

# correlation

May 31, 2022

## 0.1 Modify Data

### 0.1.1 Create Merged .csv File with Data from All Cities

Creating data file

Data processed successfully

## 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

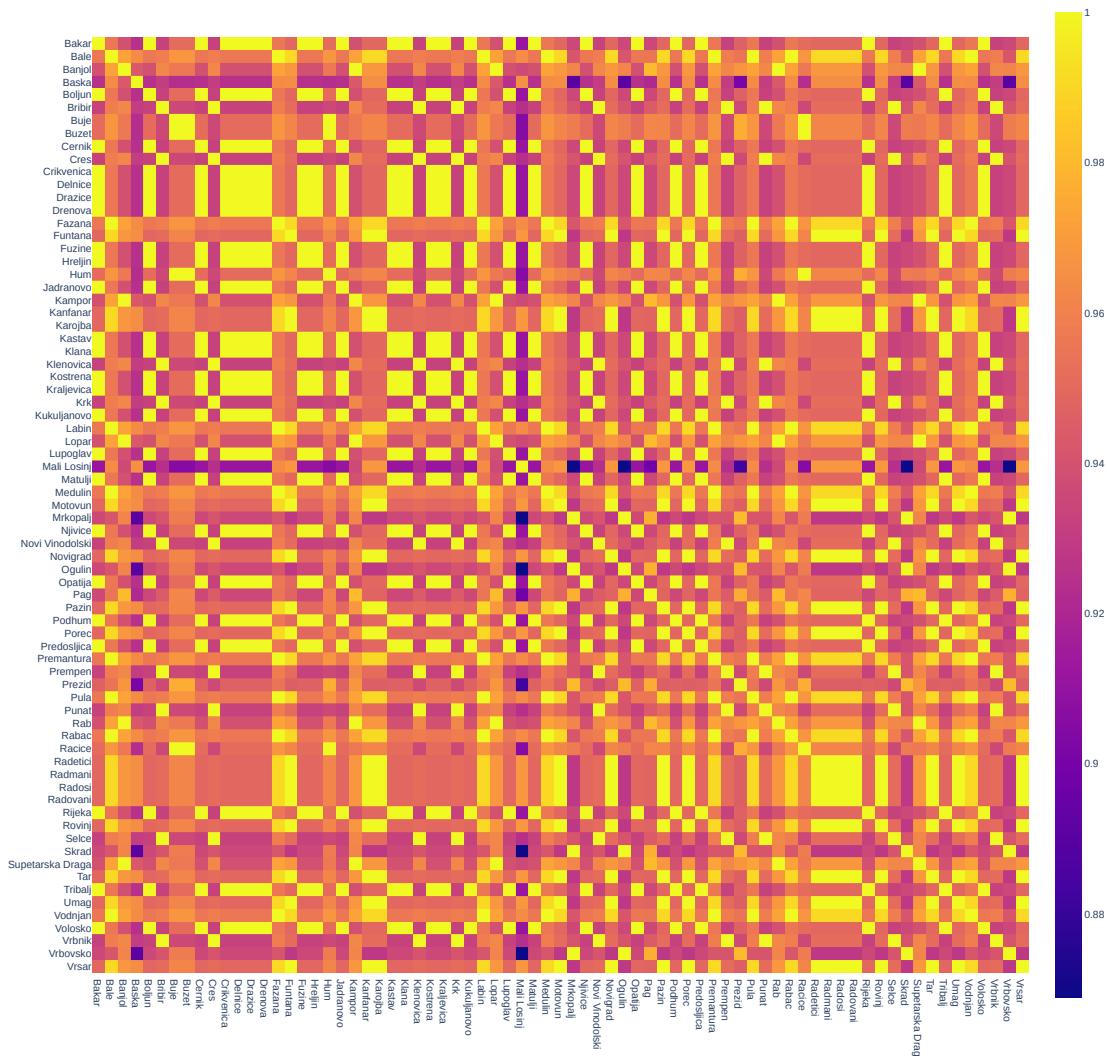
[5 rows x 37 columns]

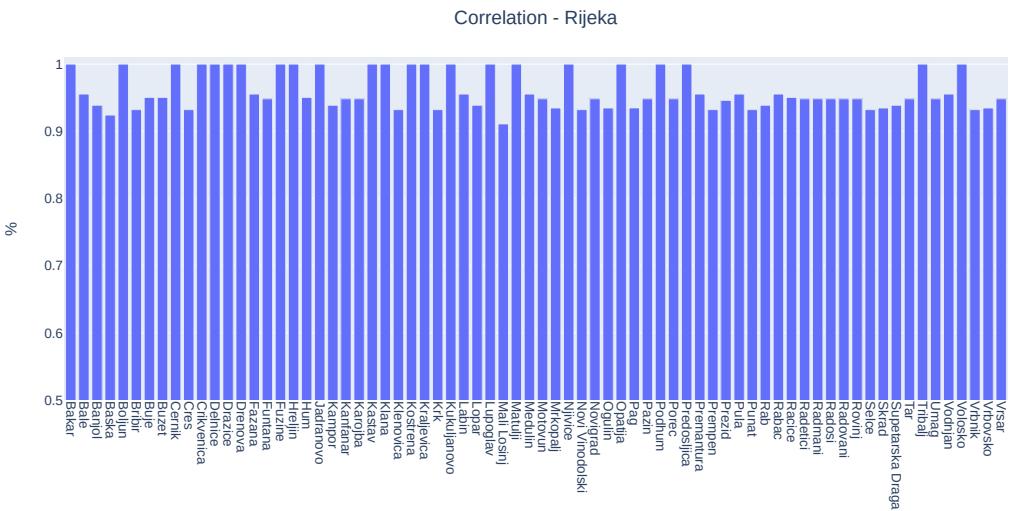
```

## 1 Correlation

Correlation file does not exist.. Creating one...

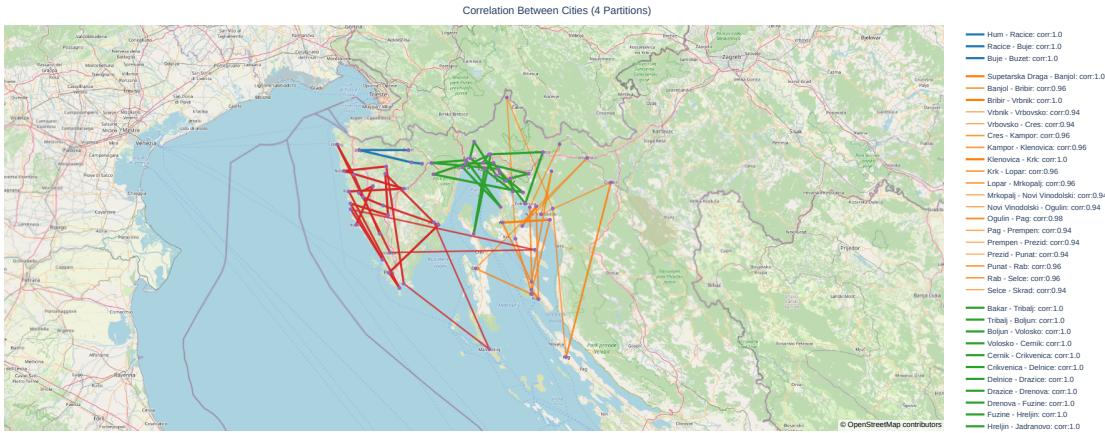
## Correlation Matrix Analysis



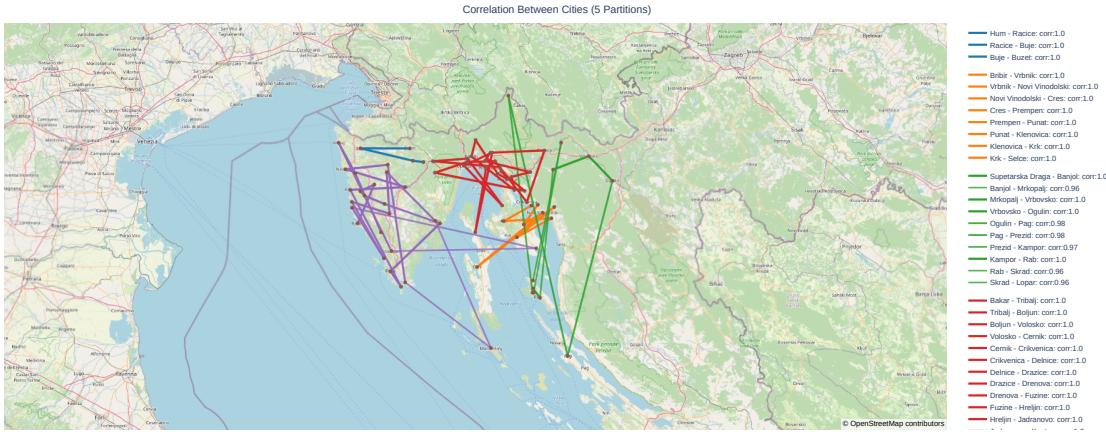


## 1.1 Correlation Map

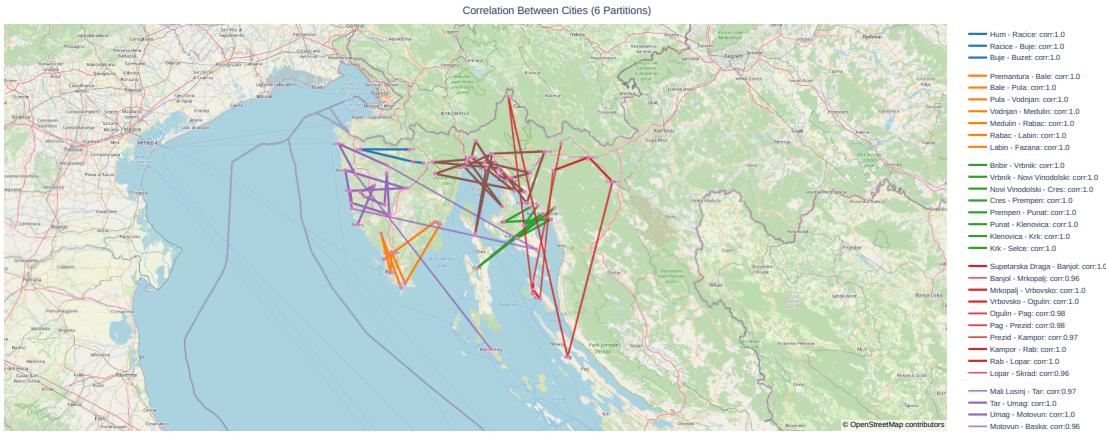
Min communities: 4 -- Iter: 167 -- Resolution value: 1.0166999999999982



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 4539470 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 69285 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 4259026 bytes to output/tempC_correlation.pdf
[NbConvertApp] Converting notebook correlation.ipynb to HTML
[NbConvertApp] Writing 4474805 bytes to output/tempC_correlation_no_code.html
```