cognifyz-internship-level-2

May 4, 2024

TASK 1 : TABLE BOOKING AND ONLINE DELIVERY

[99]:
```
import warnings
warnings.filterwarnings("ignore")
```

[100]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

[101]:
```
df = pd.read_csv("C:/Users/rishi/OneDrive/Documents/cognifyz internship/Dataset␣
↪.csv")
```

[102]:
```
df.isnull().sum()
```

[102]:
```
Restaurant ID         0
Restaurant Name       0
Country Code          0
City                  0
Address               0
Locality              0
Locality Verbose      0
Longitude             0
Latitude              0
Cuisines              9
Average Cost for two  0
Currency              0
Has Table booking     0
Has Online delivery   0
Is delivering now     0
Switch to order menu  0
Price range           0
Aggregate rating      0
Rating color          0
Rating text           0
Votes                 0
dtype: int64
```

[103]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9551 entries, 0 to 9550
Data columns (total 21 columns):
 #   Column                Non-Null Count  Dtype  
---  ------                --------------  -----  
 0   Restaurant ID         9551 non-null   int64  
 1   Restaurant Name       9551 non-null   object 
 2   Country Code          9551 non-null   int64  
 3   City                  9551 non-null   object 
 4   Address               9551 non-null   object 
 5   Locality              9551 non-null   object 
 6   Locality Verbose      9551 non-null   object 
 7   Longitude             9551 non-null   float64
 8   Latitude              9551 non-null   float64
 9   Cuisines              9542 non-null   object 
 10  Average Cost for two  9551 non-null   int64  
 11  Currency              9551 non-null   object 
 12  Has Table booking     9551 non-null   object 
 13  Has Online delivery   9551 non-null   object 
 14  Is delivering now     9551 non-null   object 
 15  Switch to order menu  9551 non-null   object 
 16  Price range           9551 non-null   int64  
 17  Aggregate rating      9551 non-null   float64
 18  Rating color          9551 non-null   object 
 19  Rating text           9551 non-null   object 
 20  Votes                 9551 non-null   int64  
dtypes: float64(3), int64(5), object(13)
memory usage: 1.5+ MB
```

[104]:
```
df["Has Table booking"].value_counts()
```

[104]:
```
Has Table booking
No     8393
Yes    1158
Name: count, dtype: int64
```

[105]:
```
df["Has Online delivery"].value_counts()
```

[105]:
```
Has Online delivery
No     7100
Yes    2451
Name: count, dtype: int64
```

[106]:
```
print("Table Booking : ", round((1158/(8393+1158)) *100, 2),"%")
print("Online Delivery : ", round((2451/(7100+2451)) *100, 2), "%")
```

```
Table Booking :  12.12 %
Online Delivery :  25.66 %
```

compare the average ratings of restaurants with table booking and those without

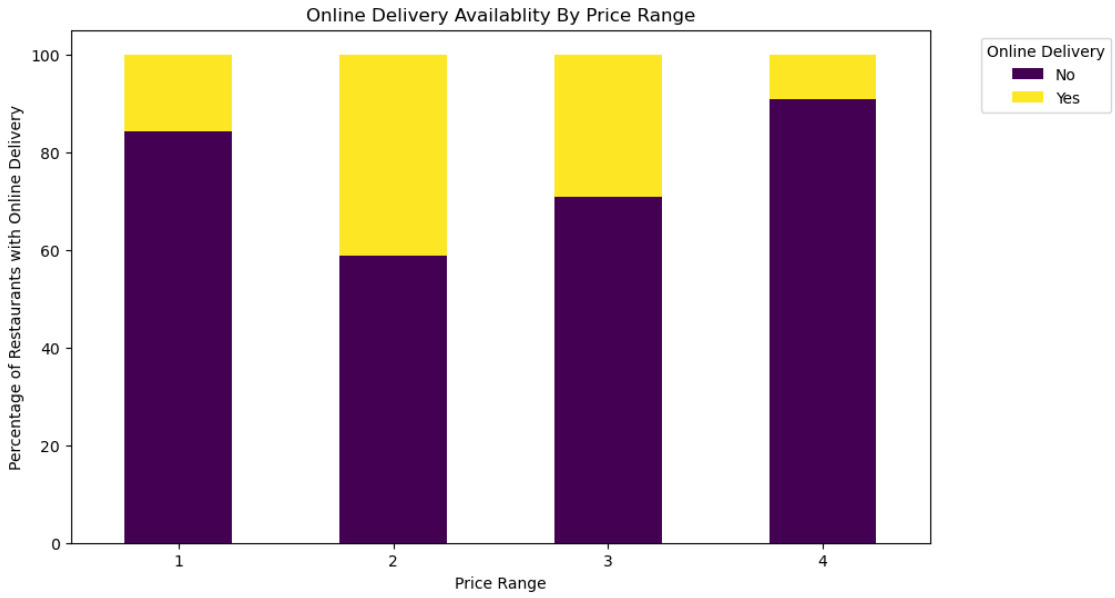
[107]:
```
df_with_table_booking= df[df['Has Table booking'] == 'Yes']
df_without_table_booking= df[df['Has Table booking'] == 'No']
print("Rows With Table Booking :",df_with_table_booking.shape)
print("Rows Without Table Booking :",df_without_table_booking.shape)
```

