

# 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]

```

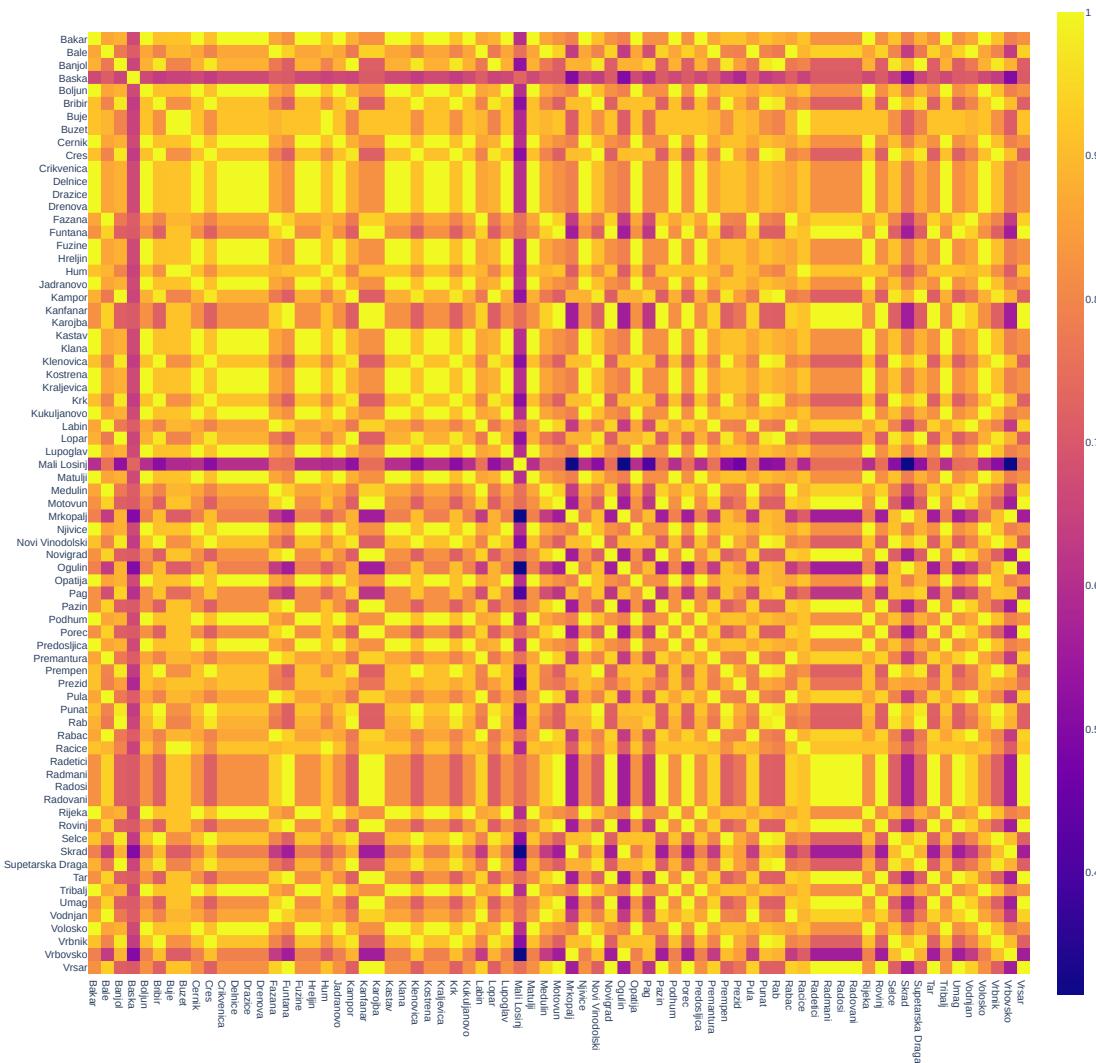
## 1 Correlation

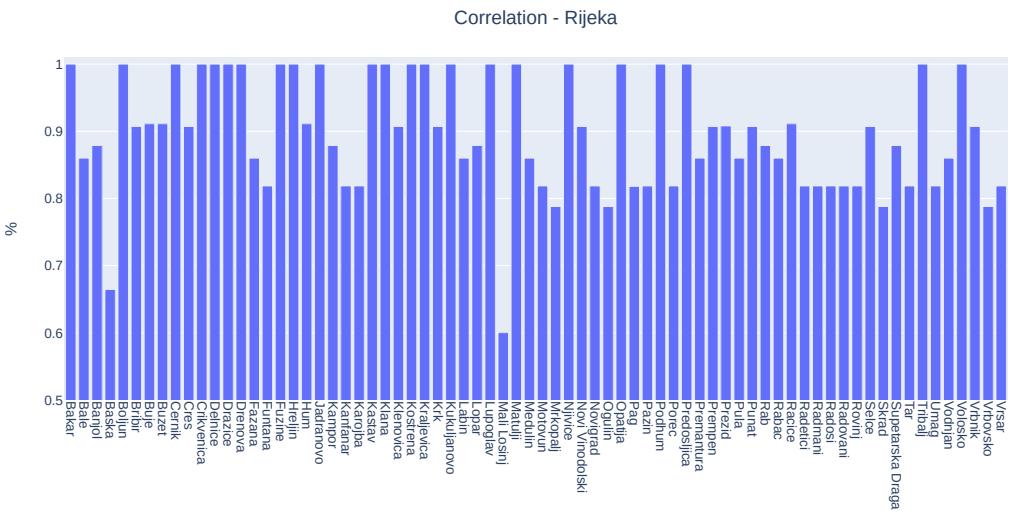
```

Creating folder correlation_plots/humidity
Correlation file does not exist.. Creating one...

```

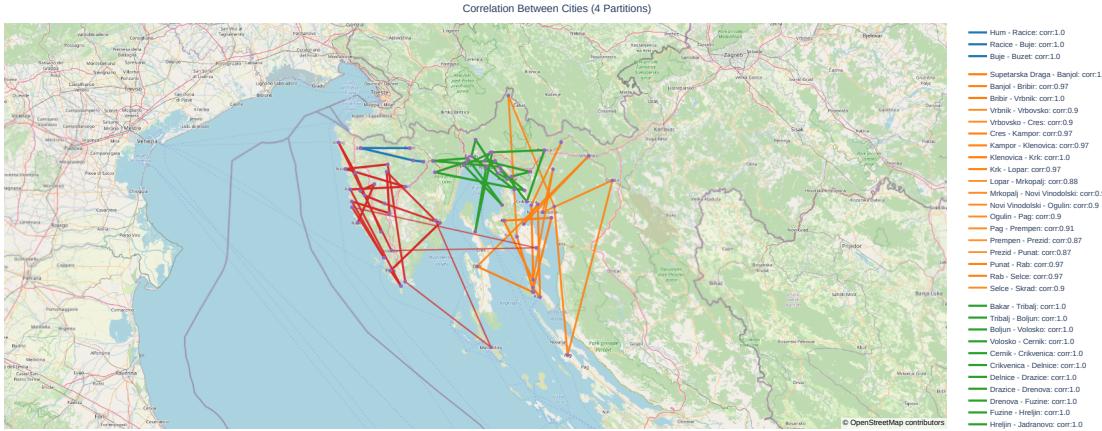
## Correlation Matrix Analysis



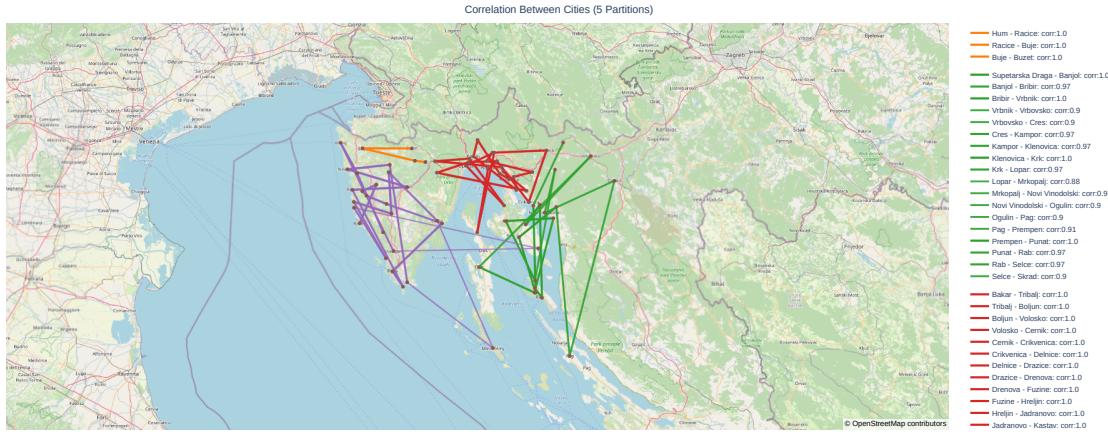


## 1.1 Correlation Map

Min communities: 4 -- Iter: 579 -- Resolution value: 1.0578999999999936

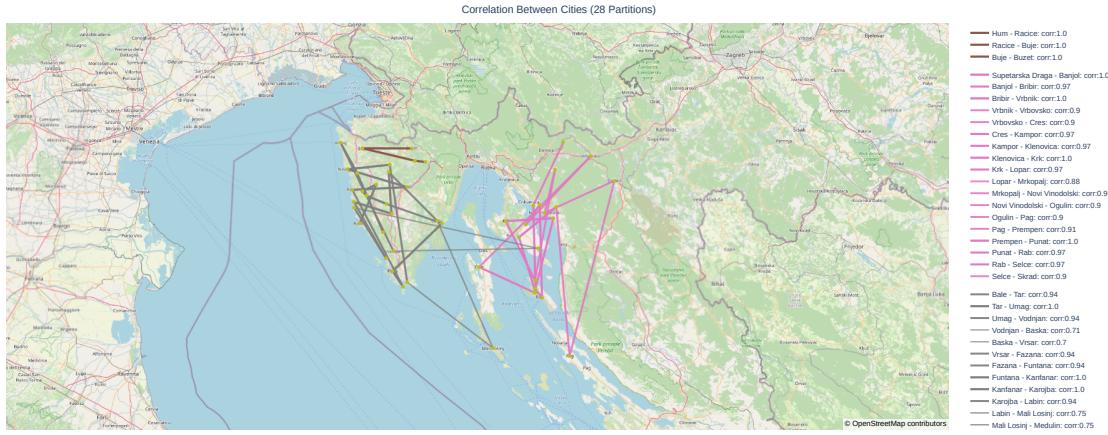


Min communities: 5 -- Iter: 703 -- Resolution value: 1.0702999999999923  
There is a single element partition: Prezid



```
Min communities: 6 -- Iter: 733 -- Resolution value: 1.0732999999999992
```

```
There is a single element partition: Bakar
There is a single element partition: Boljun
