
                                online
                                                 30.0
                                                                   4.5
                                                                                     4.0
      [5 rows x 21 columns]
[84]: df['driver_ratings']=df['Driver Ratings']*0.1
[85]: df.head()
[85]:
              Date
                         Time
                               booking_id
                                                 booking_status
                                                                  customer_id
      0 2024-01-28 06:00:00
                               CNR1721175
                                                        SUCCESS
                                                                       329258
      1 2024-01-26 03:00:00
                               CNR2871422
                                           CANCELLED BY DRIVER
                                                                       201414
      2 2024-01-15
                    16:00:00
                               CNR6875935
                                            CANCELLED BY DRIVER
                                                                       301629
      3 2024-01-02 22:00:00
                               CNR6798834 CANCELLED BY DRIVER
                                                                       319684
      4 2024-01-30 22:00:00
                               CNR9661713
                                                     INCOMPLETE
                                                                       330283
        vehicle_type pickup_location drop_location Avg VTAT
                                                                 Avg CTAT
      0
                AUTO
                               Area-3
                                              Area-2
                                                          5.42
                                                                    18.46
                MTNT
                               Area-7
                                              Area-6
                                                          0.00
                                                                     1.00 ...
      1
                                                                     1.00 ...
      2
                BIKE
                              Area-40
                                             Area-24
                                                          0.00
        PRIME SEDAN
                              Area-11
                                             Area-24
                                                          0.00
                                                                     1.00 ...
```

vehicle_type pickup_location drop_location Avg VTAT Avg CTAT

```
Cancelled Rides by Driver Reason for Cancelling by Driver
      0
                                                        Health Issue
      1
                                     The customer was coughing/sick
                                  1
      2
                                      Personal & Car related issues
      3
                                     The customer was coughing/sick
                                  1
      4
                                                        Health Issue
                                  0
         Incomplete Rides Incomplete Rides Reason Booking Value Payment Method \
      0
                         0
                                Critical Situation
                                                            868.06
                                                                           Wallet
      1
                        0
                                Critical Situation
                                                           1000.00
                                                                           online
      2
                        0
                                Critical Situation
                                                           1000.00
                                                                           online
      3
                        0
                                Critical Situation
                                                           1000.00
                                                                           online
      4
                                       Other Issue
                                                           1000.00
                                                                           online
                         1
         Ride Distance Driver Ratings Customer Rating driver_ratings
      0
                  28.5
                                   4.4
                                                    4.4
                                                                    0.44
                  30.0
                                   4.5
                                                    4.0
                                                                    0.45
      1
      2
                  30.0
                                   4.5
                                                    4.0
                                                                    0.45
      3
                  30.0
                                   4.5
                                                    4.0
                                                                    0.45
      4
                  30.0
                                   4.5
                                                    4.0
                                                                    0.45
      [5 rows x 22 columns]
[86]: df['customer_rating']=df['Customer Rating']*20
[87]: df.head()
[87]:
                        Time booking_id
                                                booking_status customer_id \
              Date
      0 2024-01-28 06:00:00
                              CNR1721175
                                                        SUCCESS
                                                                      329258
      1 2024-01-26 03:00:00
                               CNR2871422
                                           CANCELLED BY DRIVER
                                                                      201414
      2 2024-01-15 16:00:00
                               CNR6875935
                                           CANCELLED BY DRIVER
                                                                      301629
      3 2024-01-02 22:00:00
                               CNR6798834
                                           CANCELLED BY DRIVER
                                                                      319684
      4 2024-01-30 22:00:00
                                                    INCOMPLETE
                              CNR9661713
                                                                      330283
        vehicle_type pickup_location drop_location Avg VTAT
                                                                Avg CTAT
                AUTO
                               Area-3
                                                          5.42
                                                                   18.46
      0
                                             Area-2
      1
                MINI
                               Area-7
                                             Area-6
                                                          0.00
                                                                    1.00 ...
                              Area-40
      2
                BIKE
                                            Area-24
                                                          0.00
                                                                    1.00 ...
                                                                    1.00
      3
        PRIME SEDAN
                              Area-11
                                            Area-24
                                                          0.00
                BIKE
                              Area-41
                                            Area-45
                                                          0.00
                                                                    1.00
         Reason for Cancelling by Driver Incomplete Rides Incomplete Rides Reason \
      0
                            Health Issue
                                                                  Critical Situation
                                                          0
                                                                  Critical Situation
      1
          The customer was coughing/sick
                                                          0
      2
           Personal & Car related issues
                                                          0
                                                                  Critical Situation
```

4

BIKE

Area-41

0.00

1.00 ...

Area-45

