

# 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

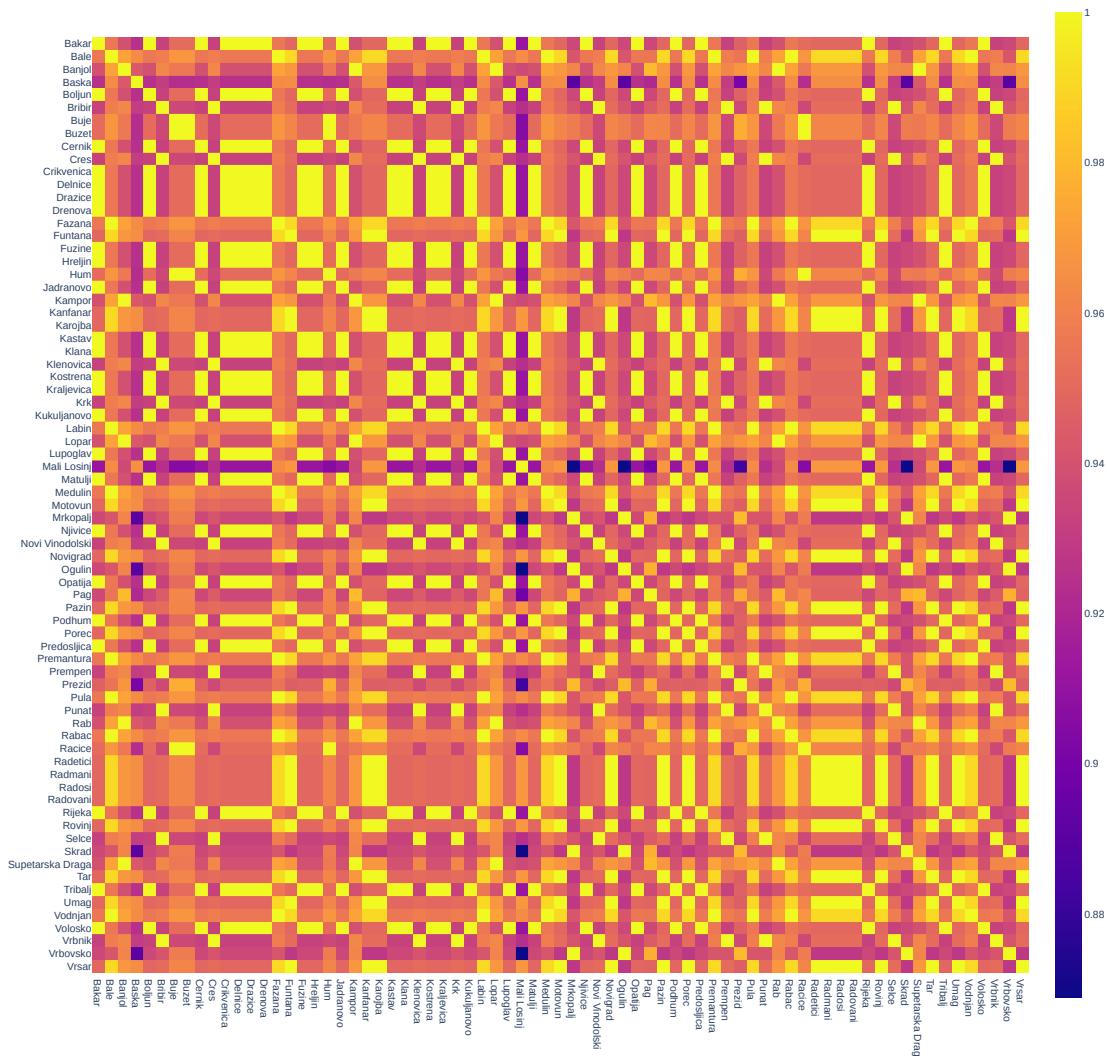
[5 rows x 37 columns]

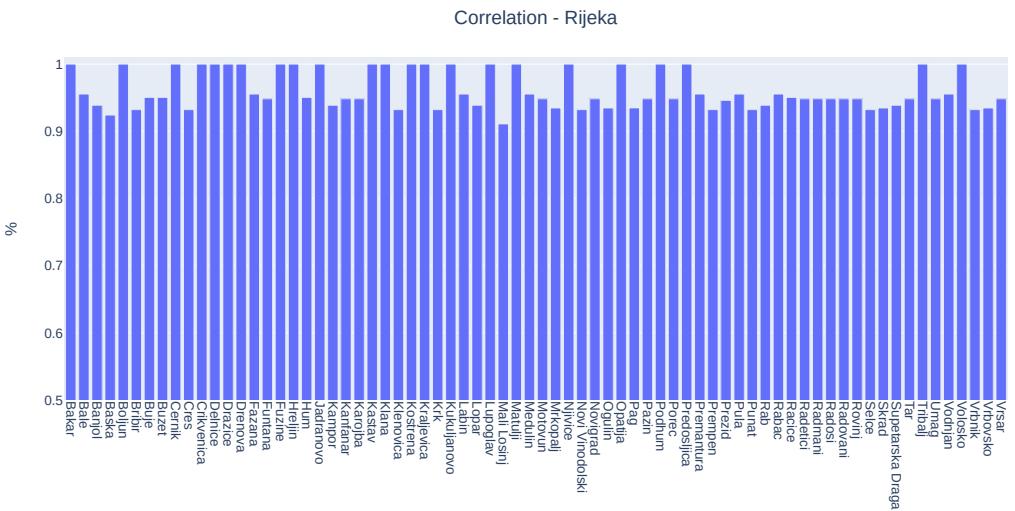
```

## 1 Correlation

Correlation file exists!

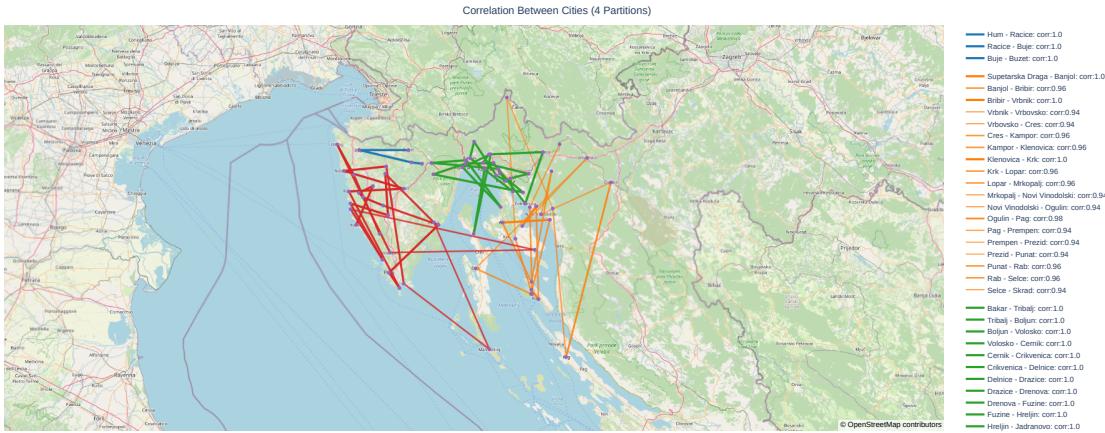
## Correlation Matrix Analysis



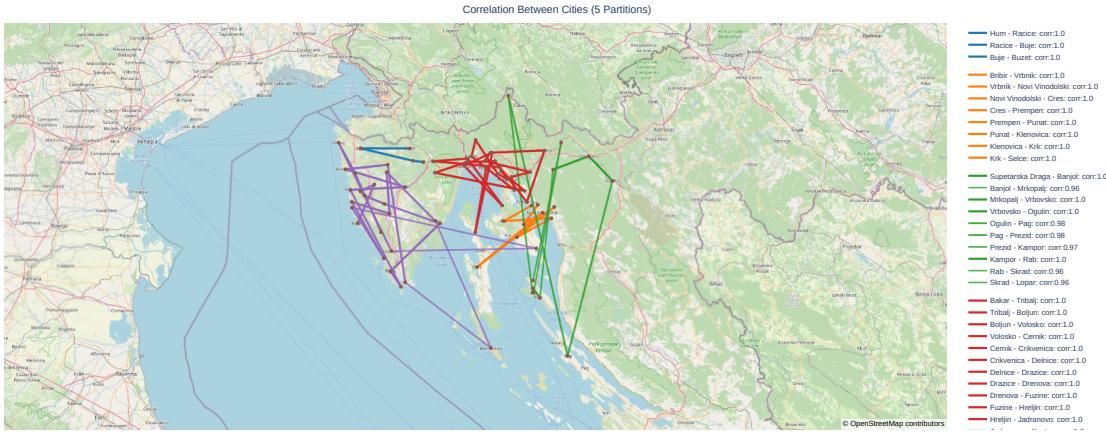


## 1.1 Correlation Map

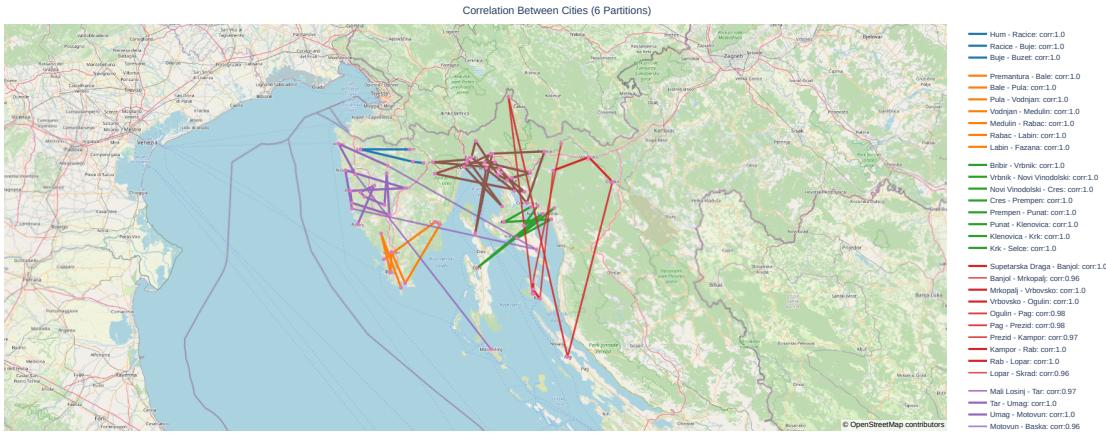
Min communities: 4 -- Iter: 167 -- Resolution value: 1.0166999999999982



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 4539489 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 69785 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 4260251 bytes to output/tempC_correlation.pdf
[NbConvertApp] Converting notebook correlation.ipynb to HTML
[NbConvertApp] Writing 4474674 bytes to output/tempC_correlation_no_code.html
```