

# Nearest Neighbor Analysis

QGIS Tutorials and Tips



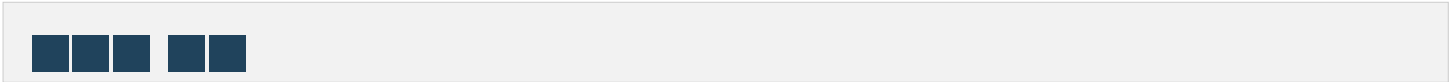
Author




















Ujaval Gandhi

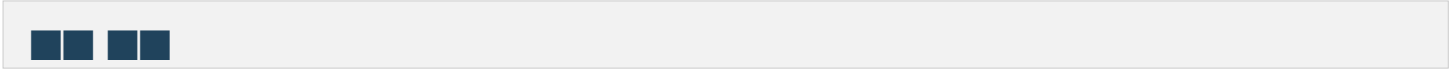
<http://google.com/+UjavalGandhi>

Translations by

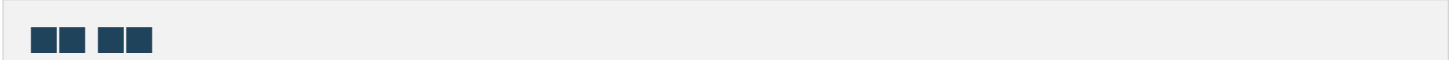
SongHyun Choi



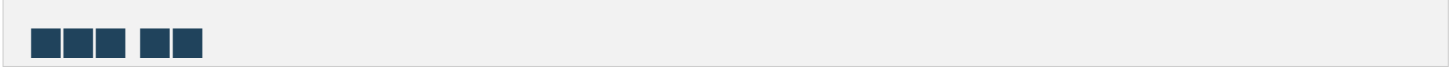






















THE UNITED STATES OF AMERICA  
DOES hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Department of the Interior.



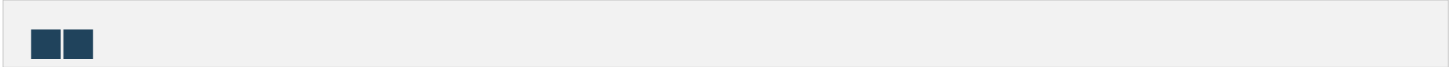
- QGIS 3.16.16 (Lima) (2023-09-14) (doc: performing\_table\_joins)



NOAA's National Geophysical Data Center  
 Significant Earthquake Database  
 tab-delimited earthquake data <[http://www.ngdc.noaa.gov/nndc/struts/results?type\\_0=Exact&query\\_0=\\$ID&t=101](http://www.ngdc.noaa.gov/nndc/struts/results?type_0=Exact&query_0=$ID&t=101)>

Natural Earth  
 Populated Places  
 simple (less columns) dataset <[http://www.naturalearthdata.com/http://www.naturalearthdata.com/download/10m/cultural/ne\\_10m\\_populated\\_places\\_simple.zip](http://www.naturalearthdata.com/http://www.naturalearthdata.com/download/10m/cultural/ne_10m_populated_places_simple.zip)>

■■■ ■■: [NGDC] [NATURALEARTH]



1. `###: ### --> ##### ## ## ## ## ##....:menuselection:`Layer --> Add Delimited Text  
Layer`## ## #####`"signif.txt`#### ##.`



**Create a Layer from a Delimited Text File**

File Name:

Layer name:  Encoding:

File format: ☐ CSV (comma separated values) ☒ Custom delimiters ☐ Regular expression delimiter

☐ Comma 
 ☒ Tab 
 ☐ Space 
 ☐ Colon 
 ☐ Semicolon

Other delimiters:  Quote:  Escape:

Record options: Number of header lines to discard:  ☒ First record has field names

Field options: ☐ Trim fields ☐ Discard empty fields ☐ Decimal separator is comma

Geometry definition: ☒ Point coordinates ☐ Well known text (WKT) ☐ No geometry (attribute only table)

☒ X field:  Y field:  ☐ DMS coordinates

Layer settings: ☒ Use spatial index ☐ Use subset index ☐ Watch file

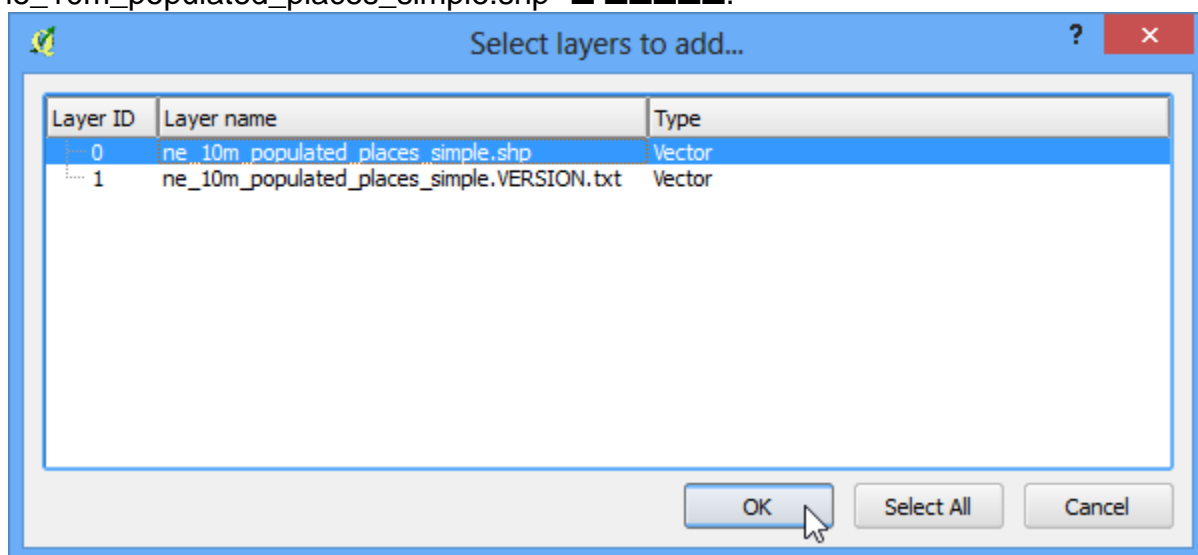
	I_D	FLAG_TSUNAMI	YEAR	MONTH	DAY	HOUR	MINUTE	SECOND	FOCAL_DEPTH	EQ_MAG_MW	EQ_MAG
1	1		-2150								
2	2	Tsu	-2000								
3	3		-2000						18		7.1
4	8		-1566								
5	11		-1450								

3. **Coordinate Reference System Selector**  
 CRS: WGS 84 EPSG:436





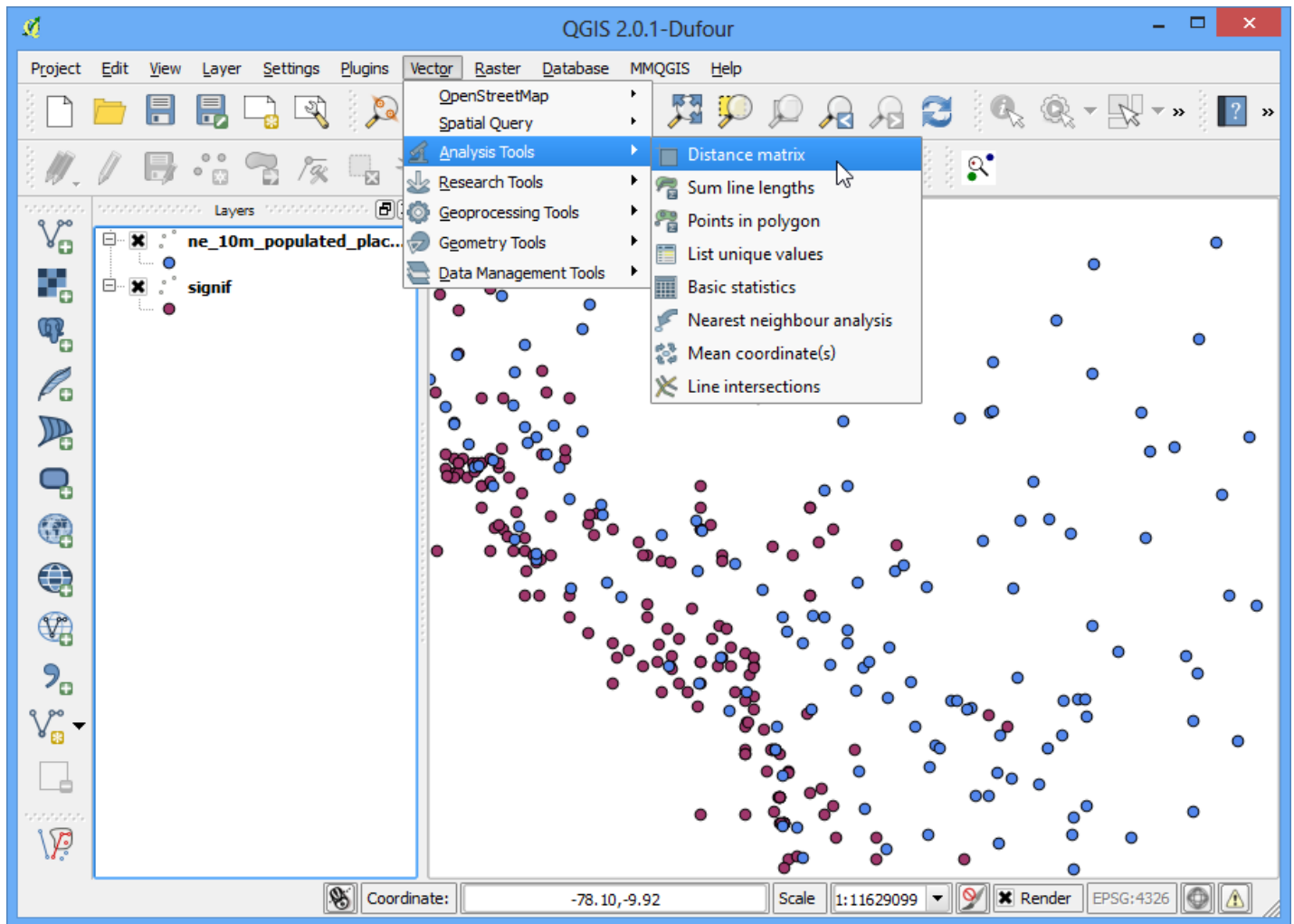
5. `ne_10m_populated_places_simple.zip` :guilabel: Open  
`ne_10m_populated_places_simple.shp` :guilabel: Select layers to add...



6. `ne_10m_populated_places_simple.shp` :guilabel: Open  
`ne_10m_populated_places_simple.VERSION.txt` :guilabel: Select layers to add...



7. ■■■ ■■■ --> ■■■ ■■■ --> ■■■■■■■■■■ :menuselection: `Vector --> Analysis Tools --> Distance Matrix` ■■■■■.



8. Open the 'Distance matrix' tool, select 'ne\_10m\_populated\_places\_simple' as the input layer, and 'signif' as the target layer. Click 'OK' to run the tool. The output file 'matrix.csv' will be created. The tool uses the nearest(k) target points for each input point.

## Note

The 'Distance matrix' tool is used to calculate the distance between two sets of points. It is useful for analyzing the spatial relationship between two datasets.







10. `matrix.csv`. `:guiabel: Geometry definition` `:guiabel: No geometry (attribute only table)` `:guiabel: OK`.

**Create a Layer from a Delimited Text File**

File Name:

---

Layer name:  Encoding:

File format: ☒ CSV (comma separated values) ☐ Custom delimiters ☐ Regular expression delimiter

Record options: Number of header lines to discard:  ☒ First record has field names

Field options: ☐ Trim fields ☐ Discard empty fields ☐ Decimal separator is comma

Geometry definition: ☐ Point coordinates ☐ Well known text (WKT) ☒ No geometry (attribute only table)

Layer settings: ☐ Use spatial index ☐ Use subset index ☐ Watch file

	InputID	TargetID	Distance
1	1	Al Karak	0.221721171014
2	2	Al Ladhiqiyah	0.144408036939
3	3	Buzmeyin	0.0526324624814
4	8	Al Khalil	0.208418004566
5	11	Iraklio	0.408843567409
6	5877	Iraklio	1.1082549107

11. ■■■■■ CSV■■■■■ ■■■■ ■■■■. ■■■■ ■■■■ ■■■■■■ ■■■■■■■■ :guilabel:`Open Attribute Table`■■■■■.