```
3
          The customer was coughing/sick
                                                         0
                                                                 Critical Situation
      4
                                                                         Other Issue
                            Health Issue
                                                         1
        Booking Value Payment Method Ride Distance Driver Ratings Customer Rating
      0
               868.06
                                Wallet
                                                28.5
                                online
                                                30.0
      1
              1000.00
                                                                 4.5
                                                                                  4.0
      2
              1000.00
                               online
                                                30.0
                                                                 4.5
                                                                                  4.0
      3
              1000.00
                               online
                                                30.0
                                                                 4.5
                                                                                  4.0
              1000.00
                                online
                                                30.0
                                                                 4.5
                                                                                  4.0
         driver_ratings customer_rating
      0
                   0.44
                                     88.0
      1
                   0.45
                                     80.0
      2
                   0.45
                                     80.0
      3
                   0.45
                                     80.0
      4
                   0.45
                                     80.0
      [5 rows x 23 columns]
[88]: df.drop('driver ratings',axis=1,inplace=True)
[89]: df.drop('customer_rating',axis=1,inplace=True)
[90]: df
[90]:
                  Date
                            Time booking_id
                                                    booking_status customer_id \
            2024-01-28
                        06:00:00
                                  CNR1721175
                                                           SUCCESS
                                                                          329258
      0
                        03:00:00 CNR2871422 CANCELLED BY DRIVER
      1
            2024-01-26
                                                                          201414
      2
            2024-01-15
                        16:00:00
                                  CNR6875935 CANCELLED BY DRIVER
                                                                          301629
                                  CNR6798834 CANCELLED BY DRIVER
      3
            2024-01-02
                        22:00:00
                                                                          319684
            2024-01-30
                        22:00:00
                                  CNR9661713
                                                        INCOMPLETE
                                                                          330283
      49994 2024-01-02
                        00:00:00
                                  CNR7299340
                                                           SUCCESS
                                                                          454202
      49995 2024-01-27
                        02:00:00
                                  CNR0378586
                                                           SUCCESS
                                                                          349873
      49996 2024-01-17
                        23:00:00
                                  CNR2461856 CANCELLED BY DRIVER
                                                                          880053
      49997 2024-01-18
                        22:00:00
                                  CNR9524579
                                                           SUCCESS
                                                                          752806
      49998 2024-01-28 14:00:00
                                  CNR3698787
                                                           SUCCESS
                                                                          159552
            vehicle_type pickup_location drop_location Avg VTAT Avg CTAT ... \
      0
                    OTUA
                                  Area-3
                                                 Area-2
                                                             5.42
                                                                       18.46 ...
      1
                    MINI
                                                             0.00
                                                                        1.00 ...
                                  Area-7
                                                 Area-6
      2
                    BIKE
                                 Area-40
                                                Area-24
                                                             0.00
                                                                        1.00 ...
      3
             PRIME SEDAN
                                 Area-11
                                                Area-24
                                                             0.00
                                                                        1.00 ...
      4
                    BIKE
                                  Area-41
                                                Area-45
                                                             0.00
                                                                        1.00 ...
      49994
                   EBIKE
                                 Area-39
                                                Area-34
                                                            11.53
                                                                        2.42
                                                                        9.05 ...
      49995
                    AUTO
                                 Area-17
                                                Area-21
                                                             5.56
```

```
49996
              AUTO
                             Area-37
                                            Area-43
                                                         0.00
                                                                    1.00
49997
             EBIKE
                            Area-48
                                                         5.15
                                                                   13.72
                                            Area-29
49998
              BIKE
                             Area-1
                                            Area-37
                                                        14.89
                                                                   28.07
       Reason for Cancelling by Customer Cancelled Rides by Driver
0
                                   Traffic
1
                                   Traffic
                                                                     1
2
                                   Traffic
                                                                     1
3
                                   Traffic
                                                                     1
4
                                   Traffic
                                                                     0
49994
                                   Traffic
                                                                     0
49995
                                   Traffic
                                                                     0
49996
                                   Traffic
                                                                     1
49997
                                   Traffic
                                                                     0
                                                                     0
49998
                                   Traffic
           Reason for Cancelling by Driver Incomplete Rides
0
                                Health Issue
1
            The customer was coughing/sick
                                                              0
2
             Personal & Car related issues
                                                              0
3
            The customer was coughing/sick
                                                              0
4
                                Health Issue
                                                              1
                                Health Issue
49994
                                                              0
49995
                                Health Issue
                                                              0
49996
       More than permitted people in there
                                                              0
49997
                                Health Issue
                                                              0
                                Health Issue
49998
                                                              0
       Incomplete Rides Reason Booking Value
                                                 Payment Method Ride Distance
0
            Critical Situation
                                        868.06
                                                         Wallet
                                                                          28.50
1
            Critical Situation
                                       1000.00
                                                          online
                                                                          30.00
2
            Critical Situation
                                       1000.00
                                                          online
                                                                          30.00
3
            Critical Situation
                                       1000.00
                                                          online
                                                                          30.00
4
                    Other Issue
                                       1000.00
                                                          online
                                                                          30.00
49994
            Critical Situation
                                                                         10.52
                                       1217.43
                                                            Card
                                                             UPI
49995
            Critical Situation
                                       1369.51
                                                                          11.04
49996
            Critical Situation
                                                          online
                                                                          30.00
                                       1000.00
49997
            Critical Situation
                                                             UPI
                                                                          14.49
                                       1930.49
49998
            Critical Situation
                                       1534.66
                                                            Cash
                                                                           4.60
       Driver Ratings Customer Rating
0
                   4.4
                                     4.4
                   4.5
                                     4.0
1
2
                   4.5
                                     4.0
```

