G sirea poligoanelor învecinate dintr-un strat

QGIS Tutorials and Tips



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G■sirea Poligoanelor Învecinate Dintr-un Strat

Exist unele cazuri de utilizare, când se dore te gesirea tuturor poligoanelor învecinate, pentru fiecare dintre poligoanele dintr-un strat. Cu un mic script în Python, putem realiza acest lucru imulte altele, în QGIS. Aici este un exemplu de script, pe care îl pute folosi pentru a gesi toate poligoanele care au grani comun, pentru fiecare dintre poligoanele stratului i, de asemenea, se le adeuga in numele în tabela de atribute. Ca bonus, script-ul însumeaz un atribut, la alegere, din toate poligoanele învecinate.

Privire de ansamblu asupra activit

Pentru a demonstra modul în care func**■**ioneaz**■** script-ul, vom folosi un strat poligonal de **■■**ri **■**i vom g**■**si **■**∎rile care împart aceea**■**i frontier**■**. De asemenea, vom calcula totalul popula**■**iei din **■**∎rile învecinate.

Ob■inerea datelor

Vom folosi setul de date Admin 0 - ■ ri de la Natural Earth.

Vom folosi setul de date Admin 0 - fi■ierul shape al ■■rilor.

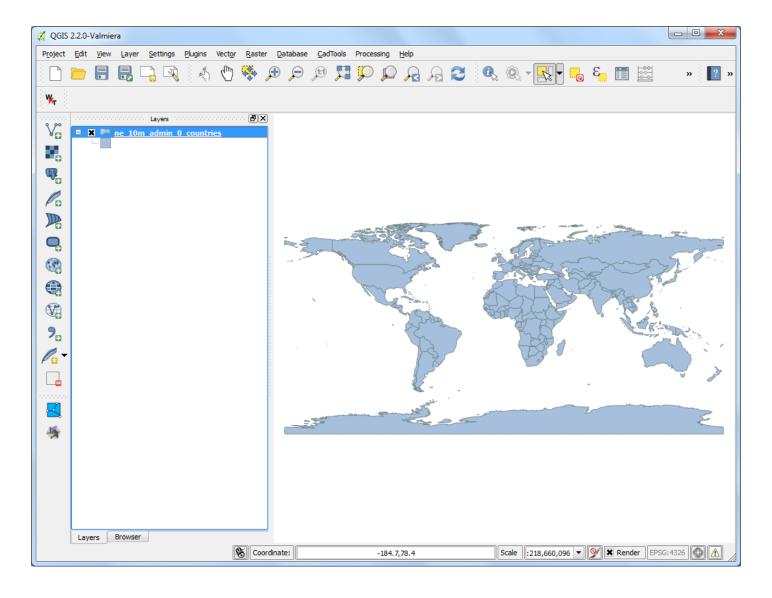
Sursa de date [NATURALEARTH]

Ob■inerea script-ului

Descurcati script-ul neighbors.py i salvati-l pe discul dumneavoastr.

Procedura

1. Înc■rca■i stratul ne_10m_admin_0_countries mergând la Layer ■ Add Vector Layer.



2. Script-ul folose

te 2 câmpuri pentru a efectua ac

iunea. Un câmp pentru nume,

i un câmp pe care dori

i s

-l însuma

i. Utiliza

i instrumentul *Identify* pentru a face clic pe orice element, pentru a-i examina atributele. În acest caz, câmpul pentru nume este NAME,

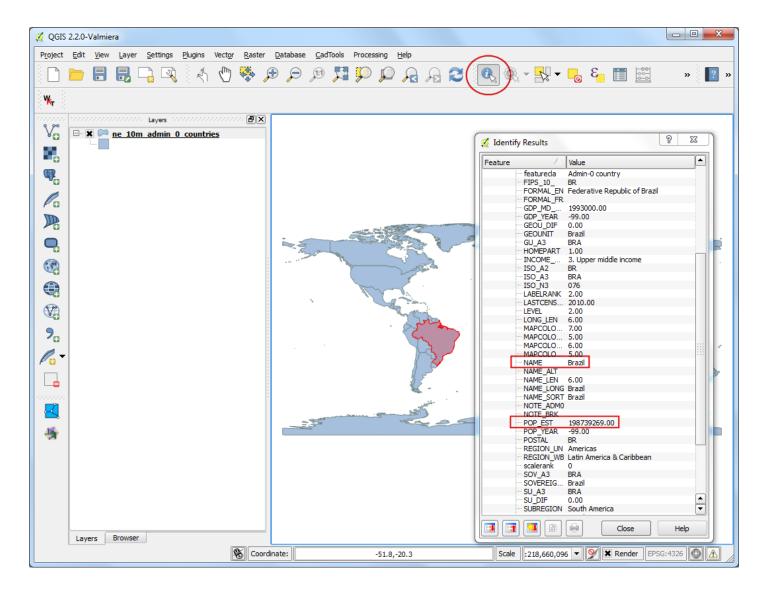
i dorim s

însum

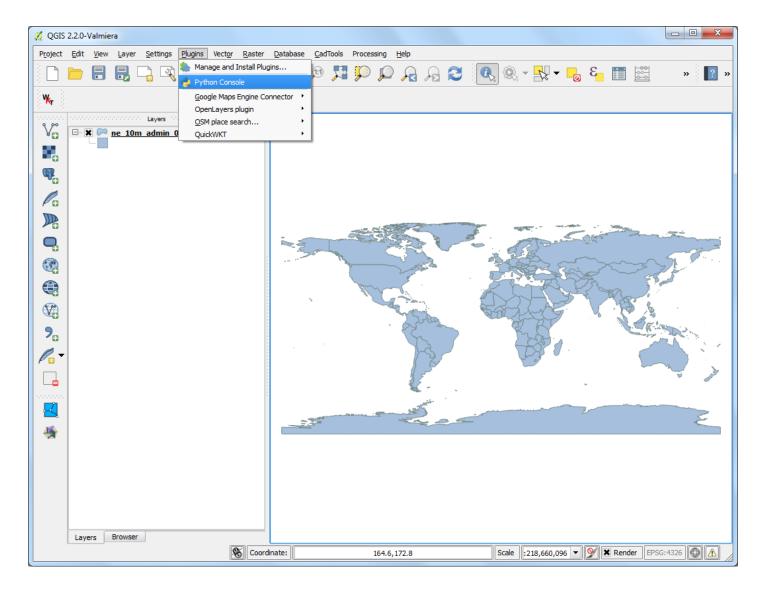
m estim

rile de popula

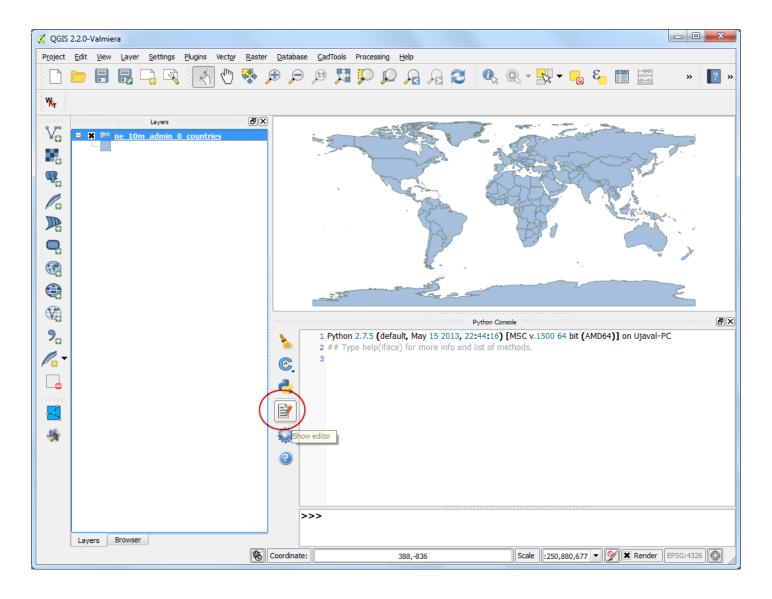
ie din câmpul POP_EST.



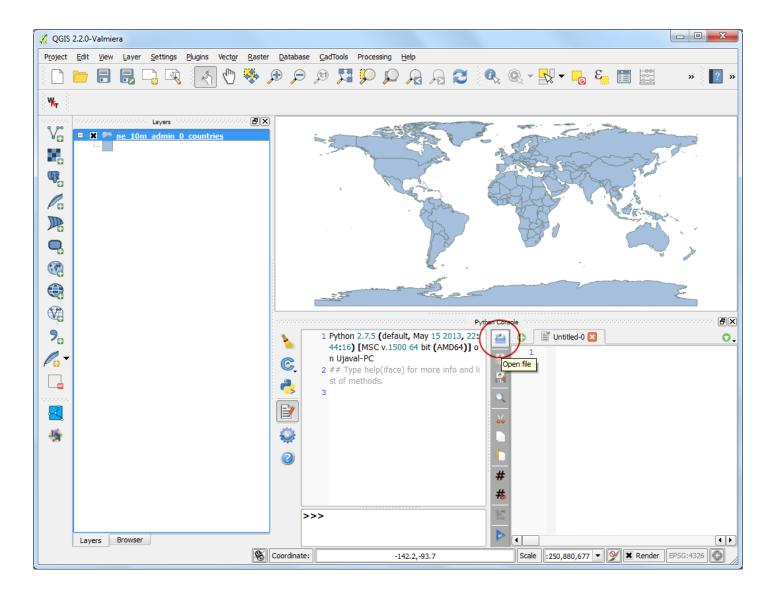
3. Merge**■**i la *Plugins* ■ *Python Console*.



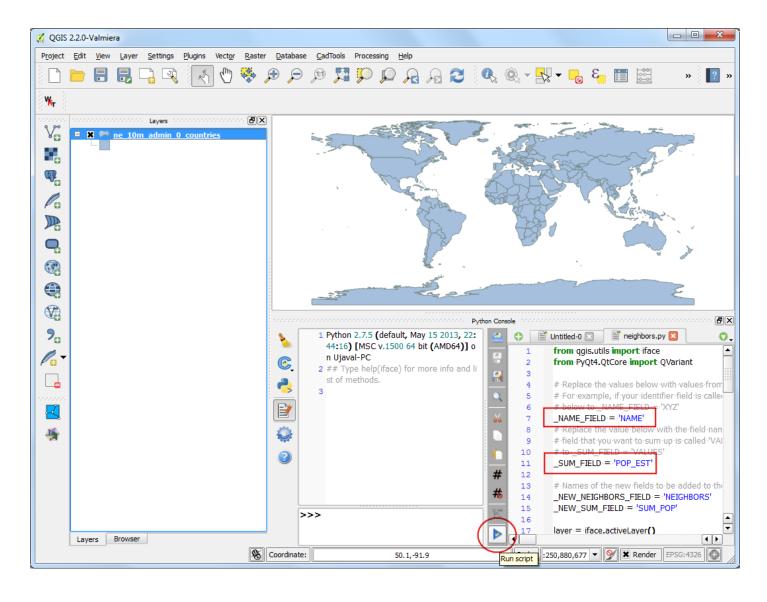
4. În fereastra *Python Console*, face**■**i clic pe butonul *Show Editor*.



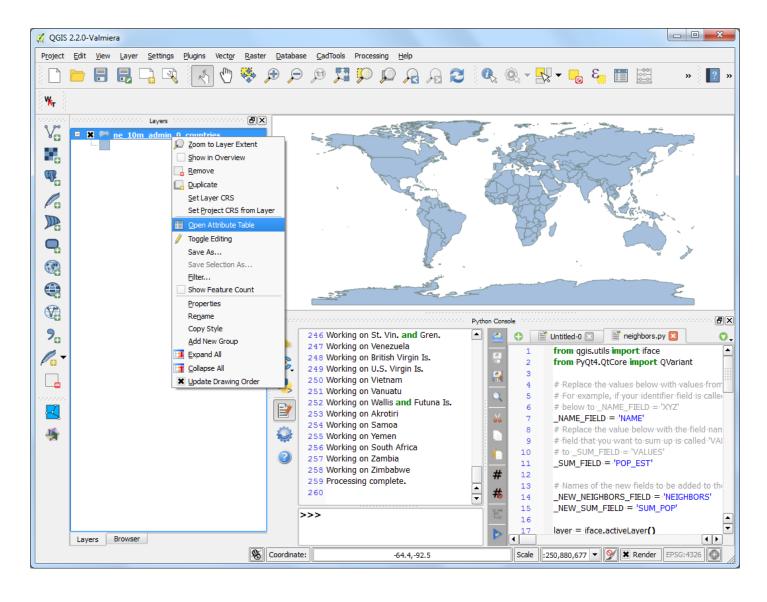
5. În panoul *Editor*, face**■**i clic pe butonul *Open file*, naviga**■**i la script-ul desc**■**rcat neighbors.py **■**i ap**■**sa**■**i *Open*.



6. O dat ce script-ul este înc rcat, este posibil s dori i s schimba i valorile NAME_FIELD i _SUM_FIELD pentru a se potrivi cu atributele din propriul strat. Dac lucra i cu stratul ne_10m_admin_0_countries, le pute i l sa a a cum sunt. Face i clic pe butonul Save din panoul Editor, dac a i f cut vreo schimbare. Apoi ap sa i butonul Run script pentru a rula script-ul.



7. O dat ce script-ul se încheie, face i clic-dreapta pe stratul ne_10m_admin_0_countries, apoi selecta i Open Attribute Table.



8. Ve■i observa 2 noi atribute, numite NEIGHBORS ■i SUM. Acestea au fost ad■ugate de c■tre script.

		E E							
	ION	REGION_WB	NAME_LEN	LONG_LEN	ABBREV_LEN	TINY	HOMEPART	NEIGHBORS	SUM
)		Latin America &	5.00	5.00	5.00	4.00	-99.00	NULL	(
1	sia	South Asia	11.00	11.00	4.00	-99.00	1.00	Iran,Turkmenista	1621125240
2	a	Sub-Saharan Africa	6.00	6.00	4.00	-99.00	1.00	Namibia,Zambia,	86676756
3		Latin America &	8.00	8.00	4.00	-99.00	-99.00	NULL	(
4	ırope	Europe & Central	7.00	7.00	4.00	-99.00	1.00	Macedonia,Greec	15281164
5	ırope	Europe & Central	5.00	13.00	5.00	5.00	-99.00	NULL	(
6	ırope	Europe & Central	7.00	7.00	4.00	5.00	1.00	France,Spain	104582794
7	ia	Middle East & No	20.00	20.00	6.00	-99.00	1.00	Saudi Arabia,Oman	32104718
8	ica	Latin America &	9.00	9.00	4.00	-99.00	1.00	Bolivia,Paraguay,	235606259
9	ia	Europe & Central	7.00	7.00	4.00	-99.00	1.00	Georgia,Turkey,I	156089287
10		East Asia & Pacific	14.00	14.00	9.00	3.00	-99.00	NULL	(
11		Antarctica	10.00	10.00	4.00	-99.00	1.00	NULL	(
12	d Ne	East Asia & Pacific	23.00	27.00	7.00	-99.00	-99.00	NULL	(
13	(ope	Sub-Saharan Africa	22.00	35.00	10.00	2.00	-99.00	NULL	(
14		Latin America &	17.00	19.00	6.00	4.00	1.00	NULL	(
15	d Ne	East Asia & Pacific	9.00	9.00	4.00	-99.00	1.00	NULL	(
16	rope	Europe & Central	7.00	7.00	5.00	-99.00	1.00	Italy,Hungary,Slo	175681436
17	ia	Europe & Central	10.00	10.00	4.00	-99.00	1.00	Georgia,Turkey,R	290858866
18	ica	Sub-Saharan Africa	7.00	7.00	4.00	-99.00	1.00	Rwanda, Tanzani	120214356
19	rope	Europe & Central	7.00	7.00	5.00	-99.00	1.00	France,Netherla	163595324
20	rica	Sub-Saharan Africa	5.00	5.00	5.00	-99.00	1.00	Nigeria,Niger,Bur	186301451
21	rica	Sub-Saharan Africa	12.00	12.00	4.00	-99.00	1.00	Mali,Niger,Ghana	87234511
22	sia	South Asia	10.00	10.00	5.00	-99.00	1.00	India,Myanmar	1214216958
4	4								[4]

Pentru referin , mai jos este script-ul complet. Îl pute i modifica pentru a se potrivi cerin elor dumneavoastr.

```
# Copyright 2014 Ujaval Gandhi
#This program is free software; you can redistribute it and/or
#modify it under the terms of the GNU General Public License
#as published by the Free Software Foundation; either version 2
#of the License, or (at your option) any later version.
#This program is distributed in the hope that it will be useful,
#but WITHOUT ANY WARRANTY; without even the implied warranty of
#MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
#GNU General Public License for more details.
#You should have received a copy of the GNU General Public License
#along with this program; if not, write to the Free Software
#Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA.
from qgis.utils import iface
from PyQt4.QtCore import QVariant
# Replace the values below with values from your layer.
# For example, if your identifier field is called 'XYZ', then change the line
```

```
# below to _NAME_FIELD = 'XYZ'
_NAME_FIELD = 'NAME'
# Replace the value below with the field name that you want to sum up.
# For example, if the # field that you want to sum up is called 'VALUES', then
# change the line below to _SUM_FIELD = 'VALUES'
_SUM_FIELD = 'POP_EST'
# Names of the new fields to be added to the layer
_NEW_NEIGHBORS_FIELD = 'NEIGHBORS'
_NEW_SUM_FIELD = 'SUM'
layer = iface.activeLayer()
# Create 2 new fields in the layer that will hold the list of neighbors and sum
# of the chosen field.
layer.startEditing()
layer.dataProvider().addAttributes(
        [QgsField(_NEW_NEIGHBORS_FIELD, QVariant.String),
         QgsField(_NEW_SUM_FIELD, QVariant.Int)])
layer.updateFields()
# Create a dictionary of all features
feature_dict = {f.id(): f for f in layer.getFeatures()}
# Build a spatial index
index = QgsSpatialIndex()
for f in feature_dict.values():
    index.insertFeature(f)
# Loop through all features and find features that touch each feature
for f in feature_dict.values():
   print 'Working on %s' % f[_NAME_FIELD]
    geom = f.geometry()
    # Find all features that intersect the bounding box of the current feature.
    # We use spatial index to find the features intersecting the bounding box
    # of the current feature. This will narrow down the features that we need
    # to check neighboring features.
    intersecting_ids = index.intersects(geom.boundingBox())
    # Initalize neighbors list and sum
   neighbors = []
   neighbors_sum = 0
    for intersecting_id in intersecting_ids:
        # Look up the feature from the dictionary
        intersecting_f = feature_dict[intersecting_id]
        # For our purpose we consider a feature as 'neighbor' if it touches or
        # intersects a feature. We use the 'disjoint' predicate to satisfy
        # these conditions. So if a feature is not disjoint, it is a neighbor.
        if (f != intersecting_f and
            not intersecting_f.geometry().disjoint(geom)):
            neighbors.append(intersecting_f[_NAME_FIELD])
            neighbors_sum += intersecting_f[_SUM_FIELD]
    f[_NEW_NEIGHBORS_FIELD] = ','.join(neighbors)
    f[_NEW_SUM_FIELD] = neighbors_sum
    # Update the layer with new attribute values.
    layer.updateFeature(f)
```

layer.commitChanges()

print 'Processing complete.'