

correlation

May 30, 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

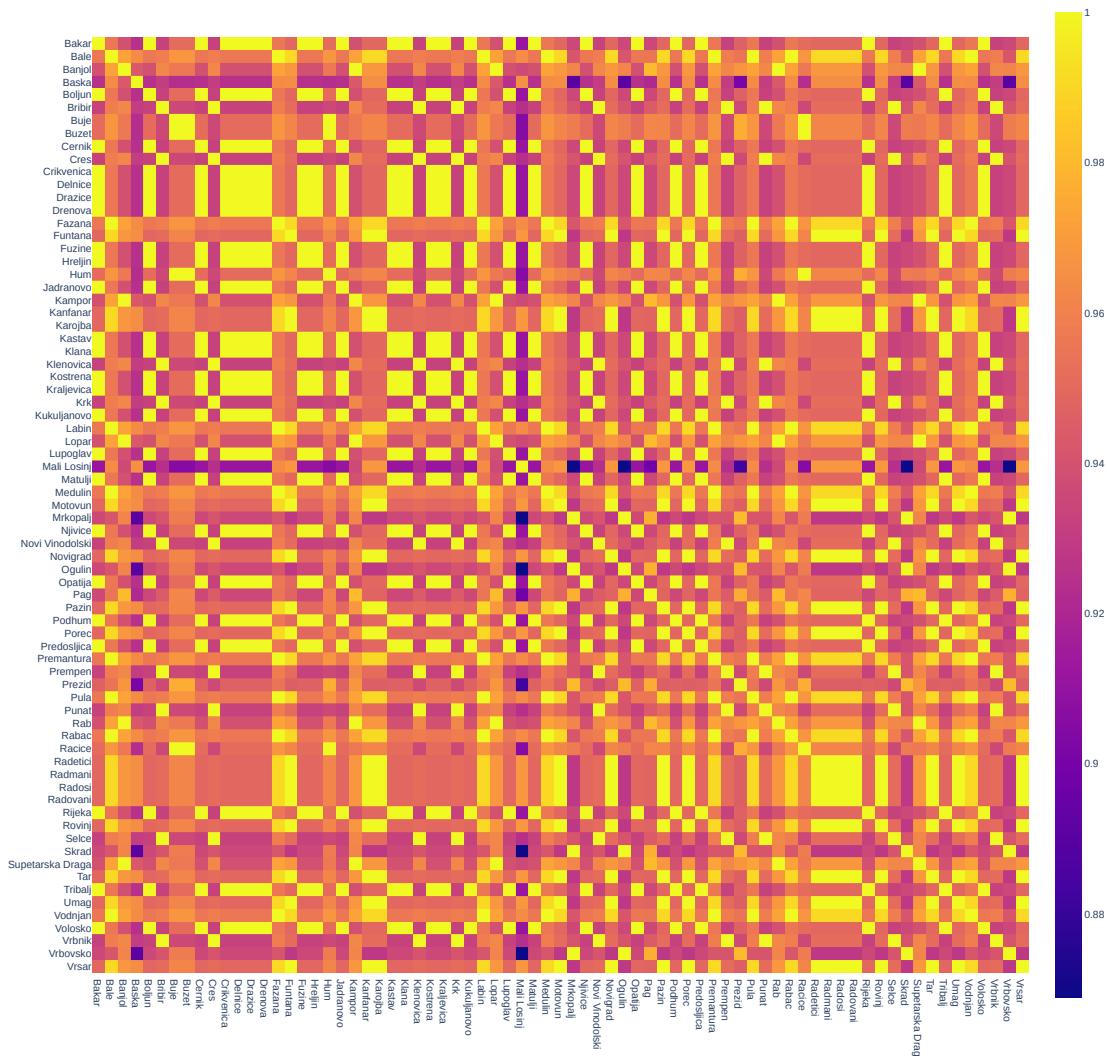
[5 rows x 37 columns]

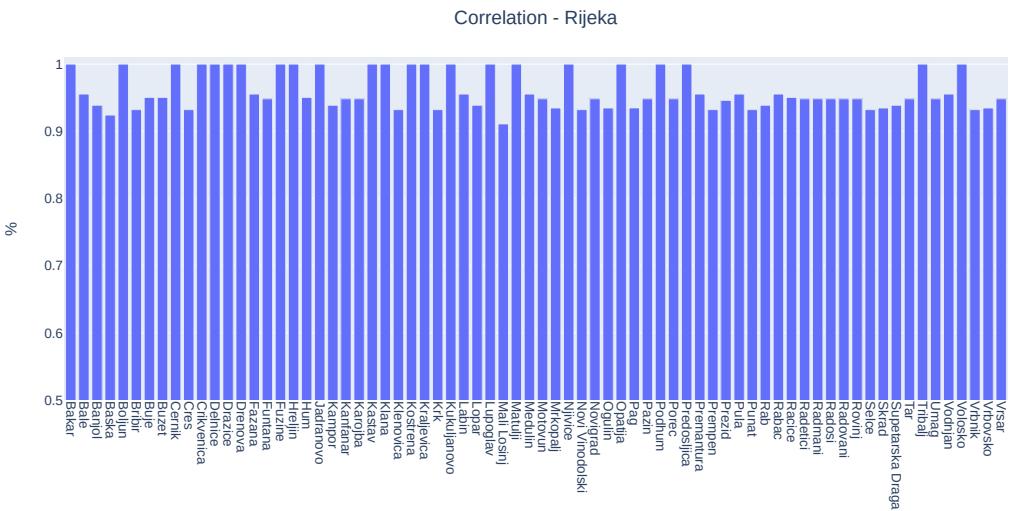
```

1 Correlation

Correlation file exists!

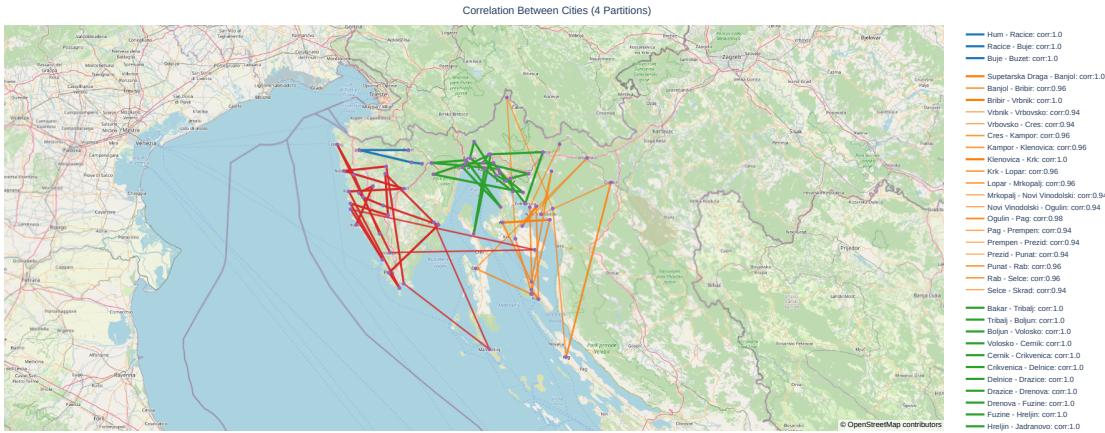
Correlation Matrix Analysis



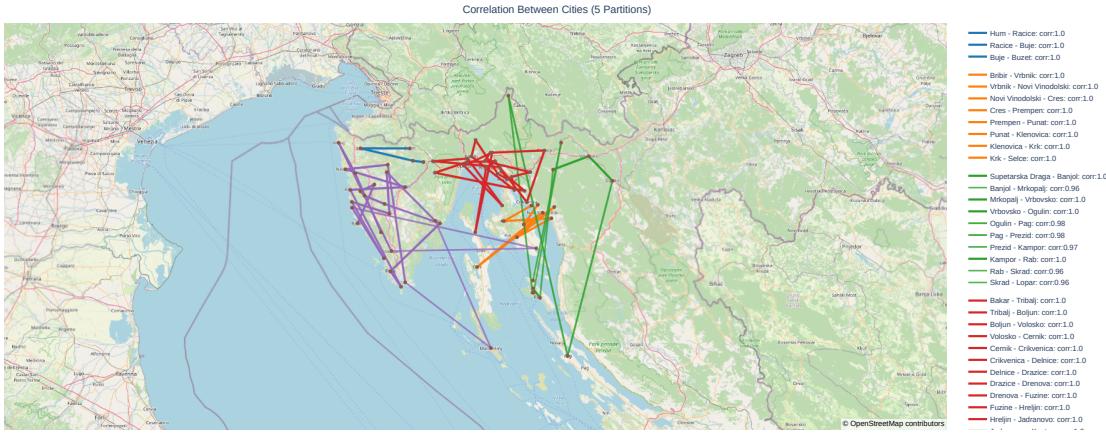


1.1 Correlation Map

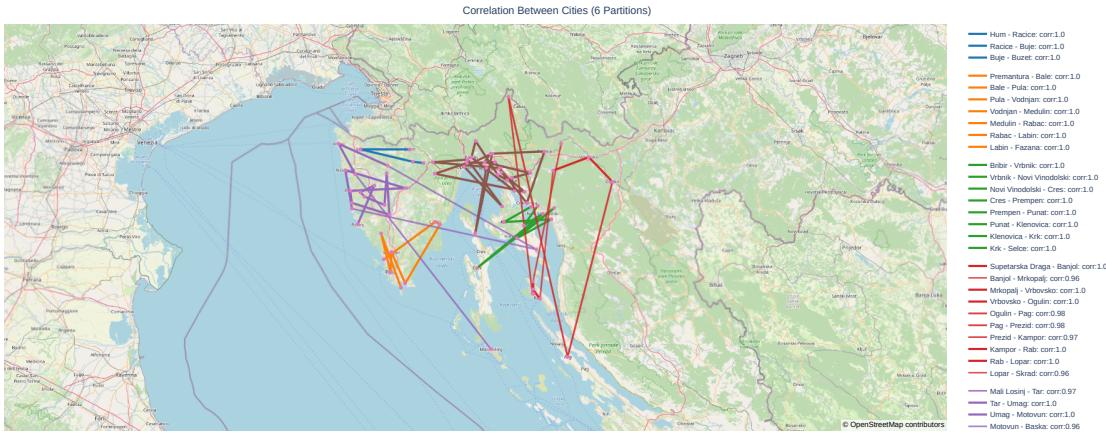
Min communities: 4 -- Iter: 167 -- Resolution value: 1.0166999999999982



Min communities: 5 -- Iter: 272 -- Resoluton value: 1.0271999999999997



Min communities: 6 -- Iter: 318 -- Resolution value: 1.0317999999999965



2 Export to HTML

```
<IPython.core.display.Javascript object>

[NbConvertApp] Converting notebook correlation.ipynb to HTML
[NbConvertApp] Writing 4538292 bytes to output/tempC_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 tempC_correlation_files/
[NbConvertApp] Making directory ./tempC_correlation_files
[NbConvertApp] Making directory ./tempC_correlation_files
[NbConvertApp] Making directory ./tempC_correlation_files
```

```
[NbConvertApp] Making directory ./tempC_correlation_files
[NbConvertApp] Making directory ./tempC_correlation_files
[NbConvertApp] Writing 68352 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 4257294 bytes to output/tempC_correlation.pdf
[NbConvertApp] Converting notebook correlation.ipynb to HTML
[NbConvertApp] Writing 4474674 bytes to output/tempC_correlation_no_code.html
```