```
4
                         4.5
                                           4.0
                                           3.2
      49994
                         4.1
      49995
                         5.0
                                           4.3
      49996
                         4.5
                                           4.0
      49997
                         3.1
                                           4.5
      49998
                         3.3
                                           4.1
      [49999 rows x 21 columns]
[91]: df['Payment Method']=df['Payment Method'].str.upper()
[92]: df
[92]:
                  Date
                             Time
                                    booking_id
                                                      booking_status
                                                                       customer_id \
            2024-01-28
                                    CNR1721175
      0
                         06:00:00
                                                             SUCCESS
                                                                            329258
                         03:00:00
      1
            2024-01-26
                                    CNR2871422
                                                CANCELLED BY DRIVER
                                                                            201414
            2024-01-15
      2
                         16:00:00
                                    CNR6875935
                                                CANCELLED BY DRIVER
                                                                            301629
      3
            2024-01-02
                         22:00:00
                                    CNR6798834
                                                CANCELLED BY DRIVER
                                                                            319684
            2024-01-30
                         22:00:00
                                    CNR9661713
                                                          INCOMPLETE
                                                                            330283
      49994 2024-01-02
                         00:00:00
                                    CNR7299340
                                                             SUCCESS
                                                                            454202
      49995 2024-01-27
                         02:00:00
                                   CNR0378586
                                                             SUCCESS
                                                                            349873
      49996 2024-01-17
                         23:00:00
                                    CNR2461856
                                                CANCELLED BY DRIVER
                                                                            880053
      49997 2024-01-18
                         22:00:00
                                    CNR9524579
                                                             SUCCESS
                                                                            752806
      49998 2024-01-28
                                    CNR3698787
                         14:00:00
                                                             SUCCESS
                                                                            159552
            vehicle_type pickup_location drop_location Avg VTAT
                                                                      Avg CTAT
      0
                     AUTO
                                    Area-3
                                                   Area-2
                                                               5.42
                                                                         18.46
      1
                     MINI
                                    Area-7
                                                  Area-6
                                                               0.00
                                                                          1.00
      2
                                                               0.00
                     BIKE
                                   Area-40
                                                 Area-24
                                                                          1.00
      3
             PRIME SEDAN
                                                                          1.00
                                   Area-11
                                                 Area-24
                                                               0.00
      4
                                                               0.00
                                                                          1.00
                     BIKE
                                   Area-41
                                                 Area-45
      49994
                    EBIKE
                                   Area-39
                                                 Area-34
                                                              11.53
                                                                          2.42
      49995
                     AUTO
                                   Area-17
                                                 Area-21
                                                               5.56
                                                                          9.05
      49996
                     OTUA
                                   Area-37
                                                 Area-43
                                                               0.00
                                                                          1.00
      49997
                    EBIKE
                                   Area-48
                                                 Area-29
                                                               5.15
                                                                         13.72
      49998
                                    Area-1
                                                 Area-37
                                                              14.89
                                                                         28.07 ...
                     BIKE
             Reason for Cancelling by Customer Cancelled Rides by Driver
      0
                                         Traffic
      1
                                         Traffic
                                                                           1
      2
                                         Traffic
                                                                           1
```

4.0

3

3

4

4.5

1

0

Traffic

Traffic

| ••• | | ••• | | ••• | | | |
|-------|---|--------------|----------|----------------|------|----------|---|
| 49994 | | Traffic | | | C |) | |
| 49995 | Traffic | | | 0 | | | |
| 49996 | | Traffic | | | 1 | <u>L</u> | |
| 49997 | | Traffic | | | C |) | |
| 49998 | | Traffic | | | C | | |
| 10000 | | IIdIIIO | | | | , | |
| | Reason for Cancelling | hy Driver In | complete | Rides | \ | | |
| 0 | _ | lth Issue | comprese | 0 | ` | | |
| 1 | | | | 0 | | | |
| 2 | The customer was coug Personal & Car relat | • | | | | | |
| | | | | 0 | | | |
| 3 | The customer was coug | _ | | 0 | | | |
| 4 | неа | lth Issue | | 1 | | | |
| ••• | | ••• | ••• | | | | |
| 49994 | | lth Issue | | 0 | | | |
| 49995 | | lth Issue | | 0 | | | |
| 49996 | More than permitted people | in there | | 0 | | | |
| 49997 | Неа | lth Issue | | 0 | | | |
| 49998 | Неа | lth Issue | | 0 | | | |
| | | | | | | | |
| | Incomplete Rides Reason Bo | oking Value | Payment | ${\tt Method}$ | Ride | Distance | \ |
| 0 | Critical Situation | 868.06 | | WALLET | | 28.50 | |
| 1 | Critical Situation | 1000.00 | | ONLINE | | 30.00 | |
| 2 | Critical Situation | 1000.00 | | ONLINE | | 30.00 | |
| 3 | Critical Situation | 1000.00 | | ONLINE | | 30.00 | |
| 4 | Other Issue | 1000.00 | | ONLINE | | 30.00 | |
| ••• | ••• | ••• | ••• | | ••• | | |
| 49994 | Critical Situation | 1217.43 | | CARD | | 10.52 | |
| 49995 | Critical Situation | 1369.51 | | UPI | | 11.04 | |
| 49996 | Critical Situation | 1000.00 | | ONLINE | | 30.00 | |
| 49997 | Critical Situation | 1930.49 | | UPI | | 14.49 | |
| 49998 | Critical Situation | 1534.66 | | CASH | | 4.60 | |
| 40000 | Official bidacton | 1004.00 | | OADII | | 4.00 | |
| | Driver Ratings Customer R | ating | | | | | |
| 0 | 4.4 | 4.4 | | | | | |
| 1 | 4.5 | 4.0 | | | | | |
| 2 | 4.5 | 4.0 | | | | | |
| 3 | | | | | | | |
| | 4.5 | 4.0 | | | | | |
| 4 | 4.5 | 4.0 | | | | | |
| | | 2.0 | | | | | |
| 49994 | 4.1 | 3.2 | | | | | |
| 49995 | 5.0 | 4.3 | | | | | |
| 49996 | 4.5 | 4.0 | | | | | |
| 49997 | 3.1 | 4.5 | | | | | |
| 49998 | 3.3 | 4.1 | | | | | |
| | | | | | | | |

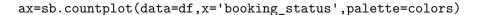
[49999 rows x 21 columns]

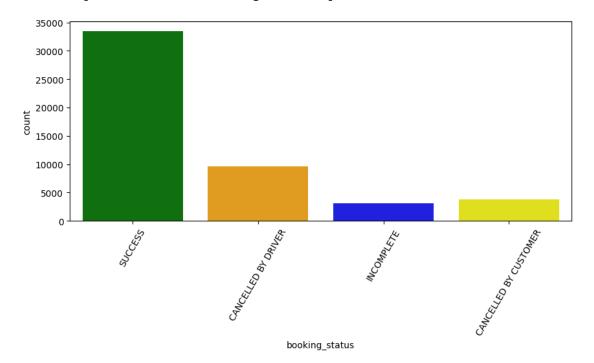
```
[93]: df.drop('Payment Method',axis=1,inplace=True)
[94]: df.head()
[94]:
              Date
                         Time
                               booking_id
                                                 booking_status
                                                                  customer_id \
      0 2024-01-28
                    06:00:00
                               CNR1721175
                                                         SUCCESS
                                                                        329258
      1 2024-01-26
                               CNR2871422
                    03:00:00
                                            CANCELLED BY DRIVER
                                                                        201414
      2 2024-01-15
                     16:00:00
                               CNR6875935
                                            CANCELLED BY DRIVER
                                                                        301629
      3 2024-01-02
                    22:00:00
                                            CANCELLED BY DRIVER
                               CNR6798834
                                                                        319684
      4 2024-01-30
                    22:00:00
                               CNR9661713
                                                      INCOMPLETE
                                                                        330283
        vehicle_type pickup_location drop_location Avg VTAT
                                                                 Avg CTAT
      0
                AUTO
                               Area-3
                                              Area-2
                                                           5.42
                                                                    18.46
                MINI
                               Area-7
                                              Area-6
                                                           0.00
                                                                     1.00
      1
      2
                BIKE
                              Area-40
                                             Area-24
                                                           0.00
                                                                     1.00
         PRIME SEDAN
                              Area-11
                                             Area-24
                                                           0.00
                                                                     1.00
      3
                BIKE
                              Area-41
                                             Area-45
                                                           0.00
                                                                     1.00
         Cancelled by Customer Reason for Cancelling by Customer
      0
                               0
                                                             Traffic
                               0
                                                             Traffic
      1
      2
                               0
                                                             Traffic
      3
                               0
                                                             Traffic
      4
                               0
                                                             Traffic
         Cancelled Rides by Driver Reason for Cancelling by Driver
      0
                                                         Health Issue
      1
                                      The customer was coughing/sick
      2
                                      Personal & Car related issues
      3
                                      The customer was coughing/sick
                                   1
      4
                                                         Health Issue
                                   0
         Incomplete Rides Incomplete Rides Reason Booking Value Ride Distance
                         0
                                Critical Situation
      0
                                                             868.06
                                                                               28.5
      1
                         0
                                Critical Situation
                                                            1000.00
                                                                               30.0
      2
                         0
                                Critical Situation
                                                            1000.00
                                                                               30.0
                                Critical Situation
      3
                         0
                                                            1000.00
                                                                               30.0
      4
                                        Other Issue
                                                            1000.00
                         1
                                                                               30.0
         Driver Ratings
                         Customer Rating
      0
                     4.4
                                       4.4
      1
                     4.5
                                       4.0
      2
                     4.5
                                       4.0
                     4.5
      3
                                       4.0
      4
                     4.5
                                       4.0
```

[]:

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\3976460694.py:3:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effect.





```
[98]: df.columns
[98]: Index(['Date', 'Time', 'booking_id', 'booking_status', 'customer_id',
             'vehicle type', 'pickup location', 'drop location', 'Avg VTAT',
             'Avg CTAT', 'Cancelled by Customer',
             'Reason for Cancelling by Customer', 'Cancelled Rides by Driver',
             'Reason for Cancelling by Driver', 'Incomplete Rides',
             'Incomplete Rides Reason', 'Booking Value', 'Ride Distance',
             'Driver Ratings', 'Customer Rating'],
            dtype='object')
[99]: plt.figure(figsize=(10,4))
      sb.lineplot(data=df.
       ⇔head(5),x='booking_id',y='vehicle_type',color='red',marker='*',□

→mec='green',ms='5')
      plt.xticks(rotation=60)
      plt.grid()
      plt.show()
                AUTO
                 MINI
                 BIKE
            PRIME SEDAN
```

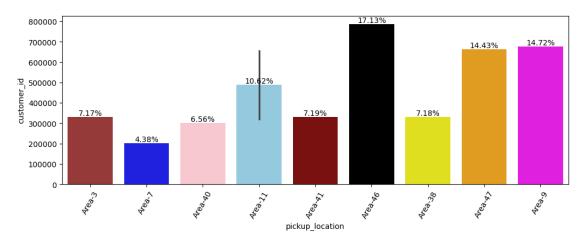
booking_id