Attribute table - matrix :: Features total: 5727, filtered: 5727, selected: 0

	InputID	TargetID	Distance
0	1	Al Karak	0.221721171014
1	2	Al Ladhihiyah	0.144408036939
2	3	Buzmeyin	0.0526324624814
3	8	Al Khalil	0.208418004566
4	11	Iraklio	0.408843567409
5	5877	Iraklio	1.1082549107
6	9712	Al Ladhihiyah	0.144408036939
7	12	As Salt	0.230569794451
8	13	Al Aqabah	0.10661139997
9	14	Al Qunaytirah	0.34713470868
10	7793	Nabatiye et Tahta	0.256395311798
11	16	Sparti	0.101878534504
12	7794	Saida	0.00326167893321
13	9713	Piraiévs	0.206150410754
14	17	Volos	0.4810609473
15	18	Sparti	0.101878534504
16	5878	Lamia	0.265998307404
17	19	Varamin	0.239101501046
18	20	Patra	0.520403483984
19	21	Iraklio	0.350232618378
20	22	Kavala	1.1152439462
21	9652	Rajkot	0.717056768568

Show All Features

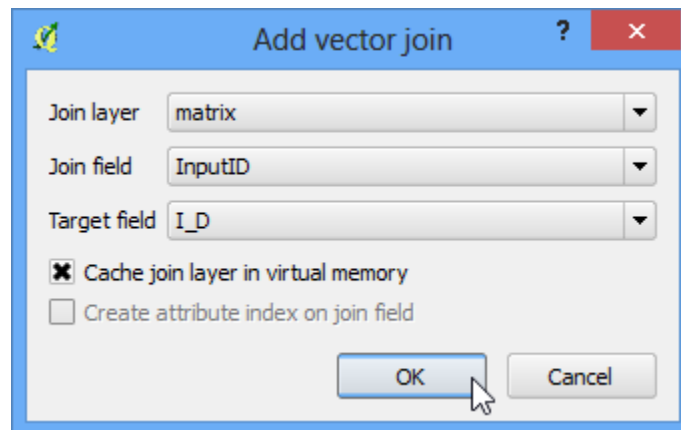
13. **Table Join** **Properties**



14. ■■■ Joins ■■■■ ■■ + ■■■■ ■■■■■■■■.



15. `matrix.csv` is a CSV file. It contains a list of input IDs and their corresponding output IDs. The first column is the input ID and the second column is the output ID.



16. The 'Joins' tab in the 'Layer Properties' dialog box is used to add a vector join. The 'OK' button is used to confirm the settings.



17. ■■■ ■■■■■■ ■■ ■■ ■■■■ ■■■■■■ ■■ ■■■■■■ ■■■ ■■■■■■.





Attribute table - signif :: Features total: 5727, filtered: 5727, selected: 0

	DAMAGE_DESCR	L_HOUSES_DESTR	SES_DESTROYED_I	L_HOUSES_DAM	SES_DAMAGED_D	matrix_TargetID	matrix_Distance
0	NULL	NULL	NULL	NULL	NULL	Al Karak	0.221721171014
1	NULL	NULL	NULL	NULL	NULL	Al Ladhiqiyah	0.144408036939
2	1	NULL	1	NULL	NULL	Buzmeyin	0.0526324624814
3	NULL	NULL	NULL	NULL	NULL	Al Khalil	0.208418004566
4	NULL	NULL	NULL	NULL	NULL	Iraklio	0.408843567409
5	3	NULL	NULL	NULL	NULL	Iraklio	1.1082549107
6	3	NULL	NULL	NULL	NULL	Al Ladhiqiyah	0.144408036939
7	NULL	NULL	NULL	NULL	NULL	As Salt	0.230569794451
8	NULL	NULL	NULL	NULL	NULL	Al Aqabah	0.10661139997
9	NULL	NULL	NULL	NULL	NULL	Al Qunaytirah	0.34713470868
10	NULL	NULL	NULL	NULL	NULL	Nabatiye et Tahta	0.256395311798
11	NULL	NULL	NULL	NULL	NULL	Sparti	0.101878534504
12	NULL	NULL	NULL	NULL	NULL	Saida	0.00326167893321
13	NULL	NULL	NULL	NULL	NULL	Piraiévs	0.206150410754
14	NULL	NULL	NULL	NULL	NULL	Volos	0.4810609473
15	1	NULL	1	NULL	NULL	Sparti	0.101878534504
16	3	NULL	3	NULL	NULL	Lamia	0.265998307404
17	3	NULL	NULL	NULL	NULL	Varamin	0.239101501046
18	3	NULL	3	NULL	NULL	Patra	0.520403483984
19	1	NULL	NULL	NULL	NULL	Iraklio	0.350232618378
20	NULL	NULL	NULL	NULL	NULL	Kavala	1.1152439462
21	NULL	NULL	NULL	NULL	NULL	Raikot	0.717056768568

Show All Features