correlation

May 31, 2022

0.1 Modify Data

0.1.1 Create Merged .csv File with Data from All Cities

Data has already been processed

0.2 Import Data & Data Info

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1066968 entries, 0 to 1066967
Data columns (total 37 columns):
 #   Column             Non-Null Count    Dtype
---  ------             --------------    -----
 0   date_time          1066968 non-null  object
 1   sunrise            1066968 non-null  object
 2   sunset             1066968 non-null  object
 3   moonrise           1066968 non-null  object
 4   moonset            1066968 non-null  object
 5   moon_phase         1066968 non-null  object
 6   moon_illumination  1066968 non-null  int64
 7   time               1066968 non-null  int64
 8   tempC              1066968 non-null  int64
 9   tempF              1066968 non-null  int64
 10  windspeedMiles     1066968 non-null  int64
 11  windspeedKmph      1066968 non-null  int64
 12  winddirDegree      1066968 non-null  int64
 13  winddir16Point     1066968 non-null  object
 14  weatherCode        1066968 non-null  int64
 15  weatherIconUrl     1066968 non-null  object
 16  weatherDesc        1066968 non-null  object
 17  precipMM           1066968 non-null  float64
 18  precipInches       1066968 non-null  float64
 19  humidity           1066968 non-null  int64
 20  visibility         1066968 non-null  int64
 21  visibilityMiles    1066968 non-null  int64
 22  pressure           1066968 non-null  int64
 23  pressureInches     1066968 non-null  int64
 24  cloudcover         1066968 non-null  int64
 25  HeatIndexC         1066968 non-null  int64
```

```
26   HeatIndexF         1066968 non-null  int64
27   DewPointC          1066968 non-null  int64
28   DewPointF          1066968 non-null  int64
29   WindChillC         1066968 non-null  int64
30   WindChillF         1066968 non-null  int64
31   WindGustMiles      1066968 non-null  int64
32   WindGustKmph       1066968 non-null  int64
33   FeelsLikeC         1066968 non-null  int64
34   FeelsLikeF         1066968 non-null  int64
35   uvIndex            1066968 non-null  int64
36   city               1066968 non-null  object
dtypes: float64(2), int64(25), object(10)
memory usage: 301.2+ MB

date_time             0
sunrise               0
sunset                0
moonrise              0
moonset               0
moon_phase            0
moon_illumination     0
time                  0
tempC                 0
tempF                 0
windspeedMiles        0
windspeedKmph         0
winddirDegree         0
winddir16Point        0
weatherCode           0
weatherIconUrl        0
weatherDesc           0
precipMM              0
precipInches          0
humidity              0
visibility            0
visibilityMiles       0
pressure              0
pressureInches        0
cloudcover            0
HeatIndexC            0
HeatIndexF            0
DewPointC             0
DewPointF             0
WindChillC            0
WindChillF            0
WindGustMiles         0
WindGustKmph          0
```

```
FeelsLikeC         0
FeelsLikeF         0
uvIndex            0
city               0
dtype: int64


            date_time   sunrise   sunset  moonrise   moonset moon_phase  \
0 2016-10-31 00:00:00  06:40 AM 04:50 PM  07:02 AM  05:38 PM   New Moon
1 2016-10-31 00:00:00  06:42 AM 04:54 PM  07:05 AM  05:41 PM   New Moon
2 2016-10-31 00:00:00  06:38 AM 04:50 PM  07:00 AM  05:38 PM   New Moon
3 2016-10-31 00:00:00  06:26 AM 04:44 PM  06:48 AM  05:31 PM   New Moon
4 2016-10-31 00:00:00  06:41 AM 04:52 PM  07:04 AM  05:39 PM   New Moon


   moon_illumination  time  tempC  tempF  …  DewPointC  DewPointF  \
0                  0     0      5     40  …          2         36
1                  0     0     14     58  …          8         47
2                  0     0      9     48  …          5         41
3                  0     0     14     57  …          5         41
4                  0     0      5     40  …          2         36


   WindChillC WindChillF  WindGustMiles WindGustKmph FeelsLikeC  FeelsLikeF  \
0           1         34             16           25          1          34
1          12         54             22           35         12          54
2           6         43             17           28          6          43
3          12         53             20           33         12          53
4           1         34             16           25          1          34


   uvIndex    city
0        3   Bakar
1        4    Bale
2        3  Banjol
3        4   Baska
4        3  Boljun

[5 rows x 37 columns]
```
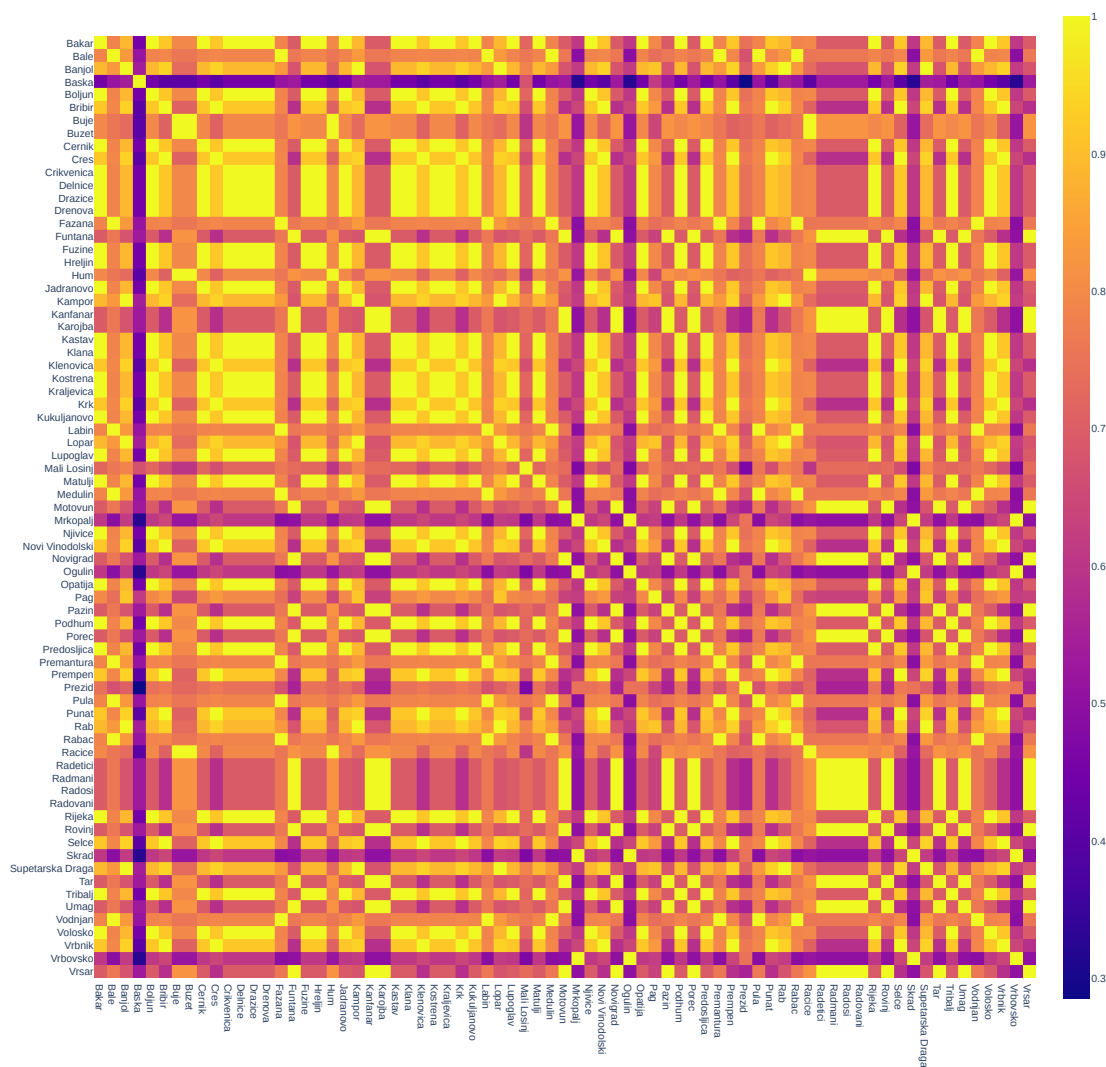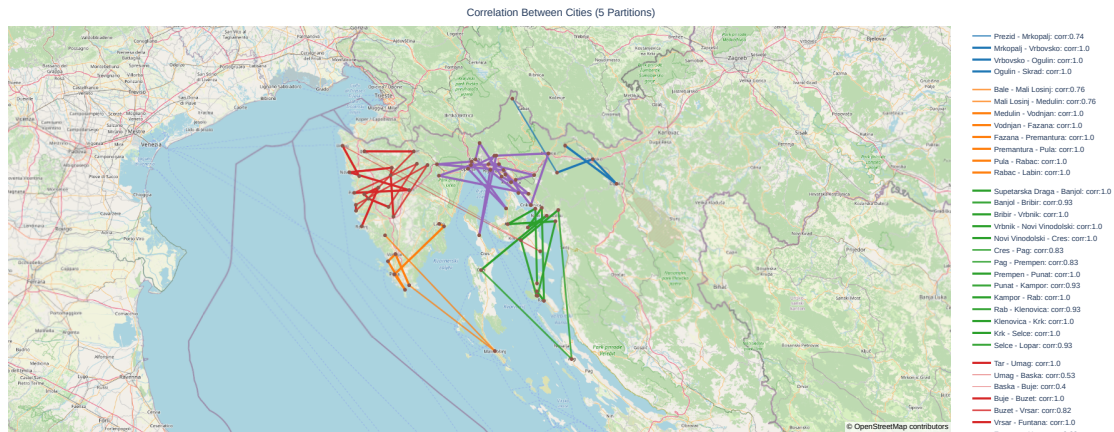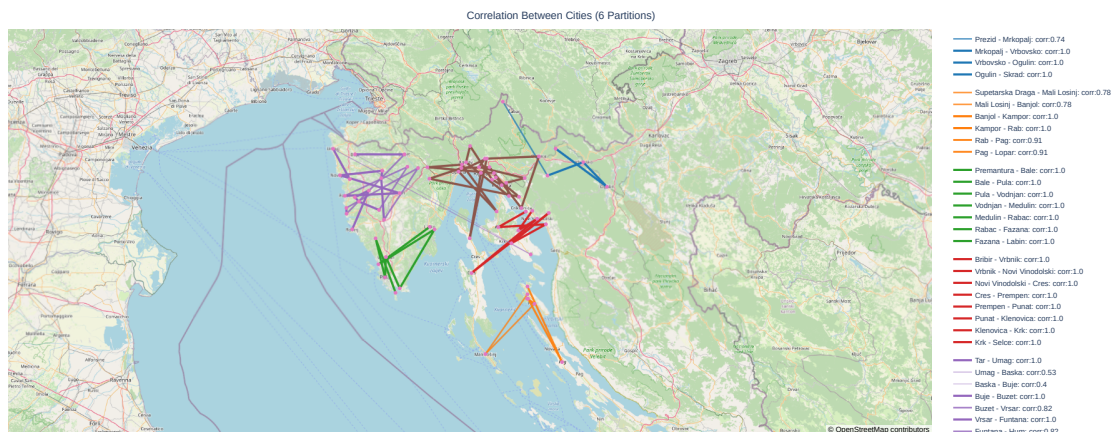
1   Correlation

```
Correlation file exists!
```

Correlation Matrix Analysis

Correlation - Rijeka

1.1 Correlation Map

Min comumunities: 4 -- Iter: 384 -- Resoluton value: 1.0383999999999958

Correlation Between Cities (4 Partitions)

Min comumunities: 5 -- Iter: 825 -- Resoluton value: 1.082499999999991

Correlation Between Cities (5 Partitions)

Min comumunities: 6 -- Iter: 954 -- Resoluton value: 1.0953999999999895

Correlation Between Cities (6 Partitions)

2 Export to HTML

<IPython.core.display.Javascript object>

```
[NbConvertApp] Converting notebook correlation.ipynb to HTML
[NbConvertApp] Writing 4540872 bytes to output/windspeedKmph_correlation.html
[NbConvertApp] Converting notebook correlation.ipynb to pdf
/home/HDD/00-Development/016-Diplomski/venv/lib/python3.9/site-
packages/nbconvert/filters/datatypefilter.py:41: UserWarning: Your element with
mimetype(s) dict_keys(['text/html']) is not able to be represented.
  warn(
[NbConvertApp] Support files will be in windspeedKmph_correlation_files/
[NbConvertApp] Making directory ./windspeedKmph_correlation_files
[NbConvertApp] Making directory ./windspeedKmph_correlation_files
[NbConvertApp] Making directory ./windspeedKmph_correlation_files
```

```
[NbConvertApp] Making directory ./windspeedKmph_correlation_files
[NbConvertApp] Making directory ./windspeedKmph_correlation_files
[NbConvertApp] Writing 68451 bytes to notebook.tex
[NbConvertApp] Building PDF
[NbConvertApp] Running xelatex 3 times: ['xelatex', 'notebook.tex', '-quiet']
[NbConvertApp] Running bibtex 1 time: ['bibtex', 'notebook']
[NbConvertApp] WARNING | bibtex had problems, most likely because there were no
citations
[NbConvertApp] PDF successfully created
[NbConvertApp] Writing 4211880 bytes to output/windspeedKmph_correlation.pdf
[NbConvertApp] Converting notebook correlation.ipynb to HTML
[NbConvertApp] Writing 4477307 bytes to
output/windspeedKmph_correlation_no_code.html
```