```
'Incomplete Rides Reason', 'Booking Value', 'Ride Distance', 'Driver Ratings', 'Customer Rating'], dtype='object')
```

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\1705995479.py:3:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effect.

ax=sb.barplot(data=df.head(10),x='pickup_location',y='customer_id',palette=col
ors)



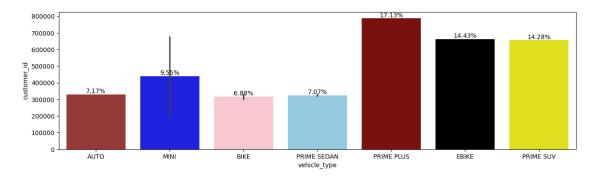
```
[102]: df.columns
```

```
[102]: Index(['Date', 'Time', 'booking_id', 'booking_status', 'customer_id',
              'vehicle_type', 'pickup_location', 'drop_location', 'Avg VTAT',
              'Avg CTAT', 'Cancelled by Customer',
              'Reason for Cancelling by Customer', 'Cancelled Rides by Driver',
              'Reason for Cancelling by Driver', 'Incomplete Rides',
              'Incomplete Rides Reason', 'Booking Value', 'Ride Distance',
              'Driver Ratings', 'Customer Rating'],
             dtype='object')
[103]: plt.figure(figsize=(15,4))
       colors=('brown','blue','pink','skyblue','darkred','black','yellow','orange','magenta')
       ax=sb.barplot(data=df.head(10),x='vehicle type',y='customer id',palette=colors)
       total=sum(df.head(10)['customer_id'])
       for bar in ax.patches:
           height=bar.get_height()
           percentage=f'{100*height/total:.2f}%'
           ax.annotate(percentage,(bar.get_x()+bar.get_width()/2,height),
           ha='center', va='bottom', fontsize=10, color='black')
```

C:\Users\admin\AppData\Local\Temp\ipykernel_13040\3263018117.py:3:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effect.

ax=sb.barplot(data=df.head(10),x='vehicle_type',y='customer_id',palette=colors)



'Incomplete Rides Reason', 'Booking Value', 'Ride Distance', 'Driver Ratings', 'Customer Rating'], dtype='object')

```
[105]: df
[105]:
                                     booking_id
                                                       booking_status
                                                                        customer_id \
                    Date
                              Time
             2024-01-28
                          06:00:00
                                     CNR1721175
                                                              SUCCESS
                                                                             329258
       0
       1
             2024-01-26
                          03:00:00
                                    CNR2871422
                                                 CANCELLED BY DRIVER
                                                                             201414
                                                 CANCELLED BY DRIVER
             2024-01-15
                          16:00:00
                                    CNR6875935
                                                                             301629
       3
             2024-01-02
                          22:00:00
                                     CNR6798834 CANCELLED BY DRIVER
                                                                             319684
             2024-01-30
                          22:00:00
                                    CNR9661713
                                                           INCOMPLETE
       4
                                                                             330283
       49994 2024-01-02
                          00:00:00
                                    CNR7299340
                                                              SUCCESS
                                                                             454202
       49995 2024-01-27
                          02:00:00
                                    CNR0378586
                                                              SUCCESS
                                                                             349873
       49996 2024-01-17
                          23:00:00
                                    CNR2461856
                                                 CANCELLED BY DRIVER
                                                                             880053
       49997 2024-01-18
                          22:00:00
                                     CNR9524579
                                                              SUCCESS
                                                                             752806
       49998 2024-01-28
                          14:00:00
                                     CNR3698787
                                                              SUCCESS
                                                                             159552
             vehicle_type pickup_location drop_location Avg VTAT
                                                                       Avg CTAT
                      AUTO
       0
                                     Area-3
                                                   Area-2
                                                                5.42
                                                                          18.46
       1
                      MINI
                                     Area-7
                                                                0.00
                                                                           1.00
                                                    Area-6
       2
                                                                0.00
                      BIKE
                                    Area-40
                                                  Area-24
                                                                           1.00
       3
              PRIME SEDAN
                                    Area-11
                                                  Area-24
                                                                0.00
                                                                           1.00
                      BIKE
                                    Area-41
                                                  Area-45
                                                                0.00
                                                                           1.00
       49994
                     EBIKE
                                   Area-39
                                                  Area-34
                                                               11.53
                                                                           2.42
       49995
                      OTUA
                                    Area-17
                                                  Area-21
                                                                5.56
                                                                           9.05
       49996
                      AUTO
                                    Area-37
                                                                0.00
                                                                           1.00
                                                  Area-43
       49997
                     EBIKE
                                    Area-48
                                                  Area-29
                                                                5.15
                                                                          13.72
       49998
                      BIKE
                                                               14.89
                                                                          28.07
                                     Area-1
                                                  Area-37
              Cancelled by Customer Reason for Cancelling by Customer
       0
                                     0
                                                                   Traffic
                                     0
                                                                   Traffic
       1
       2
                                     0
                                                                   Traffic
       3
                                     0
                                                                   Traffic
       4
                                     0
                                                                   Traffic
       49994
                                     0
                                                                   Traffic
       49995
                                     0
                                                                  Traffic
       49996
                                     0
                                                                   Traffic
       49997
                                     0
                                                                   Traffic
       49998
                                     0
                                                                   Traffic
              Cancelled Rides by Driver
                                               Reason for Cancelling by Driver \
                                                                   Health Issue
       0
```

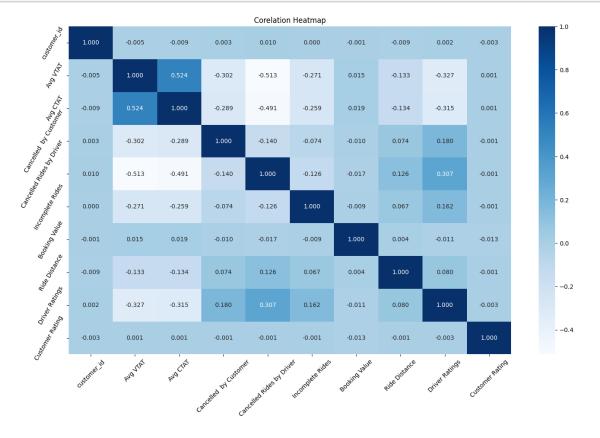
```
The customer was coughing/sick
       2
                                                 Personal & Car related issues
                                        1
       3
                                        1
                                                The customer was coughing/sick
       4
                                                                   Health Issue
       49994
                                       0
                                                                   Health Issue
       49995
                                                                   Health Issue
                                       0
       49996
                                        1
                                           More than permitted people in there
       49997
                                       0
                                                                   Health Issue
       49998
                                       0
                                                                   Health Issue
              Incomplete Rides Incomplete Rides Reason Booking Value
                                                                          Ride Distance
       0
                              0
                                     Critical Situation
                                                                  868.06
                                                                                   28.50
                              0
       1
                                     Critical Situation
                                                                 1000.00
                                                                                   30.00
       2
                              0
                                     Critical Situation
                                                                 1000.00
                                                                                   30.00
       3
                              0
                                     Critical Situation
                                                                 1000.00
                                                                                   30.00
       4
                              1
                                             Other Issue
                                                                 1000.00
                                                                                   30.00
       49994
                              0
                                     Critical Situation
                                                                 1217.43
                                                                                   10.52
       49995
                              0
                                     Critical Situation
                                                                                   11.04
                                                                 1369.51
                                                                                   30.00
       49996
                              0
                                     Critical Situation
                                                                 1000.00
       49997
                              0
                                     Critical Situation
                                                                                   14.49
                                                                 1930.49
       49998
                              0
                                     Critical Situation
                                                                                    4.60
                                                                 1534.66
              Driver Ratings Customer Rating
       0
                          4.4
                                            4.4
       1
                          4.5
                                            4.0
       2
                          4.5
                                            4.0
       3
                          4.5
                                            4.0
       4
                          4.5
                                            4.0
       49994
                                            3.2
                          4.1
                          5.0
                                            4.3
       49995
       49996
                          4.5
                                            4.0
       49997
                          3.1
                                            4.5
       49998
                          3.3
                                            4.1
       [49999 rows x 20 columns]
[106]: df.columns
[106]: Index(['Date', 'Time', 'booking_id', 'booking_status', 'customer_id',
              'vehicle_type', 'pickup_location', 'drop_location', 'Avg VTAT',
              'Avg CTAT', 'Cancelled by Customer',
              'Reason for Cancelling by Customer', 'Cancelled Rides by Driver',
              'Reason for Cancelling by Driver', 'Incomplete Rides',
               'Incomplete Rides Reason', 'Booking Value', 'Ride Distance',
```

1

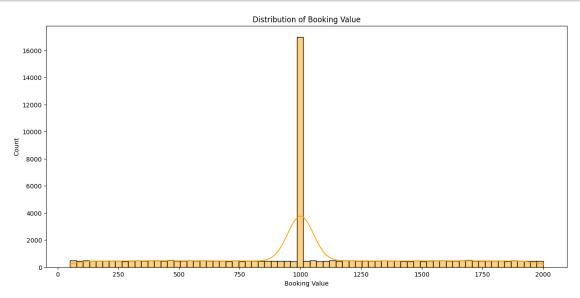
1

```
plt.figure(figsize=(15,10))
sb.heatmap(df.corr(numeric_only=True),annot=True,cmap='Blues',fmt=".3f")
plt.title('Corelation Heatmap')
plt.tight_layout()
plt.xticks(rotation=45)
plt.yticks(rotation=60)
plt.show()
```

==############



```
[115]: if 'Booking Value' in df.columns:
    plt.figure(figsize=(15,7))
    sb.histplot(df["Booking Value"],kde=True,color='orange')
    plt.title("Distribution of Booking Value")
    plt.show()
```

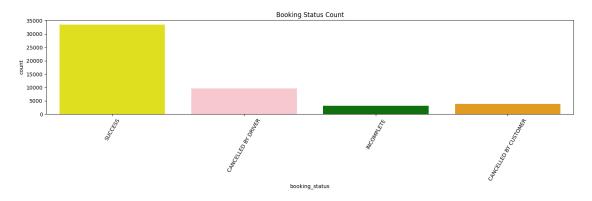


```
[]: | # Countplot for Categorical
       [116]: df.columns
[116]: Index(['Date', 'Time', 'booking_id', 'booking_status', 'customer_id',
             'vehicle_type', 'pickup_location', 'drop_location', 'Avg VTAT',
             'Avg CTAT', 'Cancelled by Customer',
             'Reason for Cancelling by Customer', 'Cancelled Rides by Driver',
             'Reason for Cancelling by Driver', 'Incomplete Rides',
             'Incomplete Rides Reason', 'Booking Value', 'Ride Distance',
             'Driver Ratings', 'Customer Rating'],
            dtype='object')
[121]: if 'booking_status' in df.columns:
          plt.figure(figsize=(15,5))
          colors=('yellow','pink','green','orange')
          sb.countplot(data=df,x='booking_status',palette=colors)
          plt.title("Booking Status Count")
          plt.xticks(rotation=60)
          plt.tight_layout()
          plt.show()
```

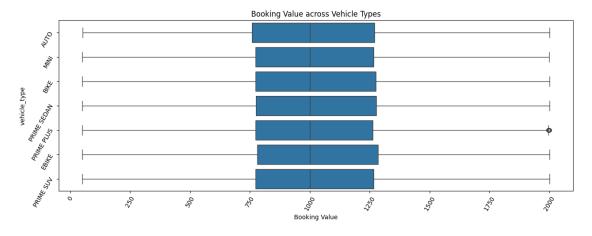
C:\Users\admin\AppData\Local\Temp\ipykernel_13040\1021343052.py:4:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effect.

sb.countplot(data=df,x='booking_status',palette=colors)



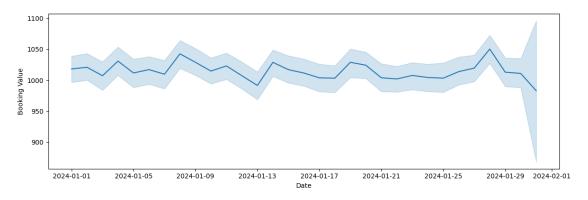
```
[124]: if 'Booking Value' in df.columns and 'vehicle_type' in df.columns:
    plt.figure(figsize=(15,5))
    sb.boxplot(data=df,x='Booking Value',y='vehicle_type')
    plt.title("Booking Value across Vehicle Types")
    plt.xticks(rotation=60)
    plt.yticks(rotation=60)
    plt.show()
```



[126]: df.dtypes

```
[126]: Date
                                              datetime64[ns]
       Time
                                                      object
       booking_id
                                                      object
       booking_status
                                                      object
       customer_id
                                                       int64
       vehicle_type
                                                      object
       pickup_location
                                                      object
       drop_location
                                                      object
       Avg VTAT
                                                     float64
       Avg CTAT
                                                     float64
       Cancelled by Customer
                                                       int64
       Reason for Cancelling by Customer
                                                      object
       Cancelled Rides by Driver
                                                       int64
       Reason for Cancelling by Driver
                                                      object
       Incomplete Rides
                                                       int64
       Incomplete Rides Reason
                                                      object
       Booking Value
                                                     float64
       Ride Distance
                                                     float64
       Driver Ratings
                                                     float64
                                                     float64
       Customer Rating
       dtype: object
```

```
[135]: if 'Date' in df.columns and 'Booking Value' in df.columns:
    plt.figure(figsize=(12,4))
    sb.lineplot(data=df,x='Date',y='Booking Value')
    plt.tight_layout()
    plt.show()
```



```
[144]: df['Time'] = pd.to_datetime(df['Time'], format='%H:%M:%S').dt.time
```

```
[146]: df['Time_in_Hours'] = pd.to_datetime(df['Time'], format='%H:%M:%S',_
        ⇔errors='coerce').dt.hour + \
                             pd.to_datetime(df['Time'], format='%H:%M:%S',_
        ⇔errors='coerce').dt.minute / 60 + \
                             pd.to_datetime(df['Time'], format='%H:%M:%S',_
        ⇔errors='coerce').dt.second / 3600
[148]: if 'Time_in_Hours' in df.columns and 'Booking Value' in df.columns:
           plt.figure(figsize=(15,4))
           sb.lineplot(data=df,x='Time_in_Hours',y='Booking Value')
           plt.tight_layout()
           plt.show()
            1040
            1030
            1020
            1010
            990
  []: ###Revenue_
        →analysis===
[151]: revenue=df['Booking Value'].sum()
       print("Total Revenue:",round(revenue,0))
      Total Revenue: 50781665.0
[152]: revenue_by_vehicles=df.groupby('vehicle_type')['Booking Value'].sum().

sort_values(ascending=False)
       print("Revenue By Vehicles:",round(revenue_by_vehicles,0))
```

AUTO 7180613.0 MINI 7124217.0 Name: Booking Value, dtype: float64

Revenue By Vehicles: vehicle_type

7354975.0

7327791.0

7308409.0

7257967.0

7227694.0

PRIME PLUS

PRIME SEDAN

PRIME SUV

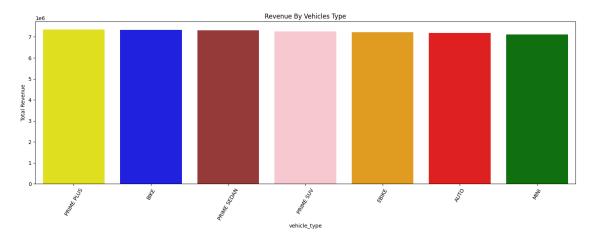
BIKE

EBIKE

 $\begin{tabular}{l} C:\Users\admin\appData\Local\Temp\ipykernel_13040\2079756544.py:3: Future\Warning: \end{tabular}$

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effect.

sb.barplot(x=revenue_by_vehicles.index,y=revenue_by_vehicles.values,palette=co
lors)



```
[164]: revenue_by_status=df.groupby('booking_status')['Booking Value'].sum().

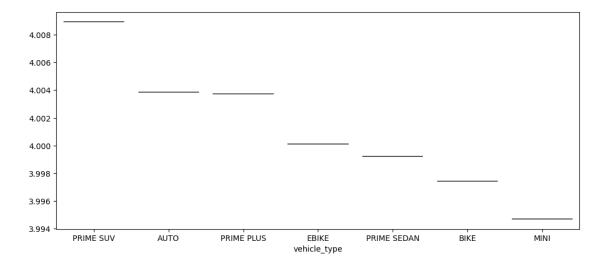
sort_values(ascending=False)
```

[168]: print("Revenue by Booking Status:",round(revenue_by_status,0))

Revenue by Booking Status: booking_status
SUCCESS 34266665.0
CANCELLED BY DRIVER 9610000.0
CANCELLED BY CUSTOMER 3799000.0
INCOMPLETE 3106000.0
Name: Booking Value, dtype: float64

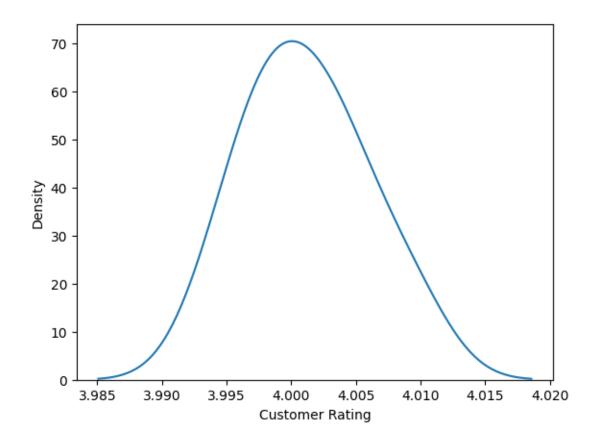
```
[171]: rating_by_vehicle=df.groupby('vehicle_type')['Customer Rating'].mean().
        ⇒sort_values(ascending=False)
       print('Average rating by vehicle type:',round(rating_by_vehicle,0))
      Average rating by vehicle type: vehicle_type
      PRIME SUV
                     4.0
      OTUA
                     4.0
      PRIME PLUS
                     4.0
      EBIKE
                     4.0
      PRIME SEDAN
                     4.0
      BIKE
                     4.0
                     4.0
      MINI
      Name: Customer Rating, dtype: float64
[175]: plt.figure(figsize=(12,5))
       sb.violinplot(x=rating_by_vehicle.index,y=rating_by_vehicle.values)
```

[175]: <Axes: xlabel='vehicle_type'>



```
[176]: sb.kdeplot(rating_by_vehicle)
```

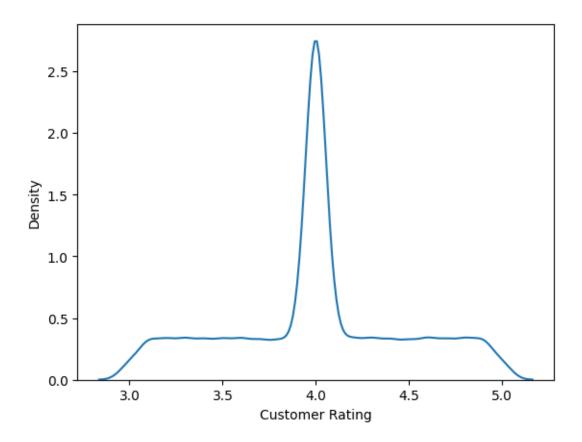
[176]: <Axes: xlabel='Customer Rating', ylabel='Density'>



```
[]:

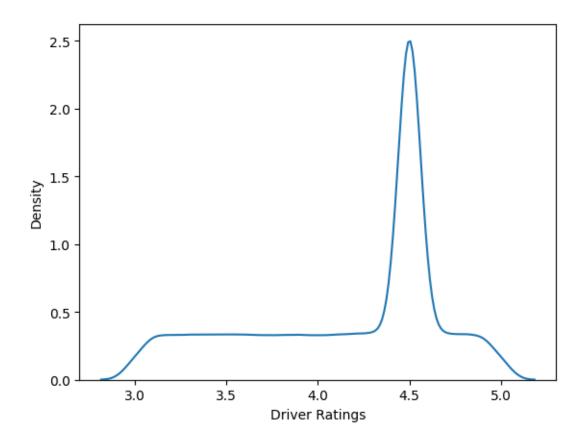
[177]: sb.kdeplot(df['Customer Rating'])
```

[177]: <Axes: xlabel='Customer Rating', ylabel='Density'>



```
[178]: sb.kdeplot(df['Driver Ratings'])
```

[178]: <Axes: xlabel='Driver Ratings', ylabel='Density'>



[]: