COLLEGE CODE : 4212
REGISTER NO :421221243030

WEBSITE TRAFFIC ANALYSIS

DATA ANALYTICS WITH COGNOS : GROUP 2

PHASE : 3

This phase involves in designing of the steps that defining in each phase of the previous documentation this involves importing necessary functions, data processing and so on in this phase we have to begin our project by loading and preprocessing the dataset.

The IBM suggests using the jupyter notebook for loading and preprocess the dataset:

Here for this project title we need to define the loading the libraries, understand the data and visualize the missing values.

For this certain inputs are defined for this project.in this phase each of the input

Codes of project is given below:

untitled7

October 18, 2023

[ ]:
```
PHASE 3
```

[1]:
```
import pandas as pd
import numpy as np
import missingno as msno
```

[2]:
```
df = pd.read_csv('daily-website-visitors.csv')
```

[3]:
```
df.head()
```

[3]:
```
   Row        Day  Day.Of.Week       Date Page.Loads Unique.Visits  \
0    1     Sunday            1  9/14/2014      2,146         1,582
1    2     Monday            2  9/15/2014      3,621         2,528
2    3    Tuesday            3  9/16/2014      3,698         2,630
3    4  Wednesday            4  9/17/2014      3,667         2,614
4    5   Thursday            5  9/18/2014      3,316         2,366

  First.Time.Visits Returning.Visits
0             1,430               152
1             2,297               231
2             2,352               278
3             2,327               287
4             2,130               236
```

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

[4]:
```
        Row        Day  Day.Of.Week       Date Page.Loads Unique.Visits  \
2162  2163   Saturday            7  8/15/2020      2,221         1,696
2163  2164     Sunday            1  8/16/2020      2,724         2,037
2164  2165     Monday            2  8/17/2020      3,456         2,638
2165  2166    Tuesday            3  8/18/2020      3,581         2,683
2166  2167  Wednesday            4  8/19/2020      2,064         1,564

     First.Time.Visits Returning.Visits
2162             1,373               323
2163             1,686               351
2164             2,181               457
```

```
2165            2,184             499
2166            1,297             267
```

[5]:
```
df.shape
```

[5]:
```
(2167, 8)
```

[6]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2167 entries, 0 to 2166
Data columns (total 8 columns):
 #   Column             Non-Null Count  Dtype 
---  ------             --------------  ----- 
 0   Row                2167 non-null   int64 
 1   Day                2167 non-null   object
 2   Day.Of.Week        2167 non-null   int64 
 3   Date               2167 non-null   object
 4   Page.Loads         2167 non-null   object
 5   Unique.Visits      2167 non-null   object
 6   First.Time.Visits  2167 non-null   object
 7   Returning.Visits   2167 non-null   object
dtypes: int64(2), object(6)
memory usage: 135.6+ KB
```

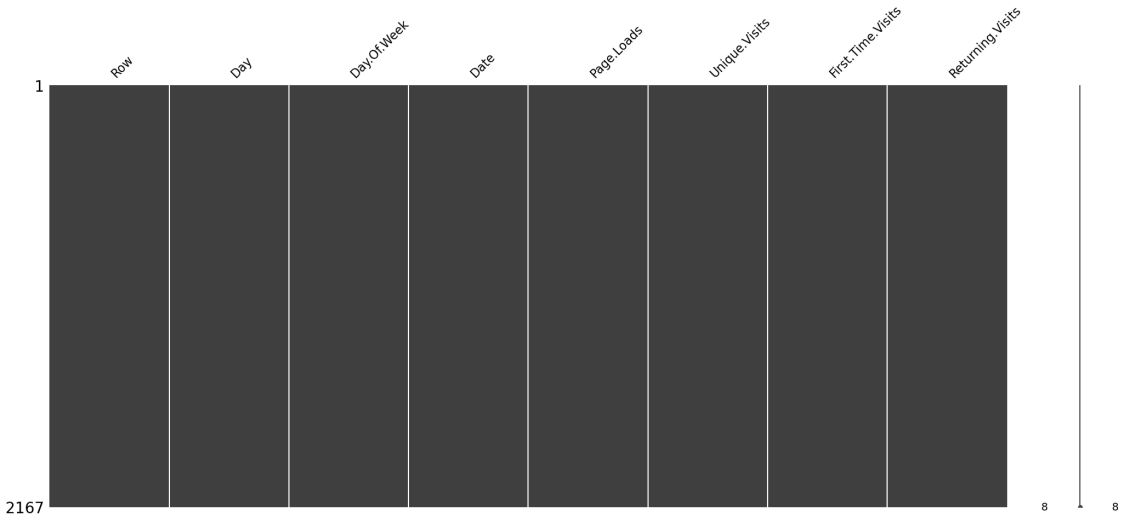
[7]:
```
df.columns.values
```

[7]:
```
array(['Row', 'Day', 'Day.Of.Week', 'Date', 'Page.Loads', 'Unique.Visits',
       'First.Time.Visits', 'Returning.Visits'], dtype=object)
```

[8]:
```
df.dtypes
```

[8]:
```
Row                 int64
Day                object
Day.Of.Week         int64
Date               object
Page.Loads         object
Unique.Visits      object
First.Time.Visits  object
Returning.Visits   object
dtype: object
```

[9]:
```
msno.matrix(df);
```



[10]:
```
df = df.drop(['Unique.Visits'],axis = 1)
df.head()
```

[10]:

	Row	Day	Day.Of.Week	Date	Page.Loads	First.Time.Visits	Returning.Visits
0	1	Sunday	1	9/14/2014	2,146	1,430	152
1	2	Monday	2	9/15/2014	3,621	2,297	231
2	3	Tuesday	3	9/16/2014	3,698	2,352	278
3	4	Wednesday	4	9/17/2014	3,667	2,327	287
4	5	Thursday	5	9/18/2014	3,316	2,130	236

[11]:
```
df.isnull()
```

[11]:

	Row	Day	Day.Of.Week	Date	Page.Loads	First.Time.Visits	\
0	False	False	False	False	False	False	
1	False	False	False	False	False	False	
2	False	False	False	False	False	False	
3	False	False	False	False	False	False	
4	False	False	False	False	False	False	
…	…	…	…	…	…	…	
2162	False	False	False	False	False	False	
2163	False	False	False	False	False	False	
2164	False	False	False	False	False	False	

```
2165  False  False        False  False       False              False
2166  False  False        False  False       False              False

      Returning.Visits
0                False
1                False
2                False
3                False
4                False
…                …
2162             False
2163             False
2164             False
2165             False
2166             False

[2167 rows x 7 columns]
```

[12]:
```
df.isnull().sum()
```

[12]:
```
Row                 0
Day                 0
Day.Of.Week         0
Date                0
Page.Loads          0
First.Time.Visits   0
Returning.Visits    0
dtype: int64
```

[13]:
```
df['Row'] = pd.to_numeric(df.Row,errors='coerce')
df.isnull().sum()
```

[13]:
```
Row                 0
Day                 0
Day.Of.Week         0
Date                0
Page.Loads          0
First.Time.Visits   0
Returning.Visits    0
dtype: int64
```

[14]:
```
df[np.isnan(df['Row'])]
```

[14]:
```
Empty DataFrame
Columns: [Row, Day, Day.Of.Week, Date, Page.Loads, First.Time.Visits,
Returning.Visits]
Index: []
```

[15]:
```
df.fillna(df['Row'].mean())
```

[15]:

	Row	Day	Day.Of.Week	Date	Page.Loads	First.Time.Visits	Returning.Visits
0	1	Sunday	1	9/14/2014	2,146	1,430	152
1	2	Monday	2	9/15/2014	3,621	2,297	231
2	3	Tuesday	3	9/16/2014	3,698	2,352	278
3	4	Wednesday	4	9/17/2014	3,667	2,327	287
4	5	Thursday	5	9/18/2014	3,316	2,130	236
…	…	…	…	…	…	…	…
2162	2163	Saturday	7	8/15/2020	2,221	1,373	323
2163	2164	Sunday	1	8/16/2020	2,724	1,686	351
2164	2165	Monday	2	8/17/2020	3,456	2,181	457
2165	2166	Tuesday	3	8/18/2020	3,581	2,184	499
2166	2167	Wednesday	4	8/19/2020	2,064	1,297	267

[2167 rows x 7 columns]

[16]:
```
df["Date"] = pd.to_datetime(df["Date"],format="%m/%d/%Y")
print(df.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2167 entries, 0 to 2166
Data columns (total 7 columns):
 #   Column             Non-Null Count  Dtype
---  ------             --------------  -----
 0   Row                2167 non-null   int64
 1   Day                2167 non-null   object
 2   Day.Of.Week        2167 non-null   int64
 3   Date               2167 non-null   datetime64[ns]
 4   Page.Loads         2167 non-null   object
 5   First.Time.Visits  2167 non-null   object
 6   Returning.Visits   2167 non-null   object
dtypes: datetime64[ns](1), int64(2), object(4)
memory usage: 118.6+ KB
```

```
None
```

[17]:
```
df.isnull().sum()
```

[17]:
```
Row                 0
Day                 0
Day.Of.Week         0
Date                0
Page.Loads          0
First.Time.Visits   0
Returning.Visits    0
dtype: int64
```

[18]:
```
df["Returning.Visits"]=df['Returning.Visits'].map({0:"no", 1: "yes"})
df.head()
```

[18]:
```
   Row        Day  Day.Of.Week       Date Page.Loads First.Time.Visits  \
0    1     Sunday            1 2014-09-14      2,146             1,430
1    2     Monday            2 2014-09-15      3,621             2,297
2    3    Tuesday            3 2014-09-16      3,698             2,352
3    4  Wednesday            4 2014-09-17      3,667             2,327
4    5   Thursday            5 2014-09-18      3,316             2,130

  Returning.Visits
0              NaN
1              NaN
2              NaN
3              NaN
4              NaN
```

[19]:
```
df["Returning.Visits"].describe(include=['object','bool'])
```

[19]:
```
count       0
unique      0
top       NaN
freq      NaN
Name: Returning.Visits, dtype: object
```

[20]:
```
df[df['Row'] == 0].index
```

[20]:
```
Int64Index([], dtype='int64')
```

[21]:
```
numerical_cols = ['Row','First.Time.Visits','Returning.Visits']
df[numerical_cols].describe()
```

[21]:
```
                Row
count  2167.000000
```

```
mean   1084.000000
std     625.703338
min       1.000000
25%     542.500000
50%    1084.000000
75%    1625.500000
max    2167.000000
```

[ ]: