Term Project

Milestone 2: Cleaning / Formatting Flat File Source

DSC 540

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2023 World Happiness Report Analysis

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Overview

Analysis of data presented are two CSV files, one containing Big Mac Index figures are represented through original sources identified in Milestone 1 as well as data showcased from the World Happiness Report.

Ethical Implications

Data cultivation as it relates to the removal of redundant columns with duplicate data will be of importance. Data variables from both datasets have been removed, this is of continued significant ethical implications and significance as data is being removed for a final cleaned version to be merged. This merger has also resulted in several countries removal from rows, which has now significantly reduced the overall dataset. Further collaboration is needed to weigh the total effects of this loss.

Completed Steps

- Importation of libraries
- Importation of Big Mac Index Data
- Removal of Currency Valuation from this dataset
    - With assignment to new variable
- Rename of Columns for continuity among datasets for later merger
- Importation of World Happiness Report Data
- Removal of Explanatory Data
    - This was performed as the statistical data was correlated from other variables
- Renaming of Columns for continuity among datasets for later merger
- Merger of 2 datasets to new variables
- Identify missing variables
- Identify Statistical Data for identification of Mean and Median
    - This will identify potential future issues with this data.

Term Project Big Mac Index July 2022

July 2, 2023

[ ]:
```
## Import Libraries
```

[105]:
```
import numpy as np
import pandas as pd
```

[106]:
```
df_bigmac = pd.read_csv("big-mac-2022-07-01.csv")
```

[107]:
```
df_bigmac.head(10)
```

[107]:
```
                Country iso_a3 currency_code  local_price   dollar_ex  \
0  United Arab Emirates    ARE           AED        18.00    3.673050
1             Argentina    ARG           ARS       590.00  129.115000
2             Australia    AUS           AUD         6.70    1.448436
3            Azerbaijan    AZE           AZN         4.70    1.698250
4               Bahrain    BHR           BHD         1.60    0.377000
5                Brazil    BRA           BRL        22.90    5.391750
6                Canada    CAN           CAD         6.77    1.289150
7           Switzerland    CHE           CHF         6.50    0.968450
8                 Chile    CHL           CLP      3400.00  928.435000
9                 China    CHN           CNY        24.00    6.747350

   dollar_price  dollar_ppp    GDP_bigmac  dollar_valuation  euro_valuation  \
0      4.900559    3.495146  45059.735590            -4.844           2.843
1      4.569570  114.563107   8847.066934           -11.270          -4.103
2      4.625680    1.300971  64955.518760           -10.181          -2.925
3      2.767555    0.912621  10055.076960           -46.261         -41.920
4      4.244032    0.310680  31630.823630           -17.592         -10.935
5      4.247230    4.446602   9180.888358           -17.530         -10.868
6      5.251522    1.314563  49674.334130             1.971          10.209
7      6.711756    1.262136  67857.662940            30.325          40.853
8      3.662077  660.194175  18476.466410           -28.892         -23.148
9      3.556952    4.660194  17102.473850           -30.933         -25.354

   sterling_valuation  yen_valuation  yuan_valuation  dollar_adj_valuation  \
0              10.373         73.235          37.774                 4.837
1               2.918         61.534          28.469                15.334
2               4.182         63.518          30.046                -8.689
3             -37.668         -2.167         -22.193               -30.565
```

```
4           -4.414       50.027       19.317                -3.769
5           -4.342       50.140       19.406                 7.021
6           18.277       85.641       47.641                10.205
7           51.165      137.261       88.694                31.013
8          -17.521       29.454        2.955               -11.789
9          -19.889       25.738        0.000               -13.759

   euro_adj_valuation  sterling_adj_valuation  yen_adj_valuation  \
0               0.640                  11.686             81.952
1              10.717                  22.869            100.170
2             -12.345                  -2.724             58.476
3             -33.344                 -26.028             20.510
4              -7.622                   2.518             67.015
5               2.736                  14.013             85.742
6               5.793                  17.404             91.268
7              25.768                  39.572            127.382
8             -15.320                  -6.026             53.097
9             -17.212                  -8.125             49.677

   yuan_adj_valuation
0              21.563
1              33.735
2               5.879
3             -19.487
4              11.584
5              24.095
6              27.787
7              51.915
8               2.285
9               0.000
```

[108]:
```
df_bigmac.shape
```

[108]:
```
(54, 18)
```

[109]:
```
## 1. Remove Currency Valuation-Create Subset
```

[110]:
```
df1 = df_bigmac[['Country','local_price','dollar_ex','dollar_price','dollar_ppp','GDP_bigmac']]
```

[111]:
```
df1
```

[111]:
```
                Country  local_price   dollar_ex  dollar_price  \
0  United Arab Emirates        18.00    3.673050      4.900559
1             Argentina       590.00  129.115000      4.569570
2             Australia         6.70    1.448436      4.625680
3            Azerbaijan         4.70    1.698250      2.767555
```

4	Bahrain	1.60	0.377000	4.244032
5	Brazil	22.90	5.391750	4.247230
6	Canada	6.77	1.289150	5.251522
7	Switzerland	6.50	0.968450	6.711756
8	Chile	3400.00	928.435000	3.662077
9	China	24.00	6.747350	3.556952
10	Colombia	14950.00	4295.100000	3.480711
11	Costa Rica	2650.00	678.105000	3.907949
12	Czech Republic	95.00	23.920000	3.971572
13	Egypt	46.00	18.945000	2.428081
14	Euro area	4.65	0.975850	4.765077
15	Britain	3.69	0.831080	4.440006
16	Guatemala	26.00	7.727900	3.364433
17	Hong Kong	21.00	7.849950	2.675176
18	Honduras	89.00	24.615000	3.615681
19	Croatia	27.00	7.328450	3.684272
20	Hungary	1030.00	389.046150	2.647501
21	Indonesia	35000.00	14977.500000	2.336839
22	India	191.00	79.951300	2.388954
23	Israel	17.00	3.437450	4.945526
24	Jordan	2.30	0.710150	3.238752
25	Japan	390.00	137.865000	2.828854
26	South Korea	4600.00	1313.450000	3.502227
27	Kuwait	1.30	0.307400	4.229018
28	Lebanon	130000.00	25600.000000	5.078125
29	Sri Lanka	1340.00	360.000000	3.722222
30	Moldova	60.00	19.298000	3.109130
31	Mexico	70.00	20.412500	3.429271
32	Malaysia	10.90	4.450000	2.449438
33	Nicaragua	139.00	35.890000	3.872945
34	Norway	62.00	9.897650	6.264113
35	New Zealand	7.10	1.603721	4.427205
36	Oman	1.42	0.385000	3.688312
37	Pakistan	700.00	221.750000	3.156708
38	Peru	13.90	3.892850	3.570649
39	Philippines	155.00	56.265000	2.754821
40	Poland	16.68	4.648450	3.588293
41	Qatar	13.00	3.641750	3.569712
42	Romania	11.00	4.821750	2.281329
43	Saudi Arabia	17.00	3.755000	4.527297
44	Singapore	5.90	1.391400	4.240333
45	Sweden	57.00	10.197850	5.589413
46	Thailand	128.00	36.612500	3.496074
47	Turkey	47.00	17.565000	2.675776
48	Taiwan	75.00	29.907500	2.507732
49	Uruguay	255.00	41.910000	6.084467
50	United States	5.15	1.000000	5.150000

51	Venezuela	10.00	5.673200	1.762674
52	Vietnam	69000.00	23417.000000	2.946577
53	South Africa	39.90	17.036250	2.342065

	dollar_ppp	GDP_bigmac
0	3.495146	45059.735590
1	114.563107	8847.066934
2	1.300971	64955.518760
3	0.912621	10055.076960
4	0.310680	31630.823630
5	4.446602	9180.888358
6	1.314563	49674.334130
7	1.262136	67857.662940
8	660.194175	18476.466410
9	4.660194	17102.473850
10	2902.912621	7940.328475
11	514.563107	14971.371580
12	18.446602	31037.388770
13	8.932039	6918.453014
14	0.902913	39969.135210
15	0.716505	47886.753020
16	5.048544	7161.025481
17	4.077670	94795.185540
18	17.281553	3937.948715
19	5.242718	20402.178580
20	200.000000	28284.494800
21	6796.116505	9172.246719
22	37.087379	4579.833524
23	3.300971	50313.666900
24	0.446602	7011.581696
25	75.728155	57016.008440
26	893.203883	44570.742380
27	0.252427	34372.328080
28	25242.718450	NaN
29	260.194175	2859.060372
30	11.650485	8024.776007
31	13.592233	14973.726820
32	2.116505	22311.919060
33	26.990291	2839.947641
34	12.038835	63567.854700
35	1.378641	49644.006730
36	0.275728	25517.368700
37	135.922330	1834.014182
38	2.699029	9550.191493
39	30.097087	5845.332898
40	3.238835	21239.882560
41	2.524272	98893.859050

```
42       2.135922  28569.017770
43       3.300971  26704.956320
44       1.145631  85366.699400
45      11.067961  46516.137370
46      24.854369   9306.323554
47       9.126214   9256.997784
48      14.563107  64992.899750
49      49.514563  14726.863620
50       1.000000  69231.400000
51       1.941748           NaN
52   13398.058250   6375.564885
53       7.747573  13261.543640
```

[112]:
```
## 2. Rename columns, replace underscores with space
```

[113]:
```
df_Final_1=df1.rename(columns={'Country':'Country','local_price':'Local␣
↪Price','dollar_ex':'Dollar Ex','dollar_price':'Dollar Price','dollar_ppp':
↪'Dollar PPP','GDP_bigmac':'GDP Big Mac'})
```

[114]:
```
df_Final_1
```

[114]:
```
                 Country  Local Price     Dollar Ex  Dollar Price  \
0   United Arab Emirates        18.00      3.673050      4.900559
1              Argentina       590.00    129.115000      4.569570
2              Australia         6.70      1.448436      4.625680
3             Azerbaijan         4.70      1.698250      2.767555
4                Bahrain         1.60      0.377000      4.244032
5                 Brazil        22.90      5.391750      4.247230
6                 Canada         6.77      1.289150      5.251522
7            Switzerland         6.50      0.968450      6.711756
8                  Chile      3400.00    928.435000      3.662077
9                  China        24.00      6.747350      3.556952
10              Colombia     14950.00   4295.100000      3.480711
11            Costa Rica      2650.00    678.105000      3.907949
12        Czech Republic        95.00     23.920000      3.971572
13                 Egypt        46.00     18.945000      2.428081
14             Euro area         4.65      0.975850      4.765077
15               Britain         3.69      0.831080      4.440006
16             Guatemala        26.00      7.727900      3.364433
17             Hong Kong        21.00      7.849950      2.675176
18              Honduras        89.00     24.615000      3.615681
19               Croatia        27.00      7.328450      3.684272
20               Hungary      1030.00    389.046150      2.647501
21             Indonesia     35000.00  14977.500000      2.336839
22                 India       191.00     79.951300      2.388954
23                Israel        17.00      3.437450      4.945526
24                Jordan         2.30      0.710150      3.238752
```

25	Japan	390.00	137.865000	2.828854
26	South Korea	4600.00	1313.450000	3.502227
27	Kuwait	1.30	0.307400	4.229018
28	Lebanon	130000.00	25600.000000	5.078125
29	Sri Lanka	1340.00	360.000000	3.722222
30	Moldova	60.00	19.298000	3.109130
31	Mexico	70.00	20.412500	3.429271
32	Malaysia	10.90	4.450000	2.449438
33	Nicaragua	139.00	35.890000	3.872945
34	Norway	62.00	9.897650	6.264113
35	New Zealand	7.10	1.603721	4.427205
36	Oman	1.42	0.385000	3.688312
37	Pakistan	700.00	221.750000	3.156708
38	Peru	13.90	3.892850	3.570649
39	Philippines	155.00	56.265000	2.754821
40	Poland	16.68	4.648450	3.588293
41	Qatar	13.00	3.641750	3.569712
42	Romania	11.00	4.821750	2.281329
43	Saudi Arabia	17.00	3.755000	4.527297
44	Singapore	5.90	1.391400	4.240333
45	Sweden	57.00	10.197850	5.589413
46	Thailand	128.00	36.612500	3.496074
47	Turkey	47.00	17.565000	2.675776
48	Taiwan	75.00	29.907500	2.507732
49	Uruguay	255.00	41.910000	6.084467
50	United States	5.15	1.000000	5.150000
51	Venezuela	10.00	5.673200	1.762674
52	Vietnam	69000.00	23417.000000	2.946577
53	South Africa	39.90	17.036250	2.342065

	Dollar PPP	GDP Big Mac
0	3.495146	45059.735590
1	114.563107	8847.066934
2	1.300971	64955.518760
3	0.912621	10055.076960
4	0.310680	31630.823630
5	4.446602	9180.888358
6	1.314563	49674.334130
7	1.262136	67857.662940
8	660.194175	18476.466410
9	4.660194	17102.473850
10	2902.912621	7940.328475
11	514.563107	14971.371580
12	18.446602	31037.388770
13	8.932039	6918.453014
14	0.902913	39969.135210
15	0.716505	47886.753020

```
16       5.048544   7161.025481
17       4.077670  94795.185540
18      17.281553   3937.948715
19       5.242718  20402.178580
20     200.000000  28284.494800
21    6796.116505   9172.246719
22      37.087379   4579.833524
23       3.300971  50313.666900
24       0.446602   7011.581696
25      75.728155  57016.008440
26     893.203883  44570.742380
27       0.252427  34372.328080
28   25242.718450            NaN
29     260.194175   2859.060372
30      11.650485   8024.776007
31      13.592233  14973.726820
32       2.116505  22311.919060
33      26.990291   2839.947641
34      12.038835  63567.854700
35       1.378641  49644.006730
36       0.275728  25517.368700
37     135.922330   1834.014182
38       2.699029   9550.191493
39      30.097087   5845.332898
40       3.238835  21239.882560
41       2.524272  98893.859050
42       2.135922  28569.017770
43       3.300971  26704.956320
44       1.145631  85366.699400
45      11.067961  46516.137370
46      24.854369   9306.323554
47       9.126214   9256.997784
48      14.563107  64992.899750
49      49.514563  14726.863620
50       1.000000  69231.400000
51       1.941748            NaN
52   13398.058250   6375.564885
53       7.747573  13261.543640
```

[115]:
```
df_WHR2023 = pd.read_csv("WHR2023.csv")
```

[116]:
```
df_WHR2023.head(10)
```

[116]:
```
  Country name  Ladder score  Standard error of ladder score  upperwhisker  \
0  Afghanistan         1.859                           0.033         1.923
1      Albania         5.277                           0.066         5.406
2      Algeria         5.329                           0.062         5.451
```

3	Argentina	6.024	0.063	6.147
4	Armenia	5.342	0.066	5.470
5	Australia	7.095	0.044	7.180
6	Austria	7.097	0.040	7.176
7	Bahrain	6.173	0.100	6.369
8	Bangladesh	4.282	0.068	4.416
9	Belgium	6.859	0.034	6.926

	lowerwhisker	Logged GDP per capita	Social support	\
0	1.795	7.324	0.341	
1	5.148	9.567	0.718	
2	5.207	9.300	0.855	
3	5.900	9.959	0.891	
4	5.213	9.615	0.790	
5	7.009	10.821	0.934	
6	7.018	10.899	0.888	
7	5.977	10.776	0.844	
8	4.148	8.685	0.544	
9	6.793	10.844	0.915	

	Healthy life expectancy	Freedom to make life choices	Generosity	\
0	54.712	0.382	-0.081	
1	69.150	0.794	-0.007	
2	66.549	0.571	-0.117	
3	67.200	0.823	-0.089	
4	67.789	0.796	-0.155	
5	71.050	0.890	0.198	
6	71.150	0.855	0.102	
7	65.825	0.944	0.117	
8	64.548	0.845	0.005	
9	70.899	0.825	0.001	

	Perceptions of corruption	Ladder score in Dystopia	\
0	0.847	1.778	
1	0.878	1.778	
2	0.717	1.778	
3	0.814	1.778	
4	0.705	1.778	
5	0.496	1.778	
6	0.497	1.778	
7	0.737	1.778	
8	0.698	1.778	
9	0.549	1.778	

	Explained by: Log GDP per capita	Explained by: Social support	\
0	0.645	0.000	
1	1.449	0.951	

```
2                          1.353                        1.298
3                          1.590                        1.388
4                          1.466                        1.134
5                          1.899                        1.497
6                          1.927                        1.382
7                          1.883                        1.269
8                          1.133                        0.513
9                          1.907                        1.449

   Explained by: Healthy life expectancy  \
0                                  0.087
1                                  0.480
2                                  0.409
3                                  0.427
4                                  0.443
5                                  0.532
6                                  0.535
7                                  0.389
8                                  0.355
9                                  0.528

   Explained by: Freedom to make life choices  Explained by: Generosity  \
0                                       0.000                     0.093
1                                       0.549                     0.133
2                                       0.252                     0.073
3                                       0.587                     0.088
4                                       0.551                     0.053
5                                       0.677                     0.242
6                                       0.630                     0.191
7                                       0.748                     0.199
8                                       0.617                     0.139
9                                       0.590                     0.137

   Explained by: Perceptions of corruption  Dystopia + residual
0                                    0.059                0.976
1                                    0.037                1.678
2                                    0.152                1.791
3                                    0.082                1.861
4                                    0.160                1.534
5                                    0.310                1.938
6                                    0.310                2.124
7                                    0.138                1.546
8                                    0.165                1.361
9                                    0.273                1.976
```

[117]:
```
df_WHR2023.shape
```

[117]: (137, 19)

[118]:
```
## 3. Remove Explained Variables-Create Subset
```

[119]:
```
df_X = df_WHR2023[['Country name','Social support','Healthy life␣
↪expectancy','Freedom to make life choices','Generosity','Perceptions of␣
↪corruption']]
```

[120]:
```
df_X.head(10)
```

[120]:
```
  Country name  Social support  Healthy life expectancy  \
0  Afghanistan           0.341                   54.712
1      Albania           0.718                   69.150
2      Algeria           0.855                   66.549
3    Argentina           0.891                   67.200
4      Armenia           0.790                   67.789
5    Australia           0.934                   71.050
6      Austria           0.888                   71.150
7      Bahrain           0.844                   65.825
8   Bangladesh           0.544                   64.548
9      Belgium           0.915                   70.899

   Freedom to make life choices  Generosity  Perceptions of corruption
0                         0.382      -0.081                      0.847
1                         0.794      -0.007                      0.878
2                         0.571      -0.117                      0.717
3                         0.823      -0.089                      0.814
4                         0.796      -0.155                      0.705
5                         0.890       0.198                      0.496
6                         0.855       0.102                      0.497
7                         0.944       0.117                      0.737
8                         0.845       0.005                      0.698
9                         0.825       0.001                      0.549
```

[121]:
```
## 4. Rename Columns
```

[122]:
```
df_Final_2=df_X.rename(columns={'Country name':'Country','Social support':
↪'Social Support','Healthy life expectancy':'Healthy Life Expectancy','Freedom␣
↪to make life choices':'Freedom to Make Life Choices','Generosity':
↪'Generosity','Perceptions of corruption':'Perceptions of Corruption'})
```

[123]:
```
df_Final_2
```

[123]:
```
         Country  Social Support  Healthy Life Expectancy  \
0    Afghanistan           0.341                   54.712
1        Albania           0.718                   69.150
2        Algeria           0.855                   66.549
3      Argentina           0.891                   67.200
```

```
4        Armenia           0.790                   67.789
..           ...             ...                      ...
132   Uzbekistan           0.875                   65.301
133    Venezuela           0.839                   64.050
134      Vietnam           0.821                   65.502
135       Zambia           0.694                   55.032
136     Zimbabwe           0.690                   54.050

     Freedom to Make Life Choices  Generosity  Perceptions of Corruption
0                           0.382      -0.081                      0.847
1                           0.794      -0.007                      0.878
2                           0.571      -0.117                      0.717
3                           0.823      -0.089                      0.814
4                           0.796      -0.155                      0.705
..                            ...         ...                        ...
132                         0.938       0.230                      0.638
133                         0.659       0.128                      0.811
134                         0.939      -0.004                      0.759
135                         0.791       0.098                      0.818
136                         0.654      -0.046                      0.766

[137 rows x 6 columns]
```

[124]:
```
## 5. Merge Data
```

[125]:
```
df_merged = pd.merge(df_Final_1,df_Final_2,on='Country',how='inner').
↪drop_duplicates()
```

[127]:
```
df_merged
```

[127]:
```
                 Country  Local Price     Dollar Ex  Dollar Price  \
0   United Arab Emirates        18.00     3.673050      4.900559
1              Argentina       590.00   129.115000      4.569570
2              Australia         6.70     1.448436      4.625680
3                Bahrain         1.60     0.377000      4.244032
4                 Brazil        22.90     5.391750      4.247230
5                 Canada         6.77     1.289150      5.251522
6            Switzerland         6.50     0.968450      6.711756
7                  Chile      3400.00   928.435000      3.662077
8                  China        24.00     6.747350      3.556952
9               Colombia     14950.00  4295.100000      3.480711
10            Costa Rica      2650.00   678.105000      3.907949
11                 Egypt        46.00    18.945000      2.428081
12             Guatemala        26.00     7.727900      3.364433
13              Honduras        89.00    24.615000      3.615681
14               Croatia        27.00     7.328450      3.684272
15               Hungary      1030.00   389.046150      2.647501
```

16	Indonesia	35000.00	14977.500000	2.336839
17	India	191.00	79.951300	2.388954
18	Israel	17.00	3.437450	4.945526
19	Jordan	2.30	0.710150	3.238752
20	Japan	390.00	137.865000	2.828854
21	South Korea	4600.00	1313.450000	3.502227
22	Lebanon	130000.00	25600.000000	5.078125
23	Sri Lanka	1340.00	360.000000	3.722222
24	Moldova	60.00	19.298000	3.109130
25	Mexico	70.00	20.412500	3.429271
26	Malaysia	10.90	4.450000	2.449438
27	Nicaragua	139.00	35.890000	3.872945
28	Norway	62.00	9.897650	6.264113
29	New Zealand	7.10	1.603721	4.427205
30	Pakistan	700.00	221.750000	3.156708
31	Peru	13.90	3.892850	3.570649
32	Philippines	155.00	56.265000	2.754821
33	Poland	16.68	4.648450	3.588293
34	Romania	11.00	4.821750	2.281329
35	Saudi Arabia	17.00	3.755000	4.527297
36	Singapore	5.90	1.391400	4.240333
37	Sweden	57.00	10.197850	5.589413
38	Thailand	128.00	36.612500	3.496074
39	Uruguay	255.00	41.910000	6.084467
40	United States	5.15	1.000000	5.150000
41	Venezuela	10.00	5.673200	1.762674
42	Vietnam	69000.00	23417.000000	2.946577
43	South Africa	39.90	17.036250	2.342065

	Dollar PPP	GDP Big Mac	Social Support	Healthy Life Expectancy \
0	3.495146	45059.735590	0.826	66.243
1	114.563107	8847.066934	0.891	67.200
2	1.300971	64955.518760	0.934	71.050
3	0.310680	31630.823630	0.844	65.825
4	4.446602	9180.888358	0.836	65.749
5	1.314563	49674.334130	0.929	71.400
6	1.262136	67857.662940	0.920	72.900
7	660.194175	18476.466410	0.889	70.300
8	4.660194	17102.473850	0.836	68.689
9	2902.912621	7940.328475	0.822	69.350
10	514.563107	14971.371580	0.872	70.000
11	8.932039	6918.453014	0.726	63.503
12	5.048544	7161.025481	0.812	62.900
13	17.281553	3937.948715	0.766	64.063
14	5.242718	20402.178580	0.917	68.950
15	200.000000	28284.494800	0.943	67.500
16	6796.116505	9172.246719	0.804	63.048

17	37.087379	4579.833524	0.608	60.777
18	3.300971	50313.666900	0.943	72.697
19	0.446602	7011.581696	0.729	67.600
20	75.728155	57016.008440	0.894	74.349
21	893.203883	44570.742380	0.812	73.650
22	25242.718450	NaN	0.530	66.149
23	260.194175	2859.060372	0.826	67.150
24	11.650485	8024.776007	0.857	65.299
25	13.592233	14973.726820	0.804	65.800
26	2.116505	22311.919060	0.799	65.662
27	26.990291	2839.947641	0.853	65.650
28	12.038835	63567.854700	0.943	71.500
29	1.378641	49644.006730	0.952	70.350
30	135.922330	1834.014182	0.601	57.313
31	2.699029	9550.191493	0.798	69.850
32	30.097087	5845.332898	0.780	62.038
33	3.238835	21239.882560	0.925	69.049
34	2.135922	28569.017770	0.848	67.051
35	3.300971	26704.956320	0.884	64.399
36	1.145631	85366.699400	0.878	73.800
37	11.067961	46516.137370	0.939	72.150
38	24.854369	9306.323554	0.874	68.450
39	49.514563	14726.863620	0.913	67.500
40	1.000000	69231.400000	0.919	65.850
41	1.941748	NaN	0.839	64.050
42	13398.058250	6375.564885	0.821	65.502
43	7.747573	13261.543640	0.907	56.989

	Freedom to Make Life Choices	Generosity	Perceptions of Corruption
0	0.942	0.096	0.584
1	0.823	-0.089	0.814
2	0.890	0.198	0.496
3	0.944	0.117	0.737
4	0.801	-0.009	0.738
5	0.874	0.153	0.420
6	0.891	0.027	0.266
7	0.792	-0.011	0.823
8	0.882	-0.041	0.727
9	0.804	-0.104	0.834
10	0.895	-0.070	0.768
11	0.732	-0.183	0.580
12	0.856	-0.057	0.837
13	0.843	0.097	0.843
14	0.757	-0.093	0.925
15	0.758	-0.059	0.839
16	0.880	0.531	0.876
17	0.897	0.072	0.774

```
18                           0.809     -0.023                      0.708
19                           0.770     -0.150                      0.687
20                           0.799     -0.237                      0.640
21                           0.717     -0.046                      0.701
22                           0.474     -0.141                      0.891
23                           0.787     -0.030                      0.808
24                           0.840     -0.080                      0.901
25                           0.856     -0.094                      0.768
26                           0.877      0.160                      0.758
27                           0.877      0.021                      0.625
28                           0.947      0.141                      0.283
29                           0.887      0.175                      0.271
30                           0.766      0.008                      0.787
31                           0.794     -0.119                      0.892
32                           0.919     -0.060                      0.732
33                           0.765     -0.031                      0.736
34                           0.856     -0.172                      0.929
35                           0.894     -0.081                      0.691
36                           0.878      0.063                      0.146
37                           0.948      0.165                      0.202
38                           0.850      0.289                      0.910
39                           0.895     -0.065                      0.575
40                           0.800      0.137                      0.689
41                           0.659      0.128                      0.811
42                           0.939     -0.004                      0.759
43                           0.730     -0.087                      0.902
```

[ ]:
```
## Find missing values
```

[129]:
```
df_merged.isnull().sum()
```

[129]:
```
Country                         0
Local Price                     0
Dollar Ex                       0
Dollar Price                    0
Dollar PPP                      0
GDP Big Mac                     2
Social Support                  0
Healthy Life Expectancy         0
Freedom to Make Life Choices    0
Generosity                      0
Perceptions of Corruption       0
dtype: int64
```

[ ]:
```
## Find outlier information
```

[131]:
```
df_merged.describe()
```

[131]:

	Local Price	Dollar Ex	Dollar Price	Dollar PPP	GDP Big Mac
count	44.000000	44.000000	44.000000	44.000000	42.000000
mean	6027.234091	1656.562107	3.817780	1170.336717	25662.239760
std	22389.196104	5559.768027	1.145323	4347.416720	22729.766769
min	1.600000	0.377000	1.762674	0.310680	1834.014182
25%	13.175000	3.858388	3.068492	2.558252	7961.440358
50%	51.500000	13.617050	3.601987	10.000000	16038.100335
75%	440.000000	131.302500	4.537865	85.436893	44937.487288
max	130000.000000	25600.000000	6.711756	25242.718450	85366.699400

	Social Support	Healthy Life Expectancy	Freedom to Make Life Choices
count	44.000000	44.000000	44.000000
mean	0.841886	67.256682	0.831682
std	0.092831	4.011387	0.088428
min	0.530000	56.989000	0.474000
25%	0.810000	65.451250	0.790750
50%	0.850500	67.175000	0.853000
75%	0.914000	70.075000	0.890250
max	0.952000	74.349000	0.948000

	Generosity	Perceptions of Corruption
count	44.000000	44.000000
mean	0.010045	0.697341
std	0.141687	0.202906
min	-0.237000	0.146000
25%	-0.082500	0.636250
50%	-0.026500	0.748000
75%	0.102000	0.834750
max	0.531000	0.929000