

# svd

August 27, 2022

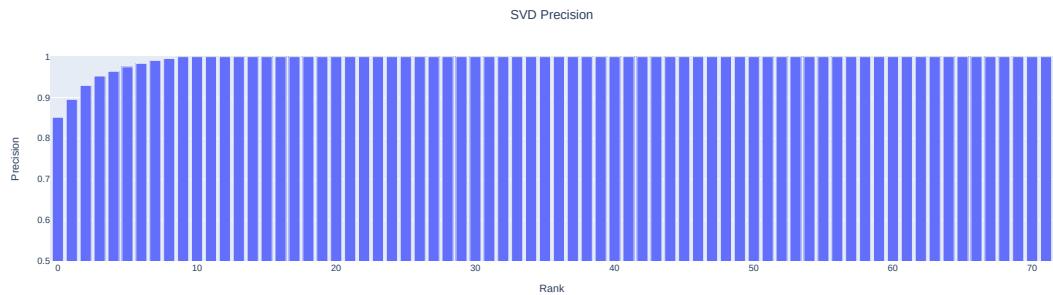
## 0.1 Prepare Data for SVD Analysis

```
Creating folder svd_plots/columns-tempC-months-6_7_8  
Creating svd file for columns-tempC-months-6_7_8
```

## 0.2 SVD

```
Loading svd file for columns-tempC-months-6_7_8
```

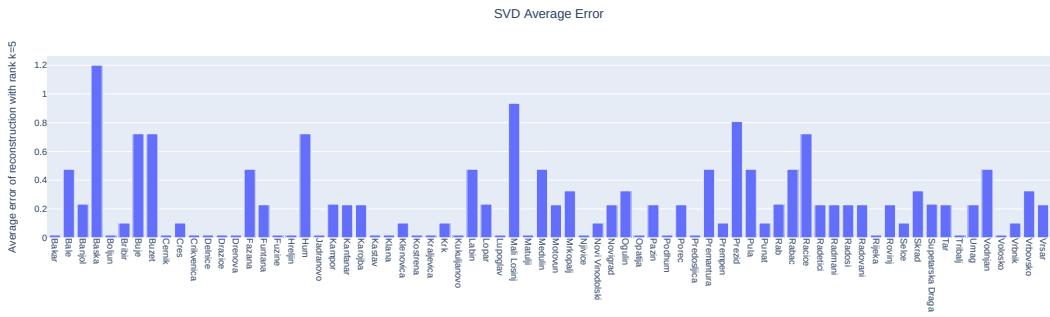
### 0.2.1 Precision of SVD Reconstruction



### 0.2.2 Full Reconstruction & Lower Rank Reconstruction

```
Diff: 1.5674274143781356e-14  
Diff reconstruction: 0.23495765286413506
```

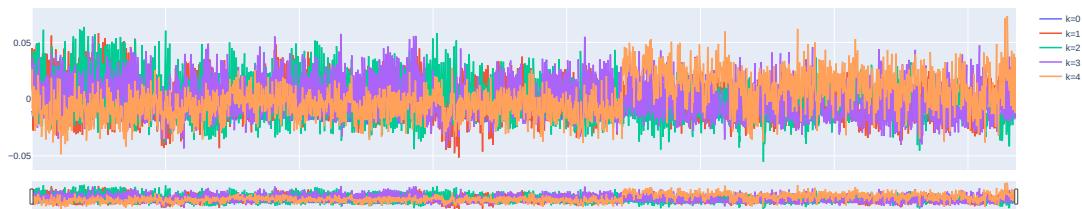
### 0.2.3 Average SVD Error



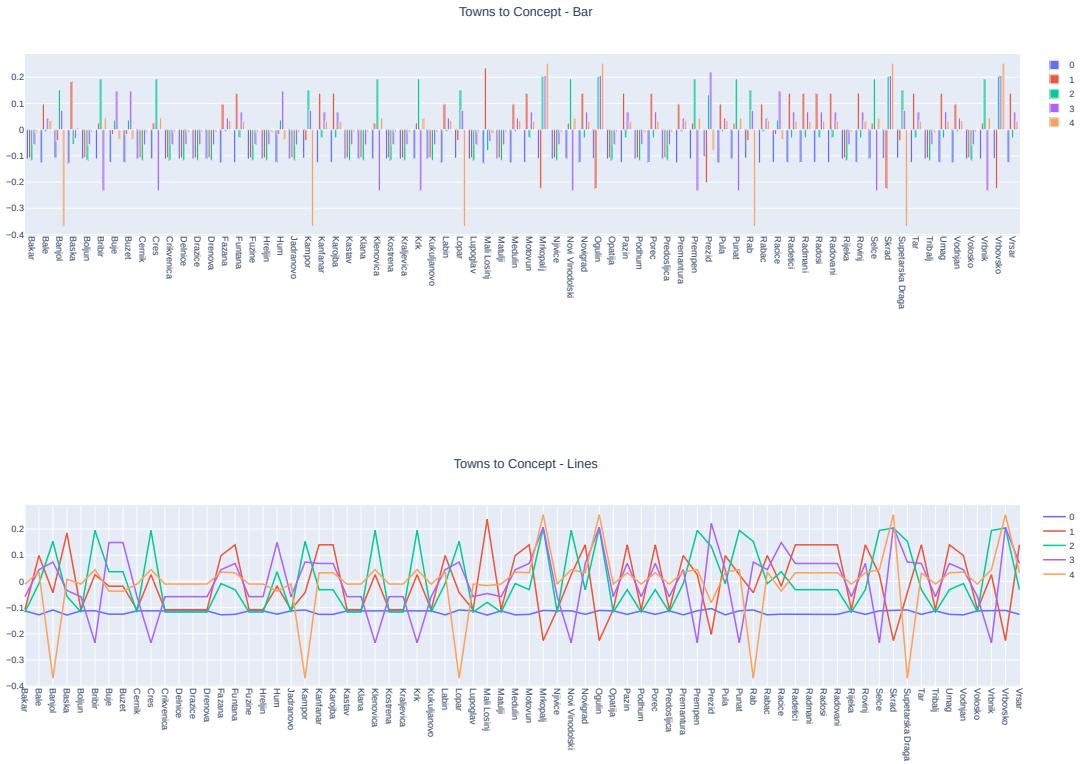
#### 0.2.4 Dates to Concept - SVD\_U



Dates to Concept - Plotted as Continuous Function



### 0.2.5 Towns to Concept - SVD\_V

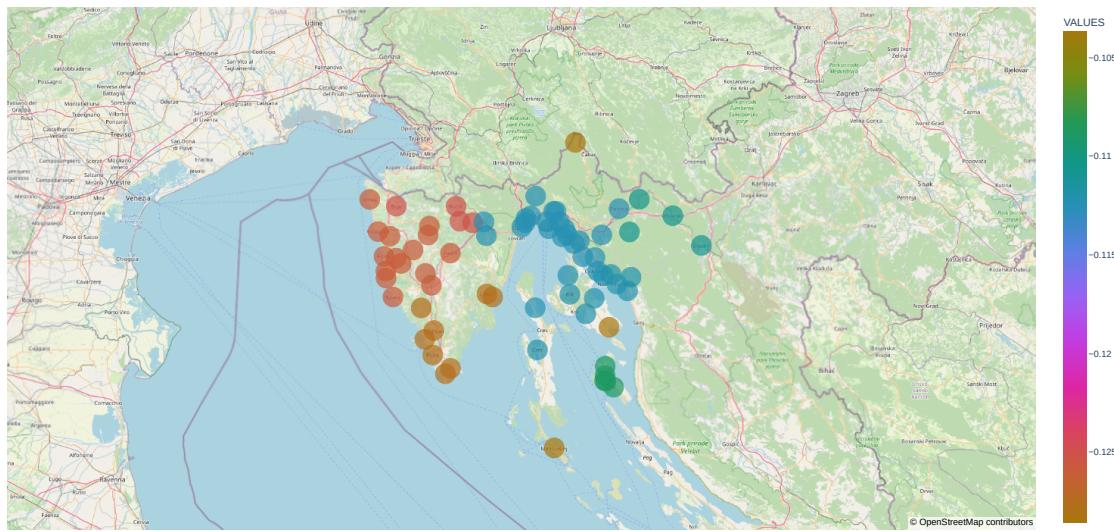


### 0.2.6 Singular Vector - SVD\_S

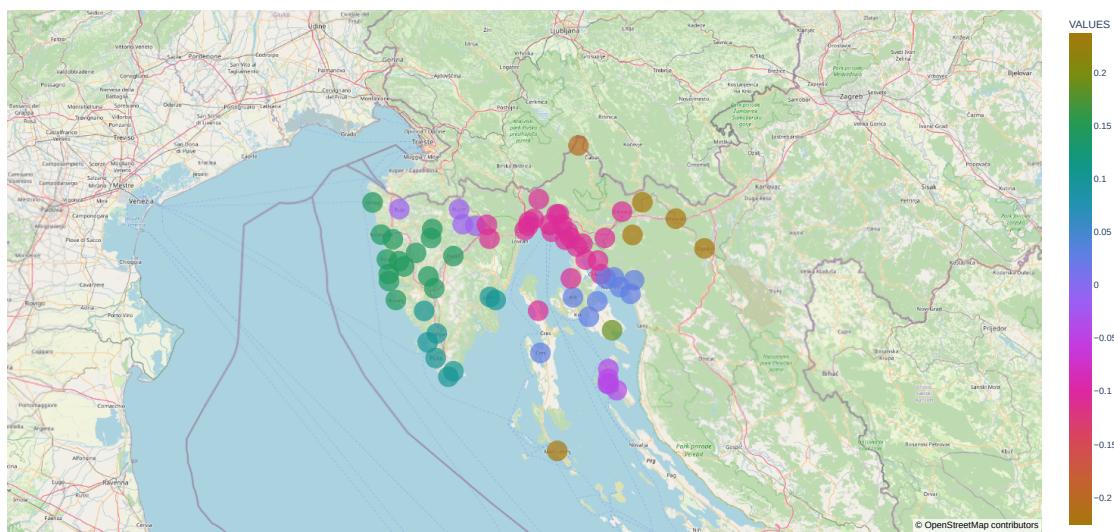
```
1.1472993710703939e-12; 1.1472993710703939e-12; 1.1472993710703939e-12;  
8.867463244017399e-13'
```

### 0.2.7 SVD Maps

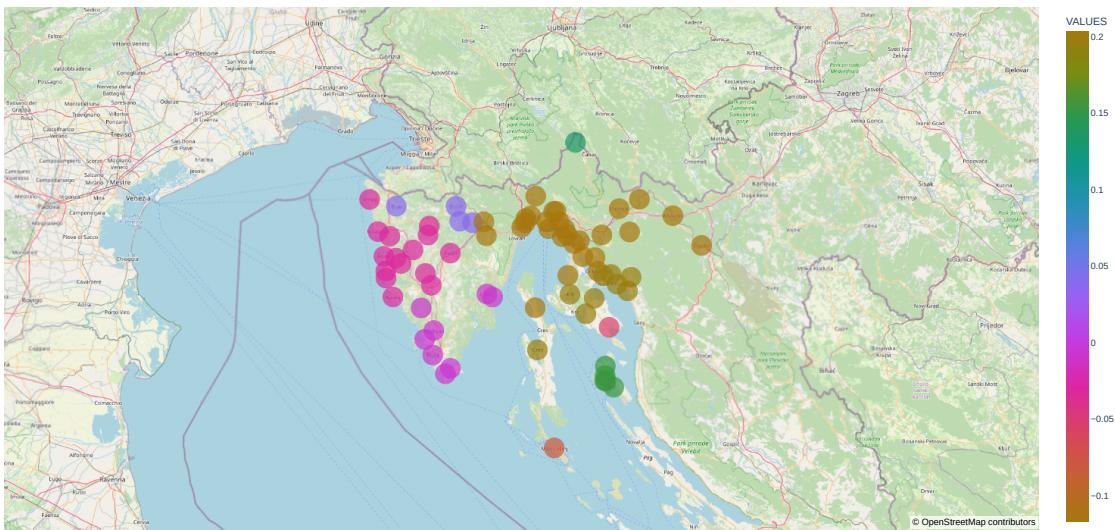
Ploting map for k = 0



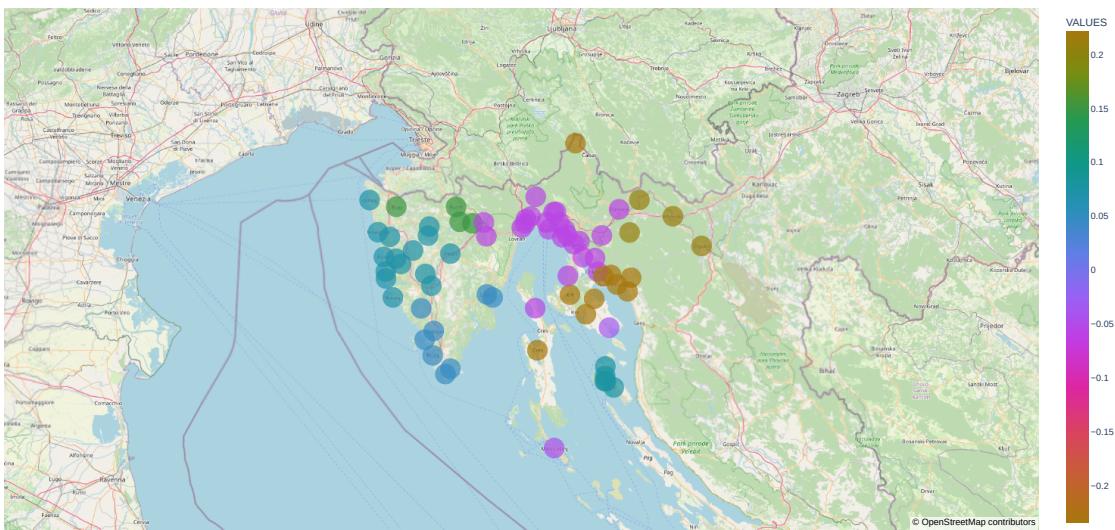
Ploting map for k = 1



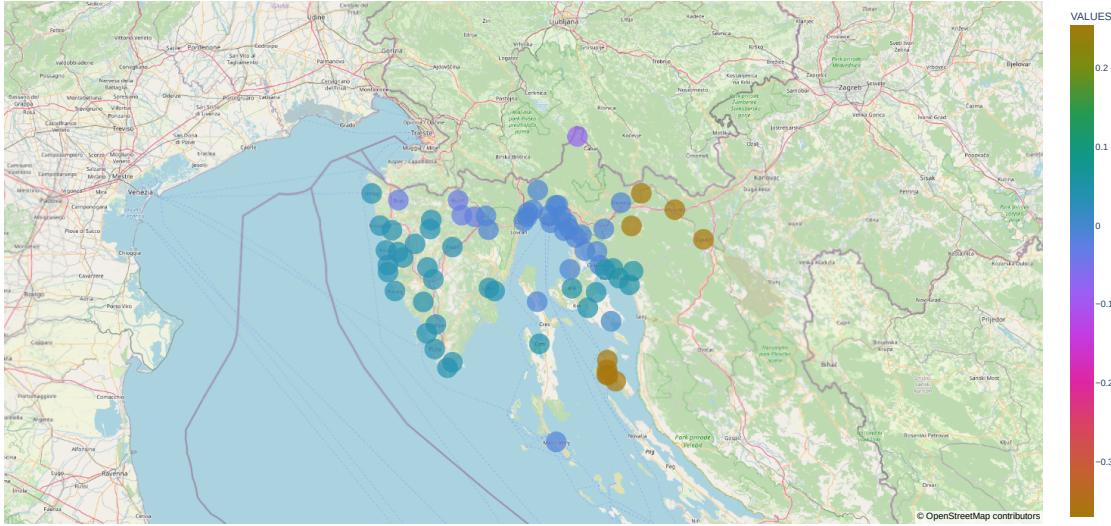
Plotting map for  $k = 2$



Plotting map for  $k = 3$



Plotting map for  $k = 4$



## 1 Export to HTML

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

[NbConvertApp] Converting notebook svd.ipynb to HTML
[NbConvertApp] Writing 5753976 bytes to output/columns-tempC-
months-6_7_8_svd.html
[NbConvertApp] Converting notebook svd.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 columns-tempC-months-6_7_8_svd_files/
[NbConvertApp] Making directory ./columns-tempC-months-6_7_8_svd_files
[NbConvertApp] Writing 64622 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 7044983 bytes to output/columns-tempC-
months-6_7_8_svd.pdf
[NbConvertApp] Converting notebook svd.ipynb to HTML
[NbConvertApp] Writing 5693146 bytes to output/columns-tempC-
months-6_7_8_svd_no_code.html
```