There is a single element partition: Cernik
There is a single element partition: Crikvenica
There is a single element partition: Delnice
There is a single element partition: Drazice
There is a single element partition: Drenova
There is a single element partition: Fuzine
There is a single element partition: Hreljin
There is a single element partition: Jadranovo
There is a single element partition: Kastav
There is a single element partition: Klana
There is a single element partition: Kostrena
There is a single element partition: Kraljevica
There is a single element partition: Kukuljanovo
There is a single element partition: Lupoglav
There is a single element partition: Matulji
There is a single element partition: Njivice
There is a single element partition: Opatija
There is a single element partition: Podhum
There is a single element partition: Predosljica
There is a single element partition: Prezid
There is a single element partition: Rijeka
There is a single element partition: Tribalj
There is a single element partition: Volosko
```



## 2 Export to HTML

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

[NbConvertApp] Converting notebook correlation.ipynb to HTML
[NbConvertApp] Writing 4533974 bytes to output/humidity_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 humidity_correlation_files/
[NbConvertApp] Making directory ./humidity_correlation_files
[NbConvertApp] Writing 69635 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 4257913 bytes to output/humidity_correlation.pdf
[NbConvertApp] Converting notebook correlation.ipynb to HTML
[NbConvertApp] Writing 4470380 bytes to output/humidity_correlation_no_code.html
```