Uber Rides Data Analysis using Python

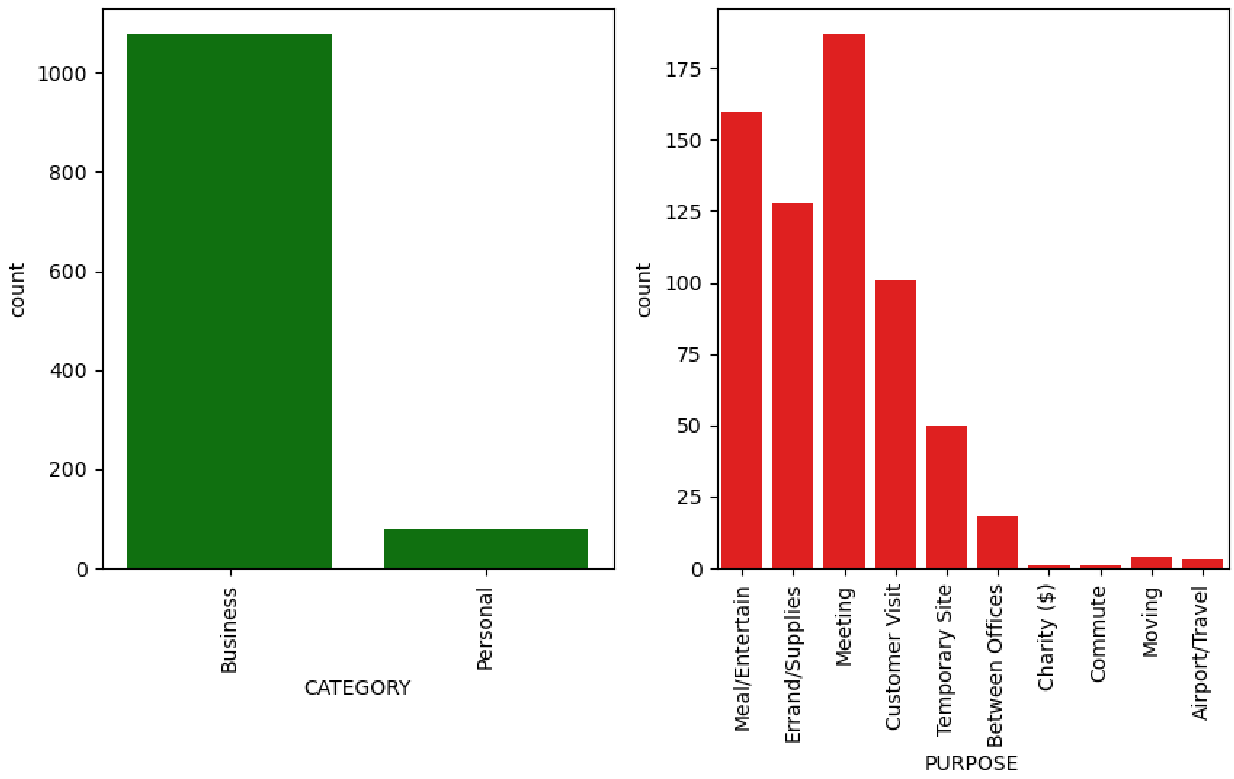
```
# Importing all the neccessary libraries ie pandas,numpy,matplolit and
seaborn.
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
# Importing the uber rides data using the csv file below.
dataset = pd.read_csv("Downloads/UberDataset.csv")
dataset.head()

         START_DATE          END_DATE  CATEGORY        START
STOP  \
0  01-01-2016 21:11  01-01-2016 21:17  Business  Fort Pierce      Fort
Pierce
1  01-02-2016 01:25  01-02-2016 01:37  Business  Fort Pierce      Fort
Pierce
2  01-02-2016 20:25  01-02-2016 20:38  Business  Fort Pierce      Fort
Pierce
3  01-05-2016 17:31  01-05-2016 17:45  Business  Fort Pierce      Fort
Pierce
4  01-06-2016 14:42  01-06-2016 15:49  Business  Fort Pierce  West
Palm Beach

   MILES          PURPOSE
0    5.1   Meal/Entertain
1    5.0              NaN
2    4.8  Errand/Supplies
3    4.7          Meeting
4   63.7   Customer Visit

#We use shape to know how many rows and columns our csv file possess.
dataset.shape

(1156, 7)

#To understand more deeply about our dataset.We use the .info()
function .
dataset.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1156 entries, 0 to 1155
Data columns (total 7 columns):
 #   Column      Non-Null Count  Dtype
---  ------      --------------  -----
 0   START_DATE  1156 non-null   object
 1   END_DATE    1155 non-null   object
 2   CATEGORY    1155 non-null   object
 3   START       1155 non-null   object
 4   STOP        1155 non-null   object
 5   MILES       1156 non-null   float64
 6   PURPOSE     653 non-null    object
dtypes: float64(1), object(6)
memory usage: 63.3+ KB

#From the above information we have gathered that the PURPOSE row
#has null values and i have decided to replace
#it with Not using the fillna function.
dataset["PURPOSE"].fillna("NOT")
dataset.head()

         START_DATE           END_DATE  CATEGORY        START
STOP  \
0  01-01-2016 21:11  01-01-2016 21:17  Business  Fort Pierce      Fort
Pierce
1  01-02-2016 01:25  01-02-2016 01:37  Business  Fort Pierce      Fort
Pierce
2  01-02-2016 20:25  01-02-2016 20:38  Business  Fort Pierce      Fort
Pierce
3  01-05-2016 17:31  01-05-2016 17:45  Business  Fort Pierce      Fort
Pierce
4  01-06-2016 14:42  01-06-2016 15:49  Business  Fort Pierce  West
Palm Beach

   MILES          PURPOSE
0    5.1   Meal/Entertain
1    5.0              NaN
2    4.8  Errand/Supplies
3    4.7          Meeting
4   63.7   Customer Visit

#Changing the Start_date and End_date to date_time formate so that
further it
#can be used for analysis.
dataset["START_DATE"] =
pd.to_datetime(dataset["START_DATE"],errors="coerce")
dataset["END_DATE"] =
pd.to_datetime(dataset["END_DATE"],errors="coerce")
#Importing the datatime Module
from datetime import datetime
dataset["date"] = pd.DatetimeIndex(dataset["START_DATE"]).date
dataset["time"] = pd.DatetimeIndex(dataset["START_DATE"]).hour

#changing into categories of day and night
dataset["day-night"] = pd.cut(dataset["time"],bins=[0,10,15,19,24],
                              labels=["Morning","Afternoon",
                                 "Evening","Night"])
dataset.head()
```

```
           START_DATE            END_DATE  CATEGORY        START  \
0 2016-01-01 21:11:00 2016-01-01 21:17:00  Business  Fort Pierce   
1 2016-01-02 01:25:00 2016-01-02 01:37:00  Business  Fort Pierce   
2 2016-01-02 20:25:00 2016-01-02 20:38:00  Business  Fort Pierce   
3 2016-01-05 17:31:00 2016-01-05 17:45:00  Business  Fort Pierce   
4 2016-01-06 14:42:00 2016-01-06 15:49:00  Business  Fort Pierce   

              STOP  MILES          PURPOSE        date  time  day-
night  
0      Fort Pierce    5.1   Meal/Entertain  2016-01-01  21.0      
Night  
1      Fort Pierce    5.0              NaN  2016-01-02   1.0    
Morning  
2      Fort Pierce    4.8  Errand/Supplies  2016-01-02  20.0      
Night  
3      Fort Pierce    4.7          Meeting  2016-01-05  17.0    
Evening  
4  West Palm Beach   63.7   Customer Visit  2016-01-06  14.0  
Afternoon  
```

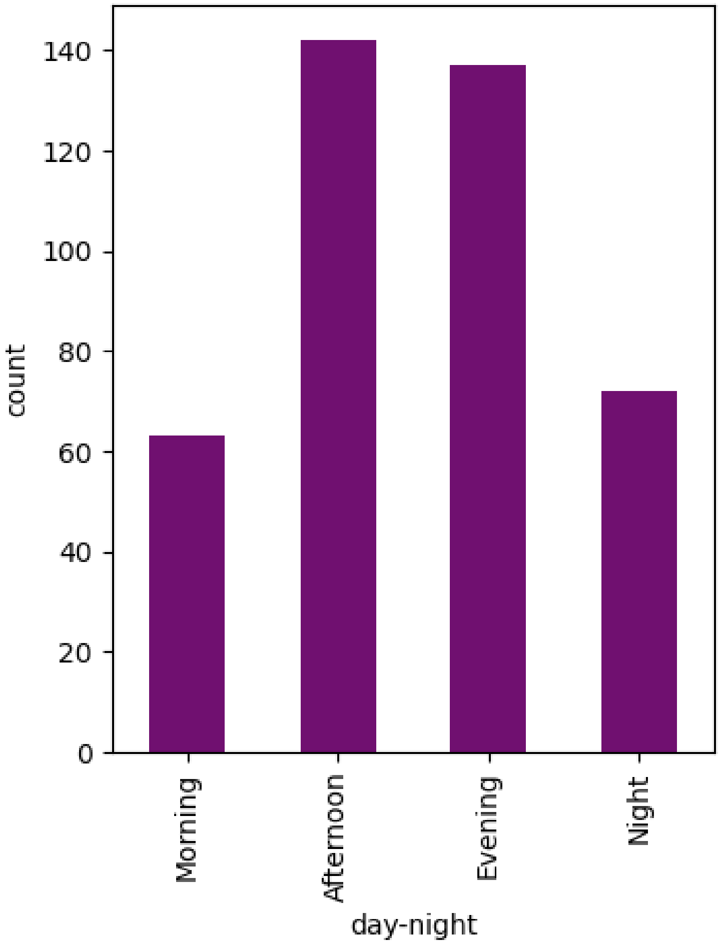
```
#Deleting rows with null values
dataset.dropna()
```

```
              START_DATE            END_DATE  CATEGORY        START  \
0    2016-01-01 21:11:00 2016-01-01 21:17:00  Business  Fort Pierce   
1    2016-01-02 01:25:00 2016-01-02 01:37:00  Business  Fort Pierce   
2    2016-01-02 20:25:00 2016-01-02 20:38:00  Business  Fort Pierce   
3    2016-01-05 17:31:00 2016-01-05 17:45:00  Business  Fort Pierce   
4    2016-01-06 14:42:00 2016-01-06 15:49:00  Business  Fort Pierce   
...                  ...                 ...       ...          ...   
1043 2016-12-12 13:22:00 2016-12-12 13:32:00  Business         Cary   
1044 2016-12-12 13:36:00 2016-12-12 13:51:00  Business         Cary   
1045 2016-12-12 14:26:00 2016-12-12 14:39:00  Business         Apex   
1046 2016-12-12 17:51:00 2016-12-12 18:01:00  Business         Cary   
1047 2016-12-12 20:48:00 2016-12-12 20:57:00  Business  Morrisville   

                 STOP  MILES          PURPOSE        date  time  day-
night  
0         Fort Pierce    5.1   Meal/Entertain  2016-01-01  21.0      
Night  
1         Fort Pierce    5.0              NOT  2016-01-02   1.0    
Morning  
2         Fort Pierce    4.8  Errand/Supplies  2016-01-02  20.0      
Night  
3         Fort Pierce    4.7          Meeting  2016-01-05  17.0    
Evening  
4     West Palm Beach   63.7   Customer Visit  2016-01-06  14.0  
Afternoon  
...               ...    ...              ...         ...   ...       
...  
```

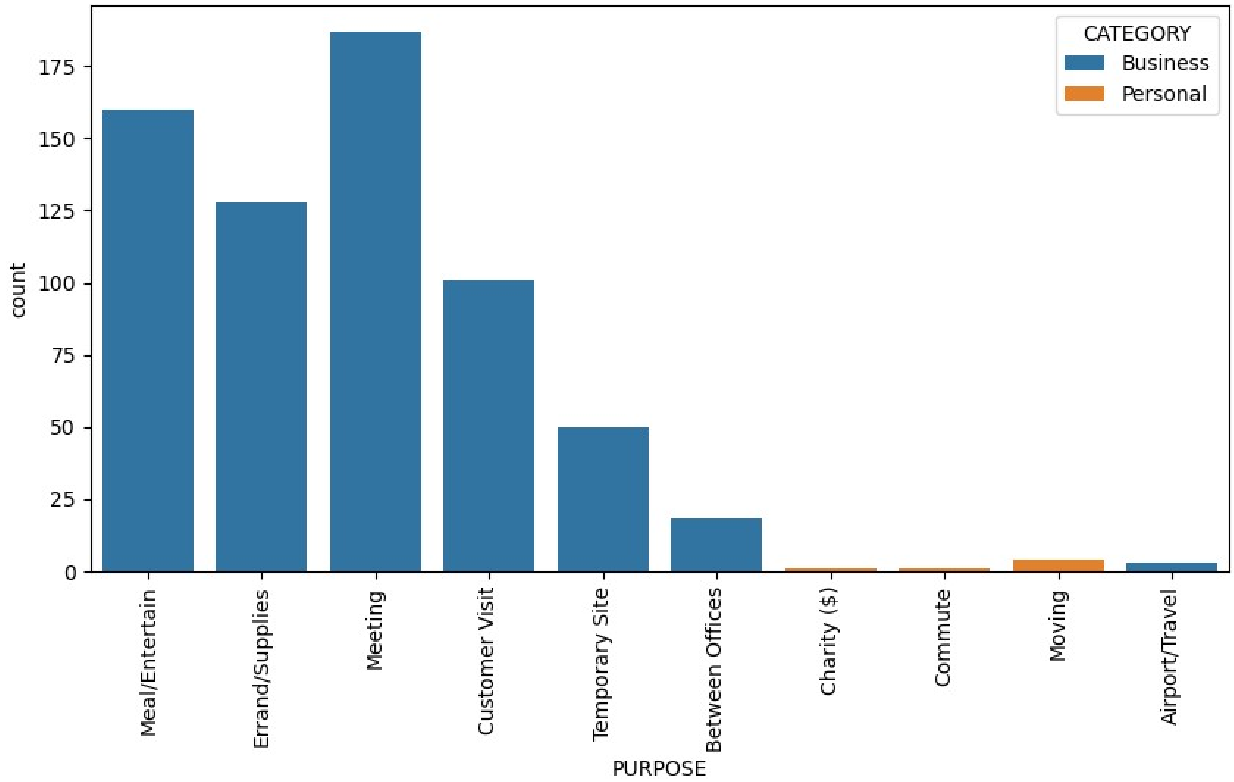
```
1043              Cary    3.1  Errand/Supplies  2016-12-12  13.0
Afternoon
1044              Apex    4.4   Meal/Entertain  2016-12-12  13.0
Afternoon
1045              Cary    4.7   Customer Visit  2016-12-12  14.0
Afternoon
1046       Morrisville    3.0   Meal/Entertain  2016-12-12  17.0
Evening
1047              Cary    3.0   Customer Visit  2016-12-12  20.0
Night

[413 rows x 10 columns]

#Let’s start with checking the unique values in dataset of the columns

#with object datatype.
obj = dataset.dtypes=="object"
obj_columns = list(obj[obj].index)
unique_values = {}
for col in obj_columns:
    unique_values[col]= dataset[col].unique().size
unique_values

{'CATEGORY': 2, 'START': 108, 'STOP': 112, 'PURPOSE': 7, 'date': 113}

#Now, we will be using matplotlib and seaborn
#library for countplot the CATEGORY and PURPOSE columns.
plt.figure(figsize=(10,5))

plt.subplot(1,2,1)
sns.countplot(x =dataset["CATEGORY"],color="green")
plt.xticks(rotation = 90)

plt.subplot(1,2,2)
sns.countplot(x=dataset["PURPOSE"],color="red")
plt.xticks(rotation = 90)
plt.show()
```



```
# Let's now deep into visualising the day-nigt
plt.figure(figsize=(4,5))
sns.countplot(x = dataset['day-night'],width=0.5,color="purple")
plt.xticks(rotation = 90)
plt.show()
```



```
#Lets compare the two differeng categories alond with the purpose of
the user
plt.figure(figsize=(10,5))
sns.countplot(data=
dataset,x=dataset["PURPOSE"],hue=dataset["CATEGORY"])
plt.xticks(rotation=90)
plt.show()
```


CATEGORY
Business
Personal
count
0
25
50
75
100
125
150
175
Meal/Entertain
Errand/Supplies
Meeting
Customer Visit
Temporary Site
Between Offices
Charity ($)
Commute
Moving
Airport/Travel
PURPOSE