```
Rows With Table Booking : (1158, 21)
Rows Without Table Booking : (8393, 21)
```

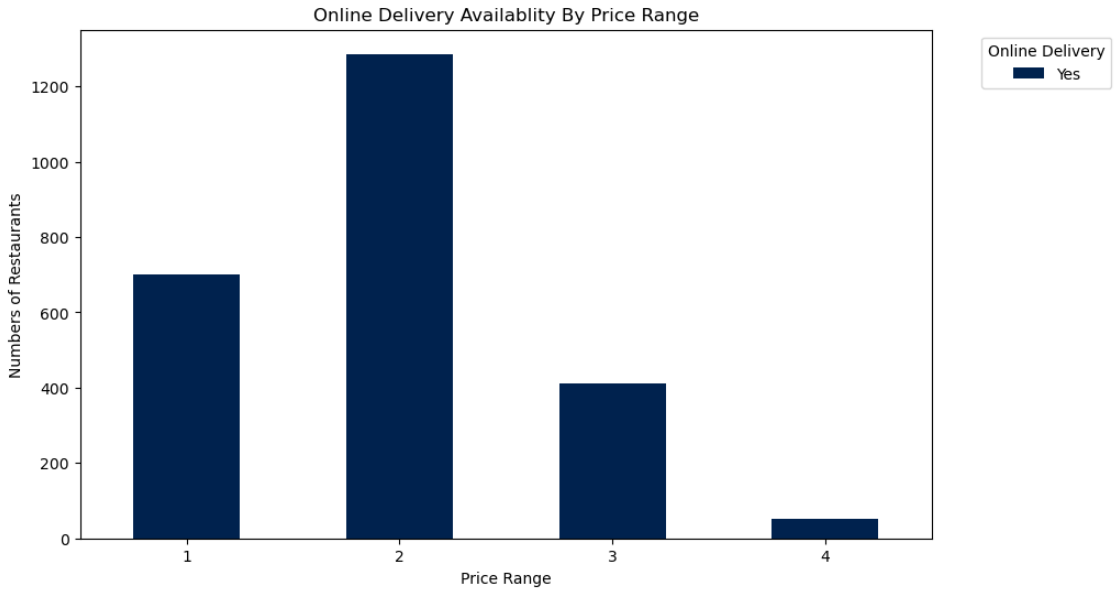
[108]:
```
print("Average Ratings:")
print(" With Table Booking : ", round(df_with_table_booking["Aggregate rating"].
 ↪mean(),2))
print(" Without Table Booking : ", round(df_without_table_booking["Aggregate␣
 ↪rating"].mean(),2))
```

```
Average Ratings:
 With Table Booking :  3.44
 Without Table Booking :  2.56
```

[110]:
```
online_Delivery_by_price_range = df.groupby('Price range')['Has Online␣
 ↪delivery'].value_counts(normalize=True).unstack()*100
online_Delivery_by_price_range.plot(kind='bar',stacked=True,␣
 ↪colormap='viridis', figsize=(10,6))
plt.title('Online Delivery Availablity By Price Range')
plt.xlabel('Price Range')
plt.ylabel('Percentage of Restaurants with Online Delivery')
plt.xticks(rotation=0)
plt.legend(title='Online Delivery',bbox_to_anchor=(1.05,1))
plt.show()
```



[114]:
```
Online_Delivery_Yes = df[df['Has Online delivery'] == 'Yes']
Online_Delivery_counts = Online_Delivery_Yes.groupby(['Price range', 'Has␣
 ↪Online delivery']).size().unstack()
Online_Delivery_counts.plot(kind='bar',stacked=True,␣
 ↪colormap='cividis',figsize=(10,6))
plt.title('Online Delivery Availablity By Price Range')
plt.xlabel('Price Range')
plt.ylabel('Numbers of Restaurants')
plt.xticks(rotation=0)
plt.legend(title='Online Delivery',bbox_to_anchor=(1.05,1), loc='upper left')
plt.show()
```



TASK 2 : PRICE RANGE ANALYSIS

[115]:
```
df["Price range"].value_counts()
```

[115]:
```
Price range
1    4444
2    3113
3    1408
4     586
Name: count, dtype: int64
```

[116]:
```
most_common = df["Price range"].mode()[0]
print("Most Common Price range among all the restaurants : ",most_common)
```

```
Most Common Price range among all the restaurants :  1
```

[117]:
```
Avg_Rating_by_price_range = df.groupby('Price range')['Aggregate rating'].
  ↪mean().round(2)
print("Average Rating for each price range :")
print(Avg_Rating_by_price_range)
```

```
Average Rating for each price range :
Price range
1    2.00
2    2.94
3    3.68
4    3.82
Name: Aggregate rating, dtype: float64
```

[119]:
```
highest_avg_rating_color = Avg_Rating_by_price_range.idxmax()
plt.bar(Avg_Rating_by_price_range.index, Avg_Rating_by_price_range,␣
 ↪color='skyblue',width=0.5)
plt.bar(highest_avg_rating_color,␣
 ↪Avg_Rating_by_price_range[highest_avg_rating_color],color='green',width=0.5)
plt.xlabel('Price Range')
plt.ylabel('Average Rating')
plt.title('Average Rating by Price Range')
plt.show()
```

TASK 3 : FEATURE ENGINEERING

[121]:
```
df['Restaurant Name length']= df['Restaurant Name'].apply(lambda x: len(str(x)))
df['Address Length'] = df['Address'].apply(lambda x: len(str(x)))
```

[125]:
```
df[['Restaurant Name','Restaurant Name length','Address','Address Length']]
```

[125]:

	Restaurant Name	Restaurant Name length	\
0	Le Petit Souffle	16	
1	Izakaya Kikufuji	16	

```
2       Heat - Edsa Shangri-La                      22
3                        Ooma                        4
4                  Sambo Kojin                      11
…                          …                       …
9546               Naml  Gurme                      11
9547              Ceviz A ac                        12
9548                     Huqqa                       5
9549               A  k Kahve                       11
9550  Walter's Coffee Roastery                      24

                                                 Address  Address Length
0     Third Floor, Century City Mall, Kalayaan Avenu…                71
1     Little Tokyo, 2277 Chino Roces Avenue, Legaspi…                67
2     Edsa Shangri-La, 1 Garden Way, Ortigas, Mandal…                56
3     Third Floor, Mega Fashion Hall, SM Megamall, O…                70
4     Third Floor, Mega Atrium, SM Megamall, Ortigas…                64
…                                                   …              …
9546  Kemanke  Karamustafa Pa a Mahallesi, R ht m …               103
9547  Ko uyolu Mahallesi, Muhittin  st _nda  Cadd…                 77
9548  Kuru _e me Mahallesi, Muallim Naci Caddesi, N…                73
9549  Kuru _e me Mahallesi, Muallim Naci Caddesi, N…                75
9550  Cafea a Mahallesi, Bademalt  Sokak, No 21/B, …                65

[9551 rows x 4 columns]
```

[126]:
```
df['Has Table Booking']= df['Has Table booking'].apply(lambda x: 1 if x ==␣
 ↪'Yes' else 0)
df['Has Online Delivery'] = df['Has Online delivery'].apply(lambda x: 1 if x ==␣
 ↪'Yes' else 0)
```

[127]:
```
df[['Has Table booking','Has Table Booking','Has Online delivery','Has Online␣
 ↪Delivery']]
```

[127]:
```
     Has Table booking  Has Table Booking Has Online delivery  \
0                  Yes                  1                  No
1                  Yes                  1                  No
2                  Yes                  1                  No
3                   No                  0                  No
4                  Yes                  1                  No
…                  …                    …                  …
9546                No                  0                  No
9547                No                  0                  No
9548                No                  0                  No
9549                No                  0                  No
9550                No                  0                  No

     Has Online Delivery
```

```
0                       0
1                       0
2                       0
3                       0
4                       0
…                       …
9546                    0
9547                    0
9548                    0
9549                    0
9550                    0

[9551 rows x 4 columns]
```

[ ]: