In [ ]:

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"""
DSC540 Week 7 and 8 assignment Exercise
"""

from __future__ import print_function
from itertools import zip_longest

import csv
import logging
import sys
import numpy as np
import pandas as pd
import random
import thinkplot
import thinkstats2
import datetime
import regression
import statsmodels.formula.api as smf
import statsmodels.api as sm
import matplotlib.pyplot as plt
import math
from bs4 import BeautifulSoup
import pandas as pd
import sqlite3
%matplotlib inline

def ReadData(filename):
    # File was throwing some encoding error while trying to read with default utf-8 encoding
    # Using latin-1 encoding to fix issue
    # Missing values or spaces would be replaced by np.nan
    #I have downloaded the data and will use local file (So Much Data Candy, Seriously (Ng, 2017))
    na_values = ["","  ",None,"Missing","NA"]
    df=pd.read_csv(filename,encoding='latin-1',na_values=na_values)
    df.head()
    return df

#To perform 2 tasks out of below list Chapter 7
# 1. Filter out missing data
# 2. Fill in missing data
# 3. Remove duplicates
# 4. Transform data using either mapping or a function
# 5. Replace values
# 6. Discretization and Binning
# 7. Manipulate Strings
# 8. Noticed that missing Values are automatically populated as NaN

def ExerciseChapter_7(df):
    df.set_index(['Internal ID'],inplace=True)
    df.head()

    # It shows that around 21 rows dropped as it didn't had any value populated.
    # Check if there are any duplicate records.
    print(df.duplicated().sum())

    df.drop_duplicates(inplace=True)
    df.shape
    #print(df)

    # There are few columns for which more than 50% records have missing values i.e. NaN.
    # I don't think those columns would be of any use, hence dropping those columns.
    # # Dropping columns where more than 50% records are NaN
    df.dropna(thresh=df.shape[0]*0.5,axis=1,inplace=True)
    df.shape

    # Dropping rows where more than 50% records are NaN
    df.dropna(thresh=df.shape[1]*0.5,axis=0,inplace=True)
    df.shape
    #print(df)

    # Country names are missing at some places and also in different cases like US, us and some places usa
    df['Q4: COUNTRY'].unique()
    # There are too many 129 countries with varying names. I will just try to correct country name for US.
    # First changing all contry names to uppercase.
    df['Q4: COUNTRY'] = df['Q4: COUNTRY'].str.upper()
    df['Q4: COUNTRY'].unique()
    print("df['Q4: COUNTRY'].unique().size Value :", df['Q4: COUNTRY'].unique().size)

    usa_names_map = {
    'USA': 'USA',
    'USA ': 'USA',
    'US': 'USA',
    'UNITED STATES': 'USA',
    'U.S.': 'USA',
    'UNITED STATES OF AMERICA': 'USA',
    'US OF A': 'USA',
    'U.S.A.': 'USA',
    'USAUSAUSA': 'USA',
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    'THE UNITED STATES':'USA',
    'UNIED STATES': 'USA',
    'USA! USA! USA!':'USA',
    'USAA': 'USA',
    'AMERICA': 'USA',
    'UNHINGED STATES': 'USA',
    'THE UNITED STATES OF AMERICA': 'USA',
    'UNITE STATES': 'USA',
    'UNITED SATES': 'USA',
    'UNITES STATES': 'USA',
    'UNITED STSTES': 'USA',
    'UNITED STATES ': 'USA',
    'UNITED STATES OF AMERICA ': 'USA',
    'U S': 'USA',
    'UNITED STATED': 'USA',
    'USA USA USA!!!!': 'USA' }
    df['Q4: COUNTRY'] = df['Q4: COUNTRY'].map(usa_names_map).fillna(df['Q4: COUNTRY'])
    df['Q4: COUNTRY'].unique()

    print("df['Q4: COUNTRY'].unique().size Value :",df['Q4: COUNTRY'].unique().size)

    return df

# To perform below 2 tasks Chapter 8
# 1. Create hierarchical index
# 2. Reshape
def ExcerciseChapter_8(df):
    candy_names = {x:x.split('Q6 | ')[1] for x in df.columns if x.startswith('Q6 | ')}

    #candy_names = [ {x:x.split('Q6 | ')[1]} for x in df.columns if x.startswith('Q6 | ')]
    # #candy_names
    df.rename(columns=candy_names,inplace=True)
    df.reset_index(inplace=True)
    #df.set_index(list(candy_names.values()),inplace=True)
    #df.head()

    df.dropna(subset=['Q2: GENDER','Q3: AGE'],inplace=True)
    df.shape

    # Created Hierachial Data using columns Gender and Age
    df.set_index(['Q2: GENDER','Q3: AGE'],inplace=True)
    df.head()

    new_index = pd.Index(list(candy_names.values()),name='candy')
    new_df = df.reindex(columns=new_index)
    new_df.head()

    #print('new_df', new_df)

    ldata = new_df.stack().reset_index().rename(columns={0: 'candy_liking'})
    ldata[:10]

    yield df
    yield ldata


# To perform below 2 tasks Chapter 10
# 1. Grouping with Dicts/Series
# 2. Cross Tabs
def ExcerciseChapter_10(df, ldata):
    df.reset_index(inplace=True)
    df.head()
    df.shape

    print("ldata Value :",ldata)
    print("df2 Value :",df)

    # dropping records where either country or State/Province/City field have missing data
    df.dropna(subset=['Q4: COUNTRY','Q5: STATE, PROVINCE, COUNTY, ETC'],inplace=True)
    df.shape

    mapping = {
        'Q4: COUNTRY': 'COUNTRY',
        'Q5: STATE, PROVINCE, COUNTY, ETC': 'LOCATION'
    }

    by_column = df.groupby(mapping, axis=1)
    print('by_column Value :', by_column)

    print("by_column.describe() Value :", by_column.describe())

    # Now I would like to find count of each candy marked as JOY , MEH and DISPAIR. I will use CrossTab functio
    # I also want to find most liked Candy.
    # For this analysis , I will use dataframe created in Chapter 8 Exercise i.e. "ldata"
    ldata[:10]

    # Now Running crosstab function over candy and candy_liking column.
    pd.crosstab([ldata['candy']],ldata.candy_liking,margins=True)
    crosstab_df = pd.crosstab([ldata['candy']],ldata.candy_liking)
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    print(crosstab_df[crosstab_df['JOY'] == crosstab_df['JOY'].max()])

# To perform below 2 tasks Chapter 11
# 1. Convert between string and date time
# 2. Convert timestamps to periods and back
def ExcerciseChapter_11():
    na_values = [""," ",None,"Missing","NA"]
    df_2016= pd.read_excel("BOING-BOING-CANDY-HIERARCHY-2016-SURVEY-Responses.xlsx",na_values=na_values)
    df_2016.head()
    print("df_2016 Value :",df_2016)

    # Checking Data type of Timestamp column.
    dataTypeObj = df_2016.dtypes['Timestamp']
    print("dataTypeObj Value :",dataTypeObj)

    day_of_week = df_2016['Timestamp'].apply(lambda x: x.strftime('%A'))
    # Adding day_of_week as 2nd column in dataframe
    df_2016.insert(loc=1,column='Day_of_Week',value=day_of_week)
    df_2016.sample(5)

    print(f" Data collected is between date range {df_2016['Timestamp'].min()} - {df_2016['Timestamp'].max()}")

    # Convert timestamps to periods and back
    session=pd.cut(df_2016.Timestamp.dt.hour,
               [0,6,12,18,23],
               labels=['Night','Morning','Afternoon','Evening'],
               include_lowest=True)
    print("session.value_counts() Value:", session.value_counts())

def main():
    print("Inside Main function")
    # function to read the So Much Data Candy, Seriously (Ng, 2017) data
    df = ReadData("candyhierarchy2017.csv")
    print("df.shape Value:", df.shape)
    print("df.isna().sum() Value:", df.isna().sum())

    # Perform 2 tasks out of below list Chapter 7
    df = ExerciseChapter_7(df)


    # Perform 2 tasks out of below list Chapter 8
    result  = ExcerciseChapter_8(df)

    df = next(result)
    ldata = next(result)
    print("next(result).1 Value:",df)
    print("next(result).2 Value :",ldata)

    # Perform 2 tasks out of below list Chapter 10
    ExcerciseChapter_10(df, ldata)

    # Perform 2 tasks out of below list Chapter 11
    ExcerciseChapter_11()

if __name__ == "__main__":
    main()
```

```
Inside Main function
df.shape Value: (2460, 120)
df.isna().sum() Value: Internal ID                    0
Q1: GOING OUT?               110
Q2: GENDER                    41
Q3: AGE                       84
Q4: COUNTRY                   64
                             ...
Q12: MEDIA [Daily Dish]     2375
Q12: MEDIA [Science]        1098
Q12: MEDIA [ESPN]           2361
Q12: MEDIA [Yahoo]          2393
Click Coordinates (x, y)     855
Length: 120, dtype: int64
35
df['Q4: COUNTRY'].unique().size Value : 79
df['Q4: COUNTRY'].unique().size Value : 61
next(result).1 Value:                     Internal ID Q1: GOING OUT? Q4: COUNTRY  \
Q2: GENDER Q3: AGE
Male       44          90272821             No         USA
           40          90272840             No         USA
           23          90272841             No         USA
           33          90272854             No      CANADA
           40          90272858             No      CANADA
...                         ...            ...         ...
Female     26          90314022             No         USA
Male       24          90314359             No         USA
Female     33          90314580             No         USA
           26          90314634             No         USA
           66          90314802             No         USA

                   Q5: STATE, PROVINCE, COUNTY, ETC 100 Grand Bar  \
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Q2: GENDER Q3: AGE
Male       44                                NM          MEH
           40                                or          MEH
           23                         exton pa           JOY
           33                          ontario           JOY
           40                          Ontario           JOY
...                                         ...          ...
Female     26                          Michigan           JOY
Male       24                                MD           JOY
Female     33                          New York           MEH
           26                         Tennessee           MEH
           66                      Pennsylvania       DESPAIR

                    Anonymous brown globs that come in black and orange wrappers\t(a.k.a. Mary Janes)  \
Q2: GENDER Q3: AGE
Male       44                                                 DESPAIR
           40                                                 DESPAIR
           23                                                 DESPAIR
           33                                                 DESPAIR
           40                                                 DESPAIR
...                                                               ...
Female     26                                                    MEH
Male       24                                                 DESPAIR
Female     33                                                 DESPAIR
           26                                                 DESPAIR
           66                                                 DESPAIR

                    Any full-sized candy bar Black Jacks Bonkers (the candy)  \
Q2: GENDER Q3: AGE
Male       44                          JOY         MEH             DESPAIR
           40                          JOY         MEH                 MEH
           23                          JOY     DESPAIR                 MEH
           33                          JOY     DESPAIR             DESPAIR
           40                          JOY         MEH                 MEH
...                                    ...         ...                 ...
Female     26                          JOY     DESPAIR                 MEH
Male       24                          MEH     DESPAIR             DESPAIR
Female     33                          JOY         NaN                 NaN
           26                          JOY     DESPAIR                 MEH
           66                          JOY     DESPAIR             DESPAIR

                    Bonkers (the board game)  ...  \
Q2: GENDER Q3: AGE                          ...
Male       44                    DESPAIR  ...
           40                    DESPAIR  ...
           23                    DESPAIR  ...
           33                        MEH  ...
           40                        MEH  ...
...                                  ...  ...
Female     26                        MEH  ...
Male       24                        MEH  ...
Female     33                        NaN  ...
           26                        JOY  ...
           66                    DESPAIR  ...

                    Vials of pure high fructose corn syrup, for main-lining into your vein  \
Q2: GENDER Q3: AGE
Male       44                                                 DESPAIR
           40                                                 DESPAIR
           23                                                     MEH
           33                                                     JOY
           40                                                     MEH
...                                                               ...
Female     26                                                     MEH
Male       24                                                     MEH
Female     33                                                     NaN
           26                                                     MEH
           66                                                 DESPAIR

                     Vicodin Whatchamacallit Bars White Bread  \
Q2: GENDER Q3: AGE
Male       44       DESPAIR              DESPAIR     DESPAIR
           40           JOY                  JOY     DESPAIR
           23           JOY                  JOY     DESPAIR
           33           MEH              DESPAIR     DESPAIR
           40       DESPAIR                  MEH     DESPAIR
...                     ...                  ...         ...
Female     26           MEH                  JOY         MEH
Male       24           JOY              DESPAIR         MEH
Female     33           NaN                  JOY     DESPAIR
           26           JOY                  MEH     DESPAIR
           66           JOY              DESPAIR         MEH

                    Whole Wheat anything York Peppermint Patties  \
Q2: GENDER Q3: AGE
Male       44                   DESPAIR                 DESPAIR
           40                   DESPAIR                 DESPAIR
           23                   DESPAIR                     JOY
           33                   DESPAIR                 DESPAIR
```

```
           40                  DESPAIR                DESPAIR
...                               ...                    ...
Female     26                      MEH                    JOY
Male       24                  DESPAIR                    MEH
Female     33                      MEH                    JOY
           26                  DESPAIR                    MEH
           66                  DESPAIR                    JOY

                          Q10: DRESS Q11: DAY Q12: MEDIA [Science]  \
Q2: GENDER Q3: AGE
Male       44       White and gold   Sunday                 1.0
           40       White and gold   Sunday                 1.0
           23       White and gold   Friday                 1.0
           33       Blue and black   Friday                 1.0
           40       Blue and black   Sunday                 1.0
...                             ...      ...                ...
Female     26       White and gold   Friday                 1.0
Male       24       White and gold   Friday                 NaN
Female     33       Blue and black   Friday                 1.0
           26       Blue and black   Friday                 1.0
           66       White and gold   Sunday                 NaN

                    Click Coordinates (x, y)
Q2: GENDER Q3: AGE
Male       44                      (84, 25)
           40                      (75, 23)
           23                      (70, 10)
           33                       (55, 5)
           40                      (76, 24)
...                                    ...
Female     26                      (68, 39)
Male       24                           NaN
Female     33                      (70, 26)
           26                      (67, 35)
           66                      (19, 26)

[1743 rows x 111 columns]
next(result).2 Value :        Q2: GENDER Q3: AGE                                                  candy  \
0            Male      44                                        100 Grand Bar
1            Male      44  Anonymous brown globs that come in black and o...
2            Male      44                               Any full-sized candy bar
3            Male      44                                         Black Jacks
4            Male      44                                 Bonkers (the candy)
...           ...     ...                                                 ...
171509     Female      66                                          Vicodin
171510     Female      66                              Whatchamacallit Bars
171511     Female      66                                       White Bread
171512     Female      66                              Whole Wheat anything
171513     Female      66                             York Peppermint Patties

       candy_liking
0               MEH
1           DESPAIR
2               JOY
3               MEH
4           DESPAIR
...             ...
171509          JOY
171510      DESPAIR
171511          MEH
171512      DESPAIR
171513          JOY

[171514 rows x 4 columns]
ldata Value :        Q2: GENDER Q3: AGE                                                candy  \
0            Male      44                                        100 Grand Bar
1            Male      44  Anonymous brown globs that come in black and o...
2            Male      44                               Any full-sized candy bar
3            Male      44                                         Black Jacks
4            Male      44                                 Bonkers (the candy)
...           ...     ...                                                 ...
171509     Female      66                                          Vicodin
171510     Female      66                              Whatchamacallit Bars
171511     Female      66                                       White Bread
171512     Female      66                              Whole Wheat anything
171513     Female      66                             York Peppermint Patties

       candy_liking
0               MEH
1           DESPAIR
2               JOY
3               MEH
4           DESPAIR
...             ...
171509          JOY
171510      DESPAIR
171511          MEH
171512      DESPAIR
171513          JOY
```

```
[171514 rows x 4 columns]
df2 Value :      Q2: GENDER Q3: AGE  Internal ID Q1: GOING OUT? Q4: COUNTRY  \
0          Male      44     90272821             No         USA
1          Male      40     90272840             No         USA
2          Male      23     90272841             No         USA
3          Male      33     90272854             No      CANADA
4          Male      40     90272858             No      CANADA
...         ...     ...          ...            ...         ...
1738     Female      26     90314022             No         USA
1739       Male      24     90314359             No         USA
1740     Female      33     90314580             No         USA
1741     Female      26     90314634             No         USA
1742     Female      66     90314802             No         USA

     Q5: STATE, PROVINCE, COUNTY, ETC 100 Grand Bar  \
0                                  NM          MEH
1                                  or          MEH
2                            exton pa          JOY
3                             ontario          JOY
4                             Ontario          JOY
...                               ...          ...
1738                        Michigan           JOY
1739                              MD           JOY
1740                        New York           MEH
1741                       Tennessee           MEH
1742                    Pennsylvania       DESPAIR

     Anonymous brown globs that come in black and orange wrappers\t(a.k.a. Mary Janes)  \
0                                                 DESPAIR
1                                                 DESPAIR
2                                                 DESPAIR
3                                                 DESPAIR
4                                                 DESPAIR
...                                                   ...
1738                                                  MEH
1739                                              DESPAIR
1740                                              DESPAIR
1741                                              DESPAIR
1742                                              DESPAIR

     Any full-sized candy bar Black Jacks  ...  \
0                        JOY         MEH  ...
1                        JOY         MEH  ...
2                        JOY     DESPAIR  ...
3                        JOY     DESPAIR  ...
4                        JOY         MEH  ...
...                      ...         ...  ...
1738                     JOY     DESPAIR  ...
1739                     MEH     DESPAIR  ...
1740                     JOY         NaN  ...
1741                     JOY     DESPAIR  ...
1742                     JOY     DESPAIR  ...

     Vials of pure high fructose corn syrup, for main-lining into your vein  \
0                                                 DESPAIR
1                                                 DESPAIR
2                                                     MEH
3                                                     JOY
4                                                     MEH
...                                                   ...
1738                                                  MEH
1739                                                  MEH
1740                                                  NaN
1741                                                  MEH
1742                                              DESPAIR

      Vicodin Whatchamacallit Bars White Bread Whole Wheat anything  \
0     DESPAIR              DESPAIR     DESPAIR              DESPAIR
1         JOY                  JOY     DESPAIR              DESPAIR
2         JOY                  JOY     DESPAIR              DESPAIR
3         MEH              DESPAIR     DESPAIR              DESPAIR
4     DESPAIR                  MEH     DESPAIR              DESPAIR
...       ...                  ...         ...                  ...
1738      MEH                  JOY         MEH                  MEH
1739      JOY              DESPAIR         MEH              DESPAIR
1740      NaN                  JOY     DESPAIR                  MEH
1741      JOY                  MEH     DESPAIR              DESPAIR
1742      JOY              DESPAIR         MEH              DESPAIR

     York Peppermint Patties      Q10: DRESS Q11: DAY Q12: MEDIA [Science]  \
0                    DESPAIR  White and gold   Sunday                  1.0
1                    DESPAIR  White and gold   Sunday                  1.0
2                        JOY  White and gold   Friday                  1.0
3                    DESPAIR  Blue and black   Friday                  1.0
4                    DESPAIR  Blue and black   Sunday                  1.0
...                      ...             ...      ...                  ...
1738                     JOY  White and gold   Friday                  1.0
1739                     MEH  White and gold   Friday                  NaN
```

```
1740                    JOY  Blue and black   Friday                 1.0
1741                    MEH  Blue and black   Friday                 1.0
1742                    JOY  White and gold   Sunday                 NaN

     Click Coordinates (x, y)
0                   (84, 25)
1                   (75, 23)
2                   (70, 10)
3                    (55, 5)
4                   (76, 24)
...                      ...
1738                (68, 39)
1739                     NaN
1740                (70, 26)
1741                (67, 35)
1742                (19, 26)

[1743 rows x 113 columns]
by_column Value : <pandas.core.groupby.generic.DataFrameGroupBy object at 0x000002B221E53640>
by_column.describe() Value :                                                 count unique         top  freq
COUNTRY  Q4: COUNTRY                        1723     56         USA  1490
LOCATION Q5: STATE, PROVINCE, COUNTY, ETC  1723    423  California   107
candy_liking              DESPAIR   JOY  MEH
candy
Any full-sized candy bar       16  1517  201
df_2016 Value :                    Timestamp  \
0    2016-10-24 05:09:23.033
1    2016-10-24 05:09:54.798
2    2016-10-24 05:13:06.734
3    2016-10-24 05:14:17.192
4    2016-10-24 05:14:24.625
...                      ...
1254 2016-10-29 16:53:52.516
1255 2016-10-30 06:53:54.735
1256 2016-10-30 11:06:10.827
1257 2016-10-30 16:07:26.539
1258 2016-10-30 17:06:45.660

     Are you going actually going trick or treating yourself? Your gender:  \
0                                                    No               Male
1                                                    No               Male
2                                                    No             Female
3                                                    No               Male
4                                                   Yes               Male
...                                                 ...                ...
1254                                                 No             Female
1255                                                 No               Male
1256                                                 No               Male
1257                                                 No               Male
1258                                                Yes             Female

     How old are you? Which country do you live in?  \
0                  22                         Canada
1                  45                            usa
2                  48                             US
3                  57                            usa
4                  42                            USA
...               ...                            ...
1254               52                            USA
1255               33                 united states
1256              NaN                            NaN
1257               48                         canada
1258               44                             Us

     Which state, province, county do you live in?  [100 Grand Bar]  \
0                                         Ontario              JOY
1                                              il              MEH
2                                        Colorado              JOY
3                                              il              JOY
4                                    South Dakota              MEH
...                                           ...              ...
1254                                           TX              JOY
1255                                  minnesota              JOY
1256                                        NaN              JOY
1257                                         BC              NaN
1258                                         Nh              JOY

      [Anonymous brown globs that come in black and orange wrappers]  \
0                                                 DESPAIR
1                                                     MEH
2                                                 DESPAIR
3                                                     MEH
4                                                 DESPAIR
...                                                   ...
1254                                              DESPAIR
1255                                              DESPAIR
1256                                                  MEH
1257                                              DESPAIR
1258                                                  MEH
```

```
      [Any full-sized candy bar]  [Black Jacks]  ...  \
0                            JOY            MEH  ...
1                            JOY            JOY  ...
2                            JOY            MEH  ...
3                            JOY            MEH  ...
4                            JOY       DESPAIR  ...
...                          ...            ...  ...
1254                         JOY            MEH  ...
1255                         JOY       DESPAIR  ...
1256                         JOY            NaN  ...
1257                         JOY       DESPAIR  ...
1258                         JOY            JOY  ...

     Please estimate the degree(s) of separation you have from the following celebrities [JK Rowling]  \
0                                          3 or higher
1                                          3 or higher
2                                          3 or higher
3                                          3 or higher
4                                          3 or higher
...                                              ...
1254                                       3 or higher
1255                               Actually, that's me.
1256                                             NaN
1257                                               1
1258                                       3 or higher

     Please estimate the degree(s) of separation you have from the following celebrities [JJ Abrams]  \
0                                                  2
1                                          3 or higher
2                                          3 or higher
3                                          3 or higher
4                                          3 or higher
...                                              ...
1254                                       3 or higher
1255                                       3 or higher
1256                                             NaN
1257                                               2
1258                                       3 or higher

     Please estimate the degree(s) of separation you have from the following celebrities [Beyoncé]  \
0                                          3 or higher
1                                          3 or higher
2                                          3 or higher
3                                          3 or higher
4                                          3 or higher
...                                              ...
1254                                       3 or higher
1255                                       3 or higher
1256                                             NaN
1257                                       3 or higher
1258                                       3 or higher

     Please estimate the degree(s) of separation you have from the following celebrities [Bieber]  \
0                                          3 or higher
1                                          3 or higher
2                                          3 or higher
3                                          3 or higher
4                                          3 or higher
...                                              ...
1254                                       3 or higher
1255                                       3 or higher
1256                                             NaN
1257                                       3 or higher
1258                                       3 or higher

     Please estimate the degree(s) of separation you have from the following celebrities [Kevin Bacon]  \
0                                          3 or higher
1                                          3 or higher
2                                          3 or higher
3                                          3 or higher
4                                          3 or higher
...                                              ...
1254                                               2
1255                                       3 or higher
1256                                             NaN
1257                                               2
1258                                       3 or higher

     Please estimate the degree(s) of separation you have from the following celebrities [Francis Bacon (1561 -
1626)]  \
0                                          3 or higher
1                                          3 or higher
2                                          3 or higher
3                                          3 or higher
4                                          3 or higher
...                                              ...
1254                                       3 or higher
1255                               Actually, that's me.
```

```
1256                                                NaN
1257                                      3 or higher
1258                                      3 or higher

     Which day do you prefer, Friday or Sunday?  \
0                                         Friday
1                                         Friday
2                                         Sunday
3                                         Sunday
4                                         Friday
...                                          ...
1254                                      Friday
1255                                      Friday
1256                                      Sunday
1257                                      Sunday
1258                                      Sunday

     Do you eat apples the correct way, East to West (side to side) or do you eat them like a freak of nature,
South to North (bottom to top)?  \
0                                      South to North
1                                        East to West
2                                        East to West
3                                      South to North
4                                        East to West
...                                               ...
1254                                     East to West
1255                    Sinusoidally around the equator
1256                       nne to east to nnw to s to n
1257                                     East to West
1258                                     East to West

     When you see the above image of the 4 different websites, which one would you most likely check out (pleas
e be honest).  \
0                    Science: Latest News and Headlines
1                    Science: Latest News and Headlines
2                    Science: Latest News and Headlines
3                    Science: Latest News and Headlines
4                                                 ESPN
...                                               ...
1254                 Science: Latest News and Headlines
1255                 Science: Latest News and Headlines
1256                 Science: Latest News and Headlines
1257                 Science: Latest News and Headlines
1258                                       Daily Dish

      [York Peppermint Patties] Ignore
0                                  NaN
1                                  NaN
2                                  NaN
3                                  NaN
4                                  NaN
...                                ...
1254                               NaN
1255                               NaN
1256                               NaN
1257                               NaN
1258                               NaN

[1259 rows x 123 columns]
dataTypeObj Value : datetime64[ns]
 Data collected is between date range 2016-10-24 05:09:23.033000 - 2016-10-30 17:06:45.660000
session.value_counts() Value: Morning      586
Afternoon    362
Night        218
Evening       93
Name: Timestamp, dtype: int64
```