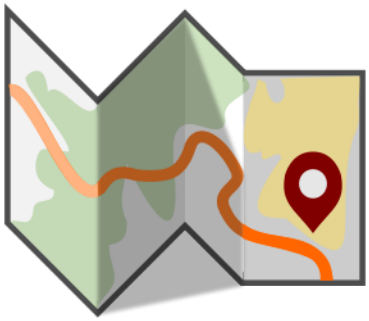
Getting Started with Python Programming

QGIS Tutorials and Tips



Author

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Translations by

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QGIS■ ■■■ ■■■■■ ■■■■■■ ■■■ ■■■ ■■■■ ■■■■■■ ■■ ■■■ ■■■ ■ ■■ ■■■ ■■■■■ ■■■■■ ■■■ ■ ■ ■■■■. QGIS■ ■■ ■■■■ ■■■ ■■■■ ■■■ ■■■■■. ■■■■■ ■■■ ■■■ ■■■■ QGIS ■■■■■ ■■■■■■ ■■■ ■■■ ■■ ■■■■ ■ ■■■■. ■ ■■■■■ ■■■ ■■■■■ ■■ ■■■ ■■■ ■■■■ QGIS (PyQGIS)■ ■■■■ ■■■■■ ■■■.

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■■■■■ ■■ ■■ ■■■ ■■■■ ■■ ■ ■■■■ ■■■■ ■■■ ■■■■■■ ■■■■■ ■■■ ■■, ■■■■, ■ ■■■ ■■■ ■■■ ■■■■■■ ■■ ■■■■.

■■■ ■■

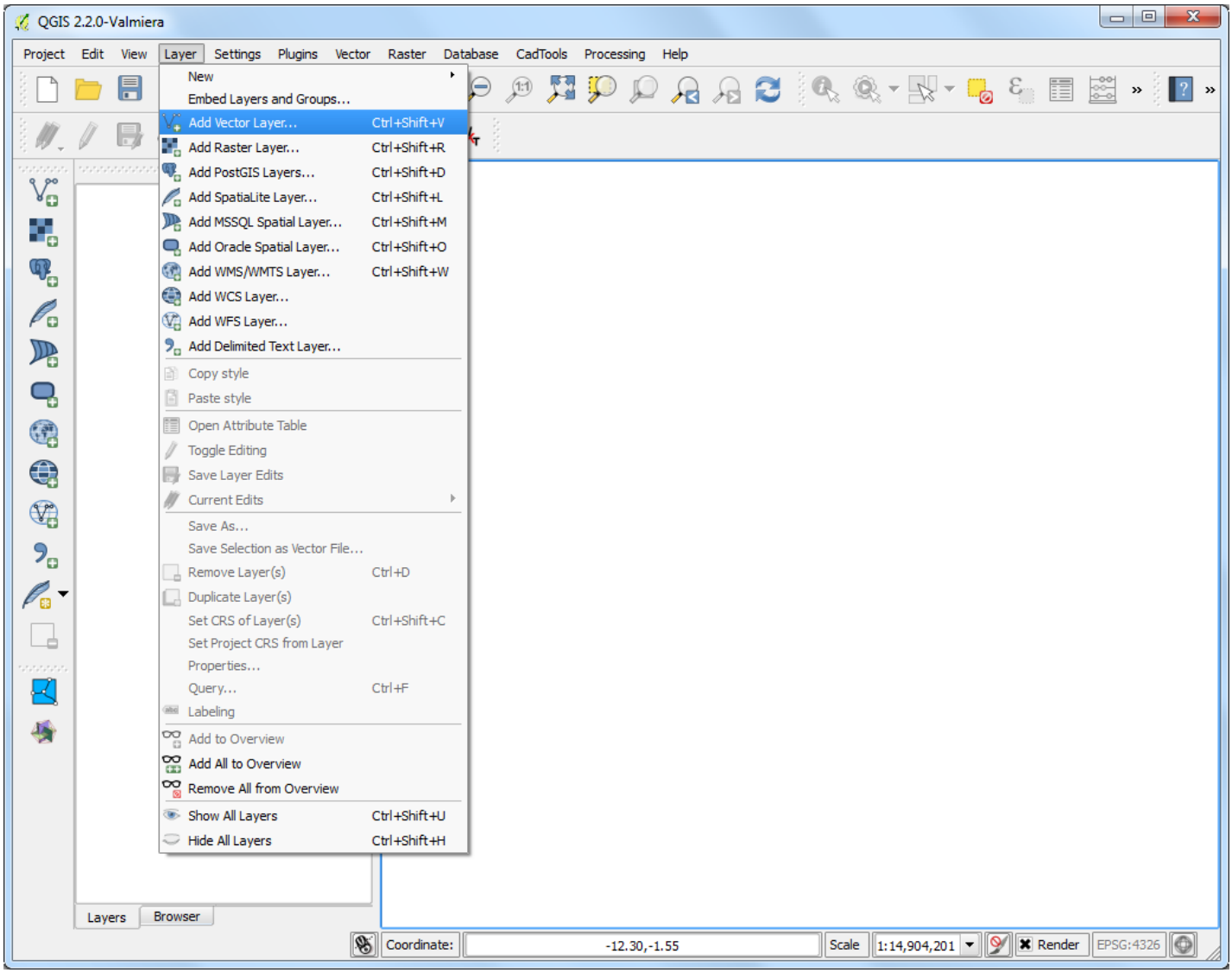
Natural Earth■ Airports ■■■■■ ■■■■■.

`Airports shapefile <http://www.naturalearthdata.com/http//www.naturalearthdata.com/download/10m/cultural/ne_10m_airports.zip>`_■ ■■■■ ■■■■.

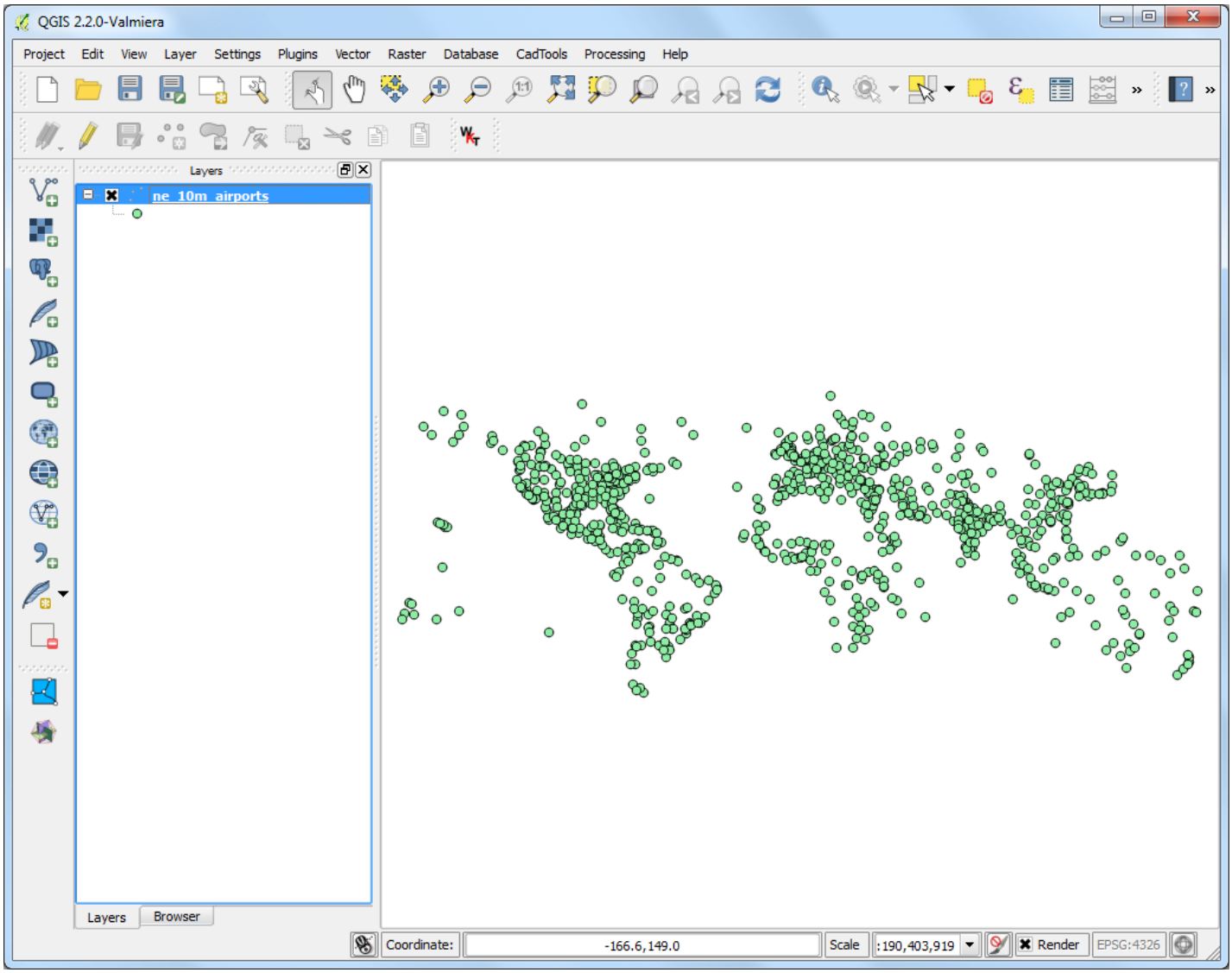
■■■ ■■: [NATURALEARTH]

■■

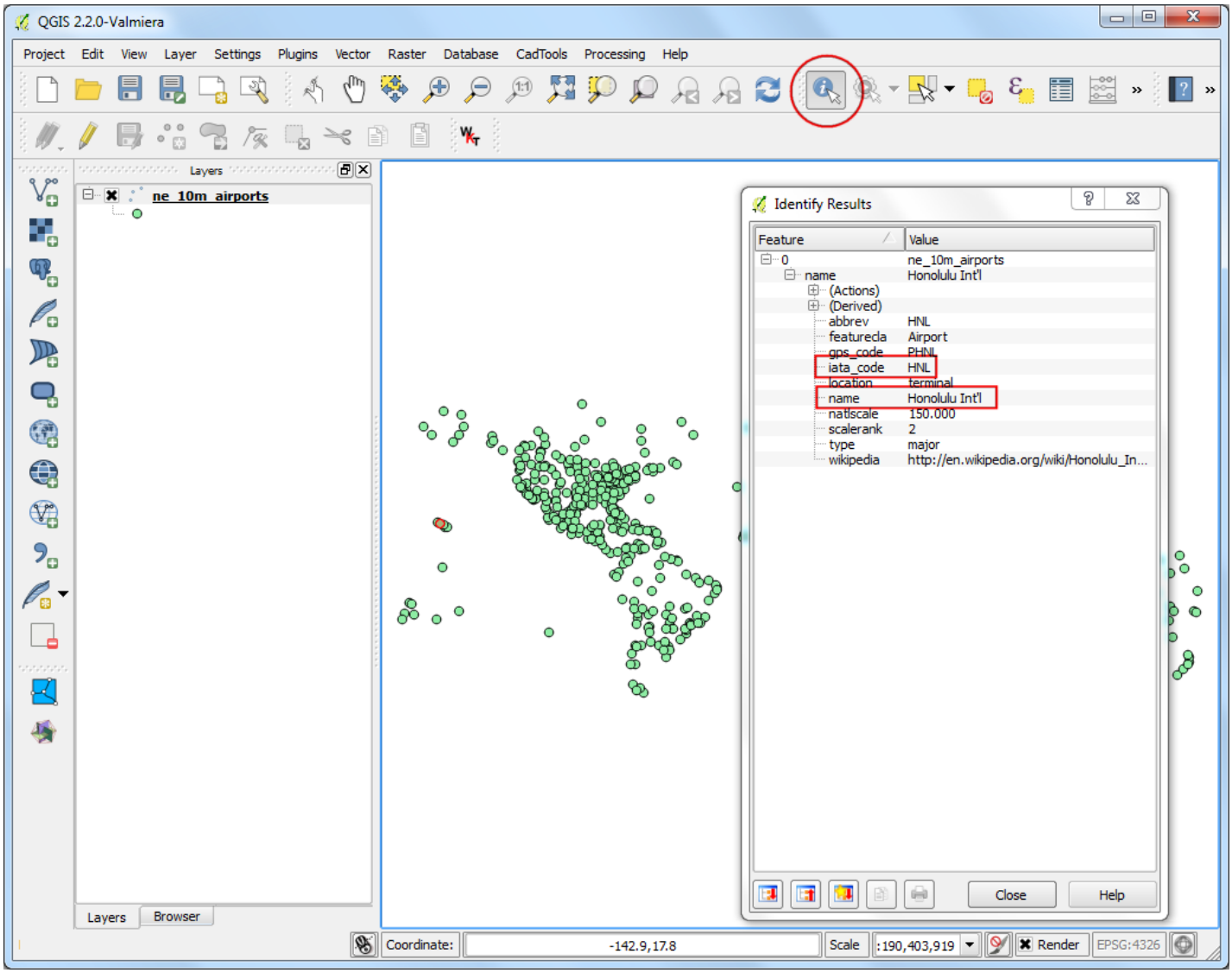
1. QGIS■■ ■■ ■■■ --> ■■■ ■■ --> ■■ ■■■ ■■ :menuselection:`Layers --> Add Vector Layer`■ ■■■■. ■■■■■ ``ne_10m_airports.zip``■■■ ■■ ■■ :guilabel:`Open`■ ■■■■. ``ne_10m_airports.shp``■■■■ ■■■■ ■■ :guilabel:`OK`■ ■■■■.



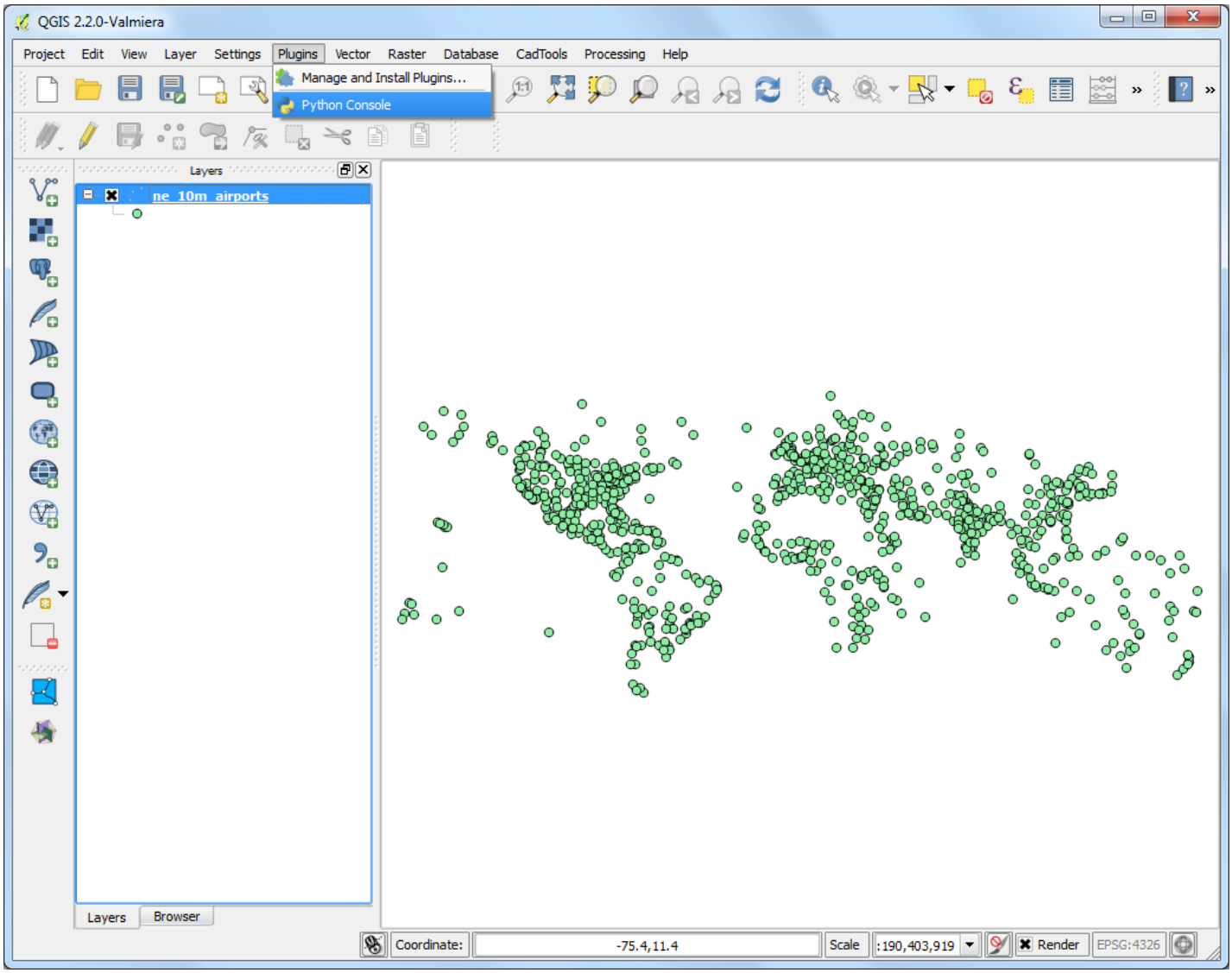
2. QGIS■ ``ne_10m_airports``■■■■ ■■■■■ ■■■■.



3. ■■ ■■ *Identify* ■■ ■■■■■ ■■■■■■ ■■■■ ■■■■■ ■■ ■■ ■■■■ ■■■■■. ■■■■■■ ■■■■ 3■■■■ ■■■■ ■■■■ ``name``■ ``iata_code``■ ■■ ■■■■■ ■■ ■■ ■■■■■■.

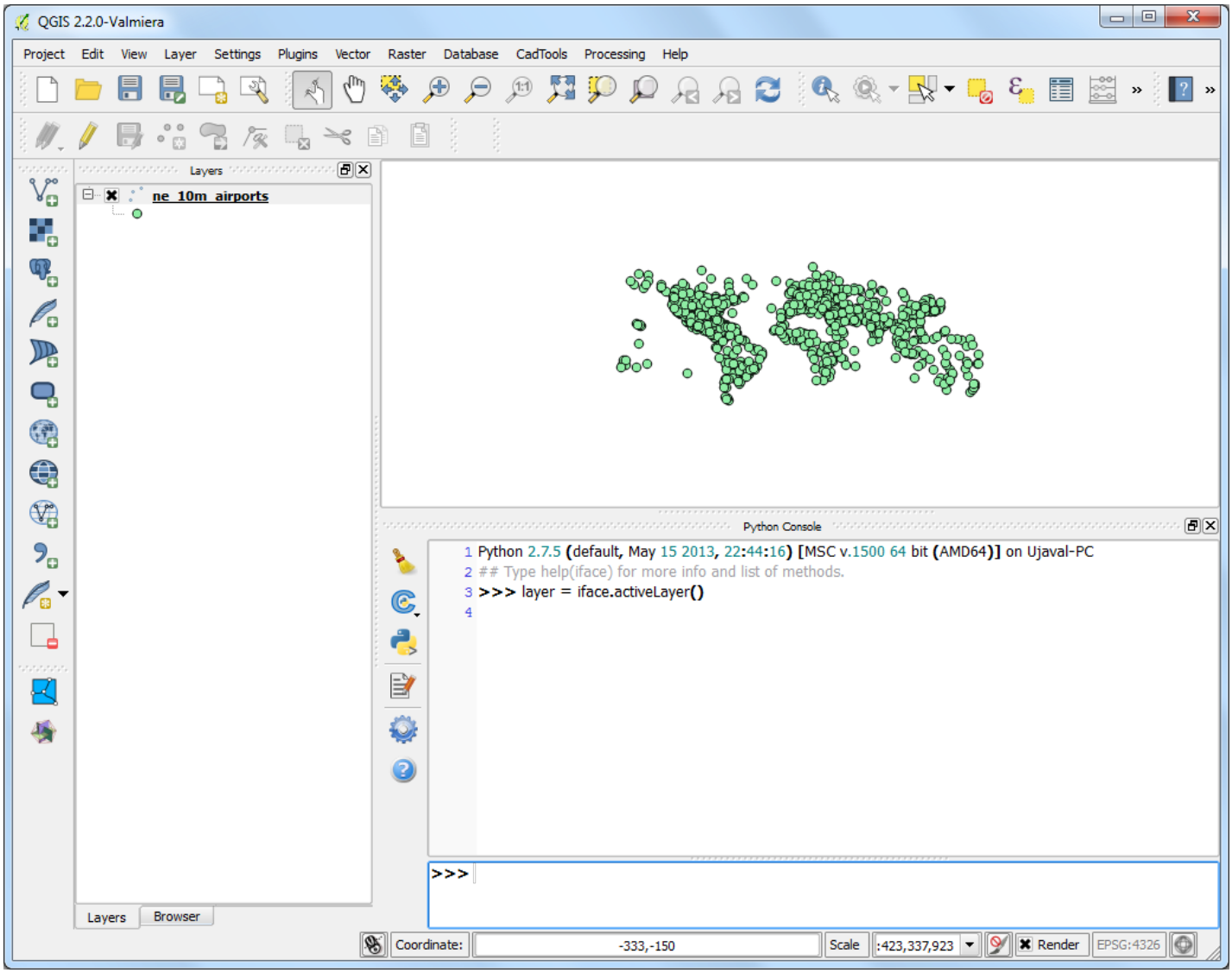


4. QGIS■ ■■■ ■■■■ ■■■ ■ ■■ ■■■ ■■ ■ ■■ ■■■ ■■■■■ ■■■■■. ■ ■■■ ■■■■■ ■■ ■ ■■ ■■ ■■ ■■■■ ■■ ■■■■ ■■■ ■■■ ■ ■■■■. ■■ ■■■■ --> Python ■■ :menuselection:`Plugins --> Python Console`■ ■■ Python ■■ :guilabel:`Python Console`■ ■■■.



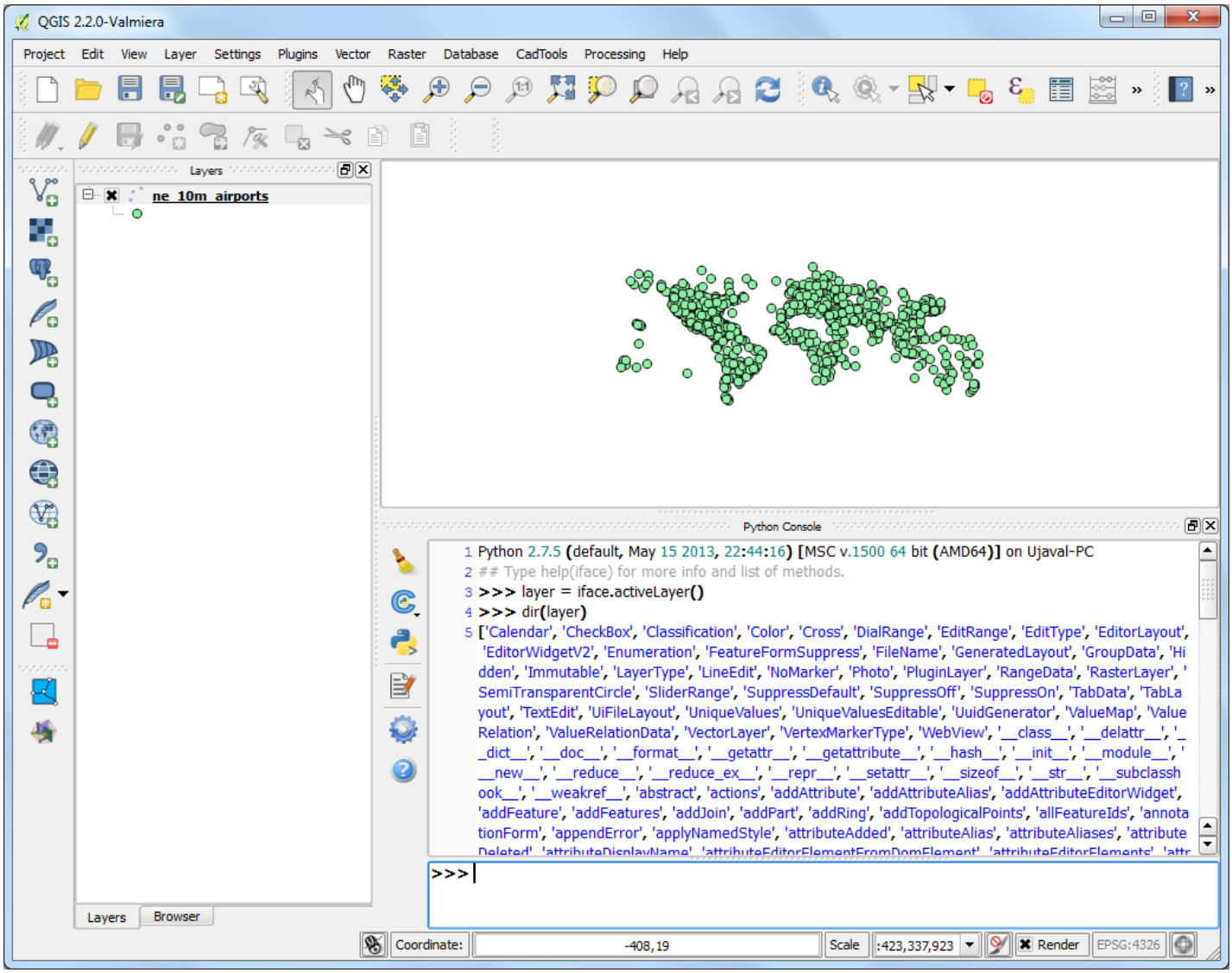
5. QGIS ■■■ ■■■■ ■■■ ■■■ ■■■ ■■ ■■ ■■■■. ■■■■ ■■■ ■ ■■ ■■■■ >>>``■ ■■ ■■■■■ ■■■ ■■■■. QGIS■■■ ■■■■■■■ ``iface ■■■ ■■■■■ ■■■. QGIS■■ ■■ ■■■■ ■■■■ ■■■■ ■■■ ■■■ ■■ ■■■■■ ■■ Enter`■ ■■■■. ■ ■■■■ ■■■■■ ■■ ■■■■ ■■■■ ■■■■ ``layer` ■■■ ■■■■■.

```
layer = iface.activeLayer()
```



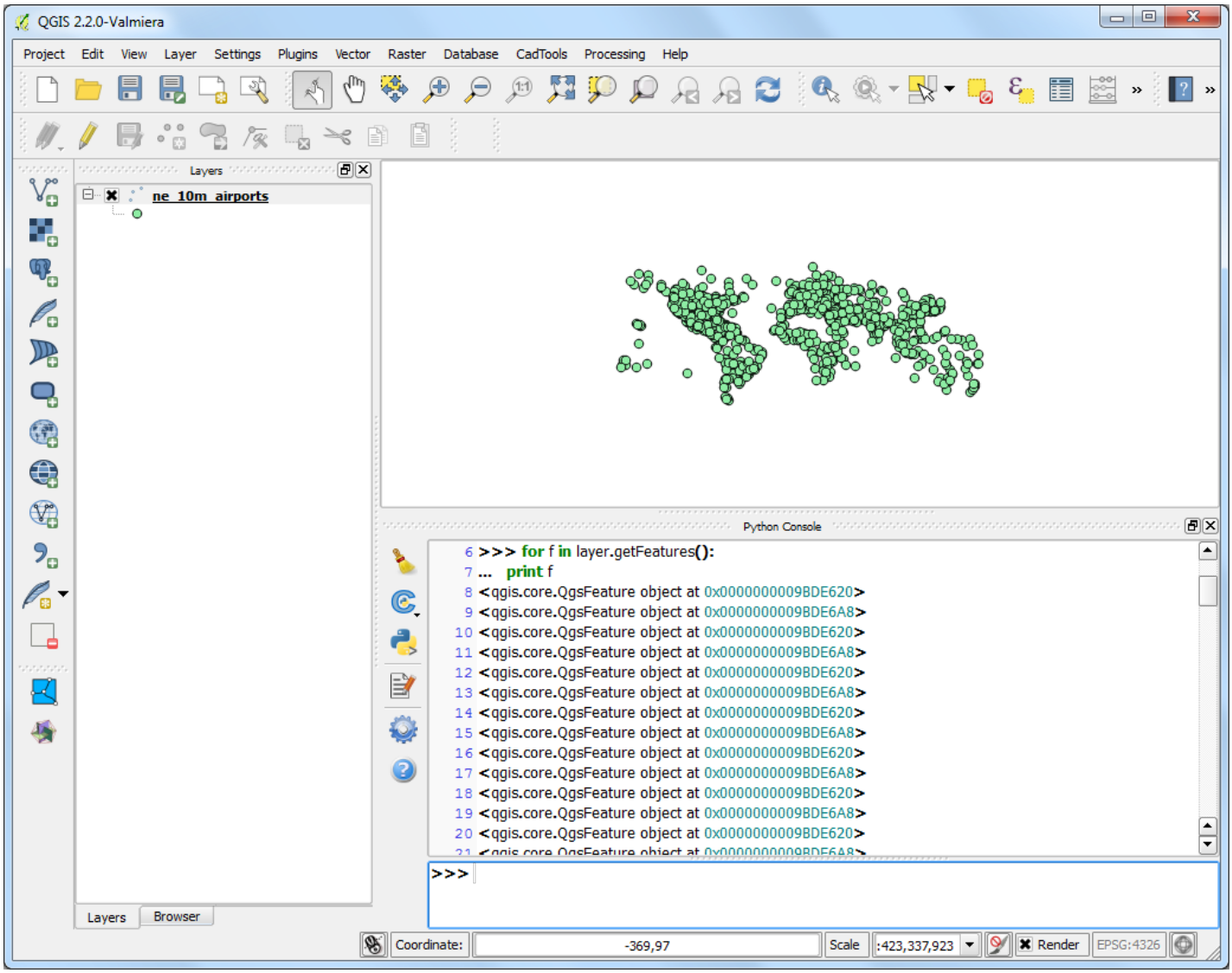
6. ``dir()`` [illegible] ``layer`` [illegible].

```
dir(layer)
```



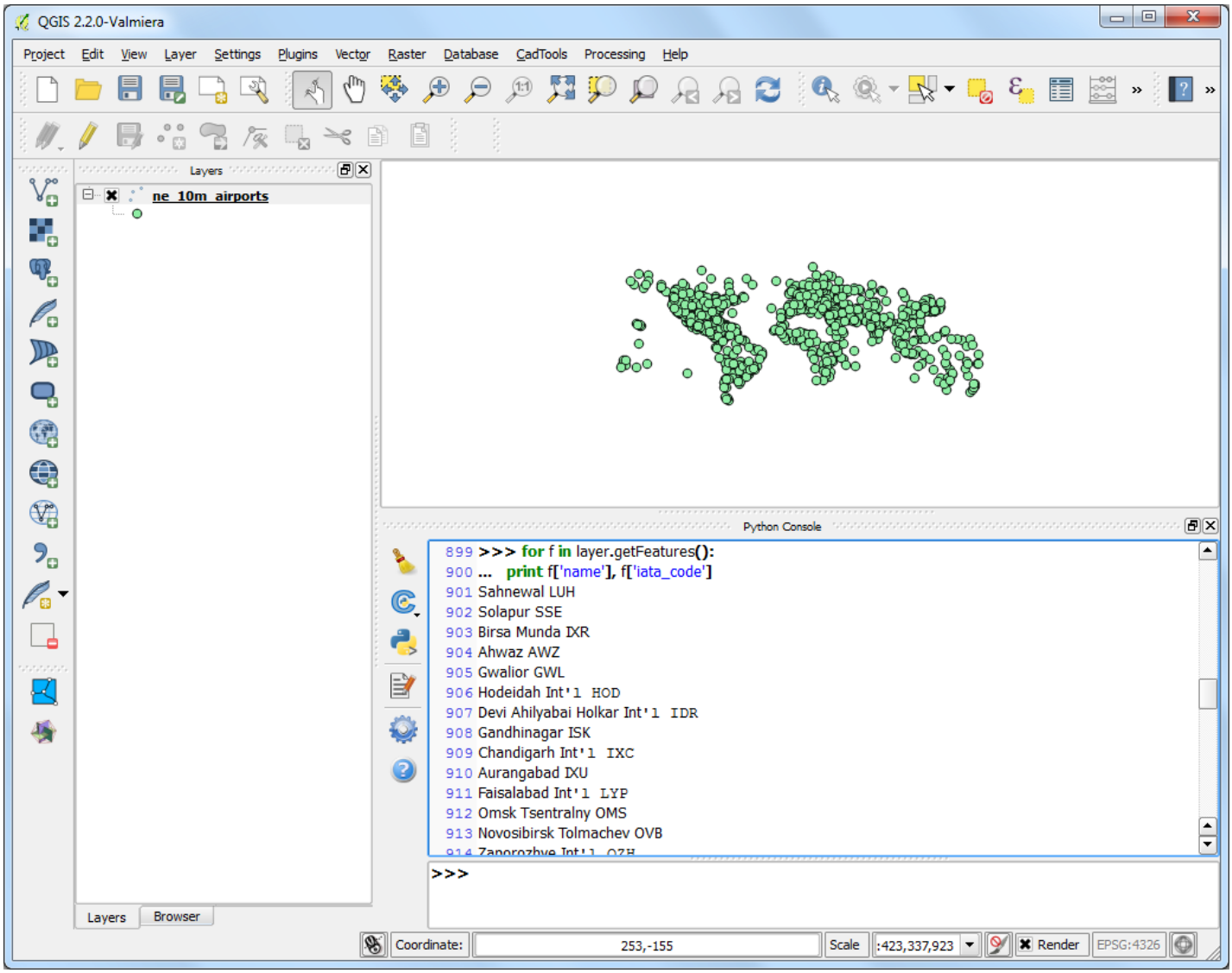
7. ■ ■■■■ ■■■■■■ ■■■■ ■■■■ ■■■■■. ■■ ■■■■■ ■■ ■■■■ ■■■■■■ ■■■■■ ``getFeatures()``■■ ■■■■ ■■■■ ■■■■■. ■ ■■ ■ ■■■■ ■■■■ ■■■■■ ■■ ■ ■■■■■. ■■■■ ■■■■■■ ■ ■■■■ ■■ ■■■■■ ■■■■ ■■■■ ■■■■ ■ ■■■■■. ■■■■ ■■ ■■■■ ■■ ■■ ■■■■ ■■■■■■ ■■■■■ ■■ ■■■■■■■.

```
for f in layer.getFeatures():
  print f
```



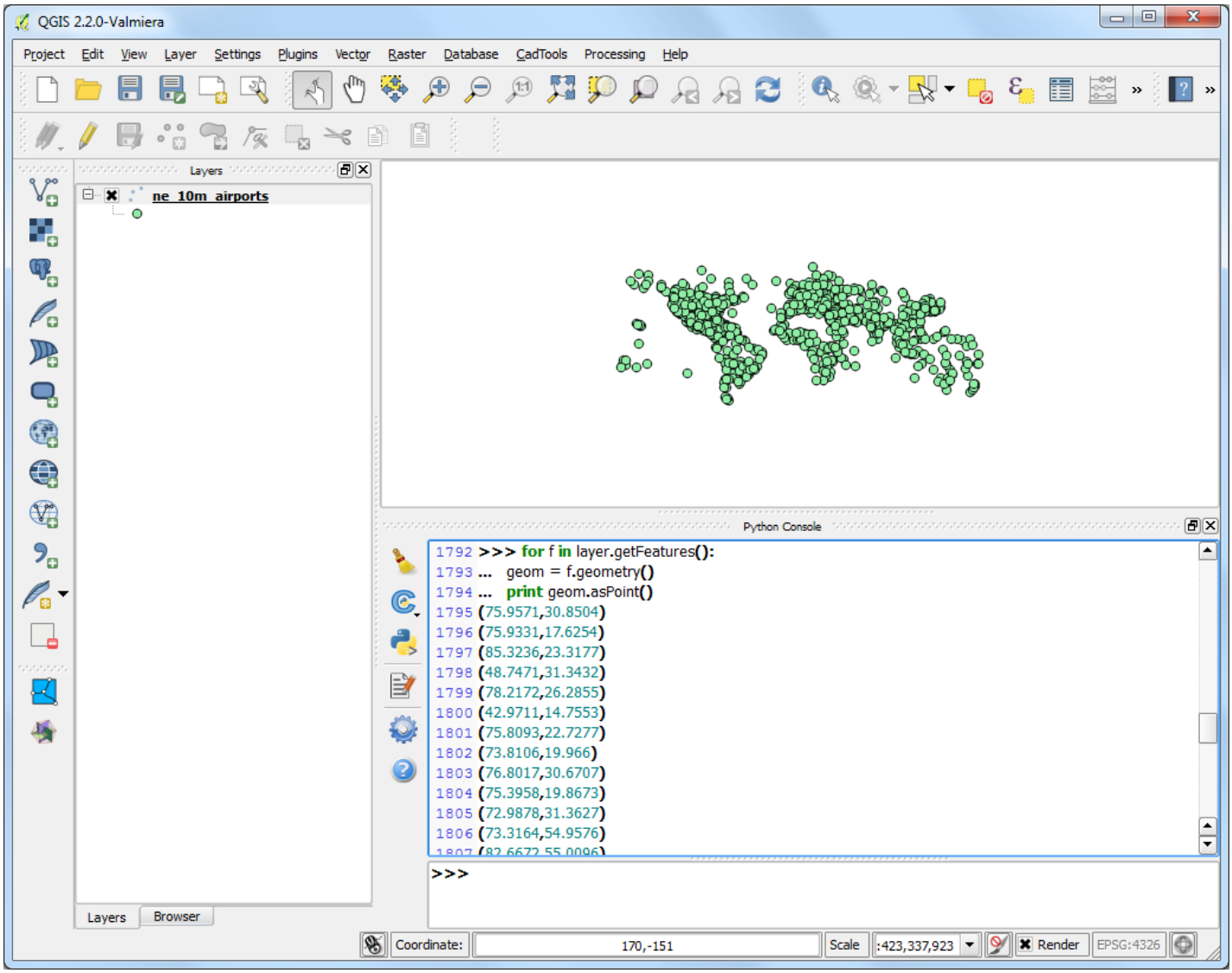
8. ■■■■■ ■■■■■ ■ ■■ ■ ■■■■■ ■■■■ ■■ ■■■■ ■■■■■■ ■■■■■ ■■■■■. ■■■■ ■■■■■■ ``f``■■■■ ■■■■■■. ■ ■■■■ ■■■■ ■■■■■ ■■ ``f``■■■■ ■■■■ ■ ■■■■■. ■ ■■ ■■■■ ■■ ``name``■ ``iata_code``■ ■■■■■ ■■ ■■■■ ■■ ■■■■■■.

```
for f in layer.getFeatures():
  print f['name'], f['iata_code']
```



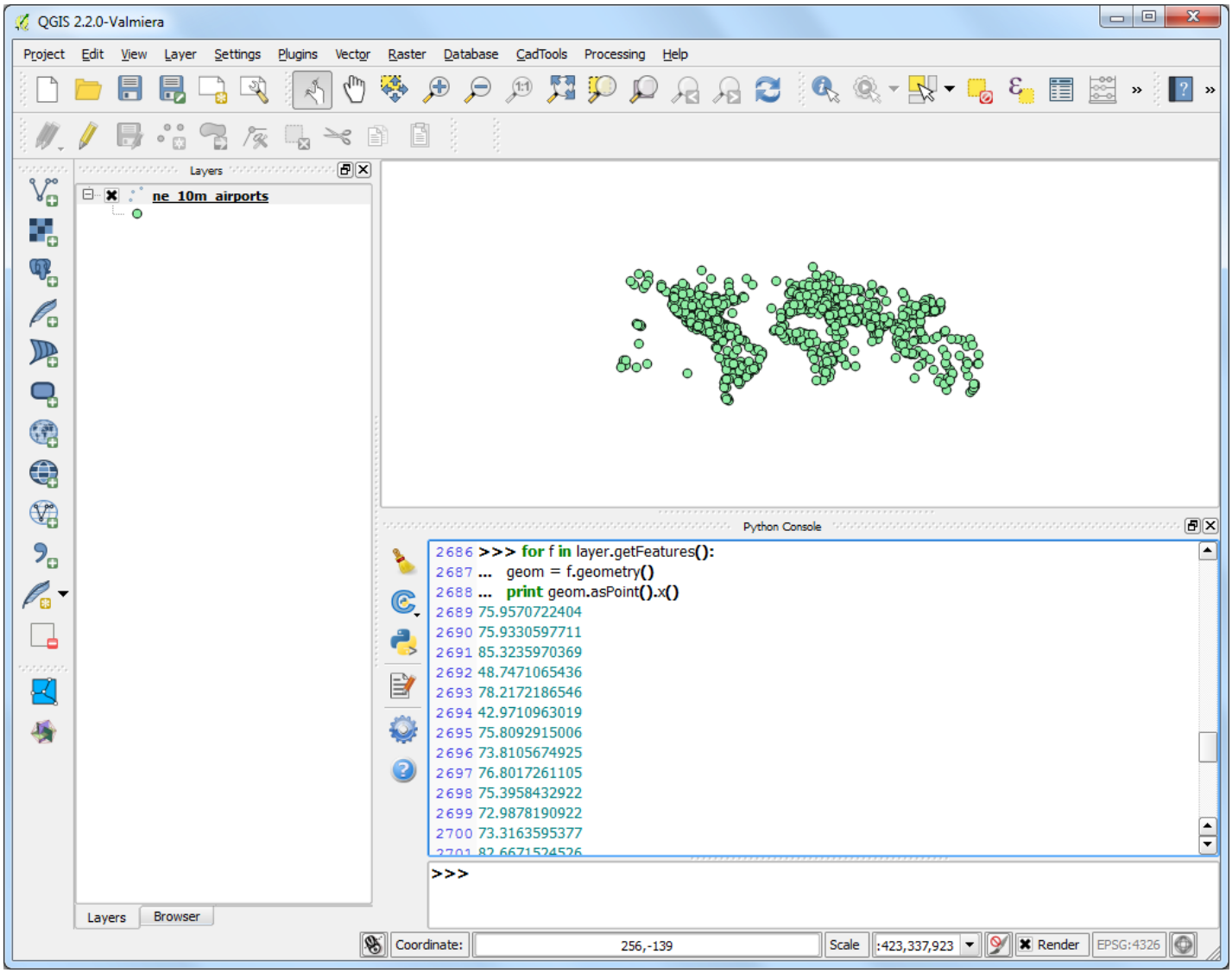
[illegible] [illegible] [illegible] [illegible] [illegible]. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] ``geom`` [illegible] [illegible] [illegible] [illegible]. [illegible] x, y[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] ``asPoint()`` [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] :kbd:`Enter`[illegible] [illegible].

```
for f in layer.getFeatures():
  geom = f.geometry()
  print geom.asPoint()
```



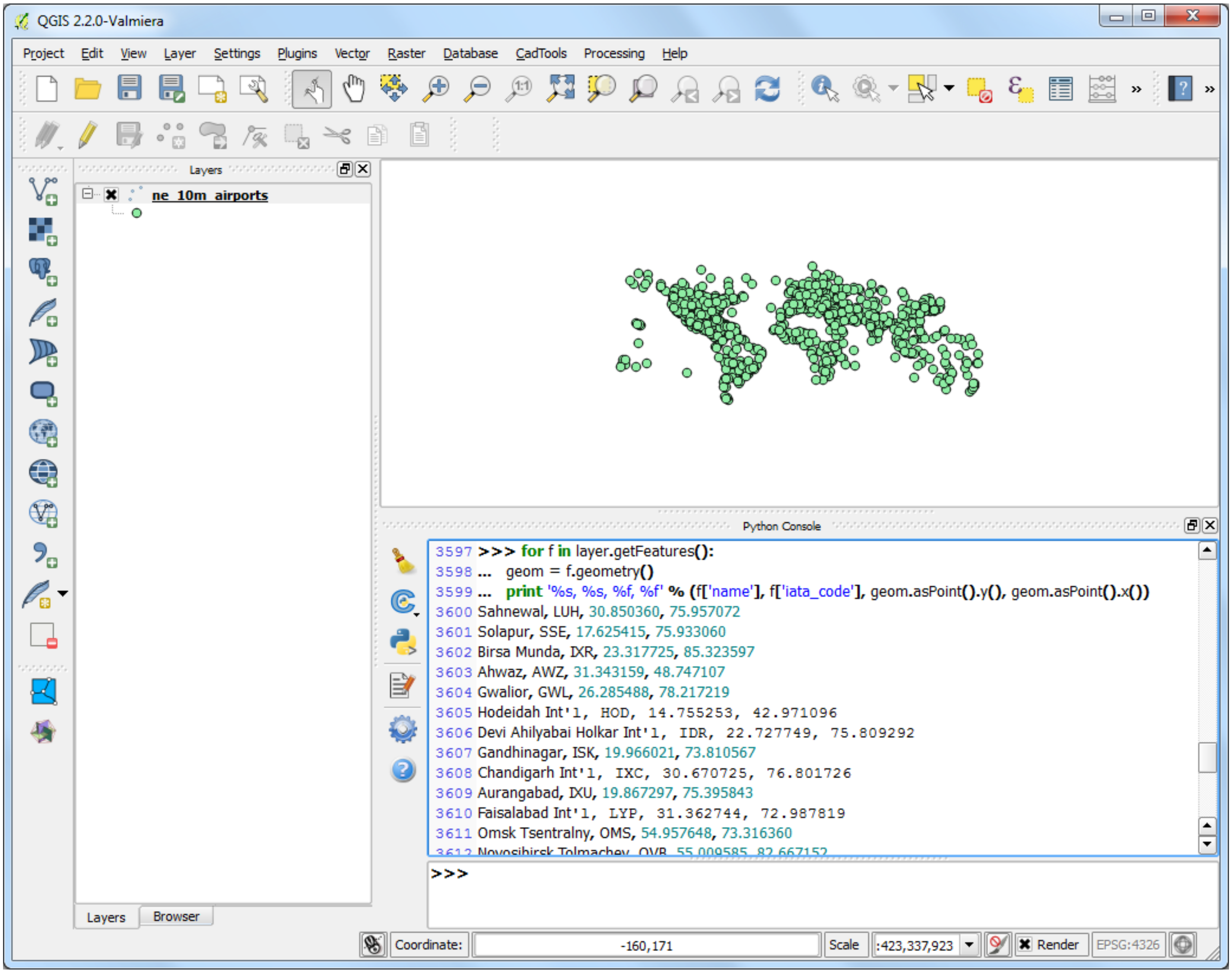
10. ■■■ x ■■■ ■■■ ■■■ ■■■■? ■ ■■■ ■■ ``x()``■■■ ■■ x■■■ ■■ ■ ■■■■.

```
for f in layer.getFeatures():
  geom = f.geometry()
  print geom.asPoint().x()
```



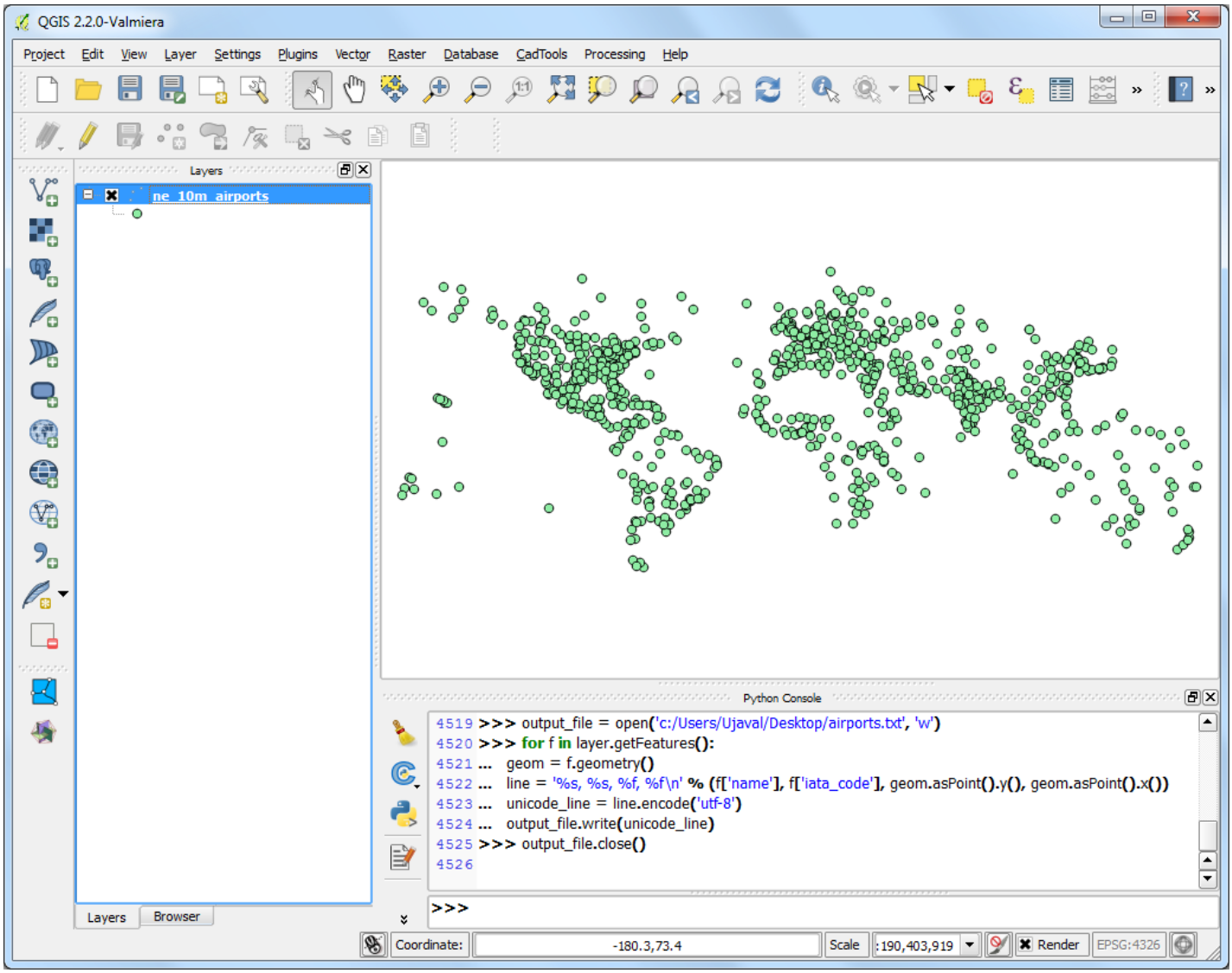
11. ██ ████ ████ ████ ██ ██ ██ ████ ■ ■ ██ ██ ████ ████ ███████. ■ ██ ████ ██, ████, ██ ████ ████ ██████ ████ ████ ███████. ``%s``■ ``%f``████ ████ ██████ ████ ██████.

```
for f in layer.getFeatures():
  geom = f.geometry()
  print '%s, %s, %f, %f' % (f['name'], f['iata_code'],
         geom.asPoint().y(), geom.asPoint().x())
```

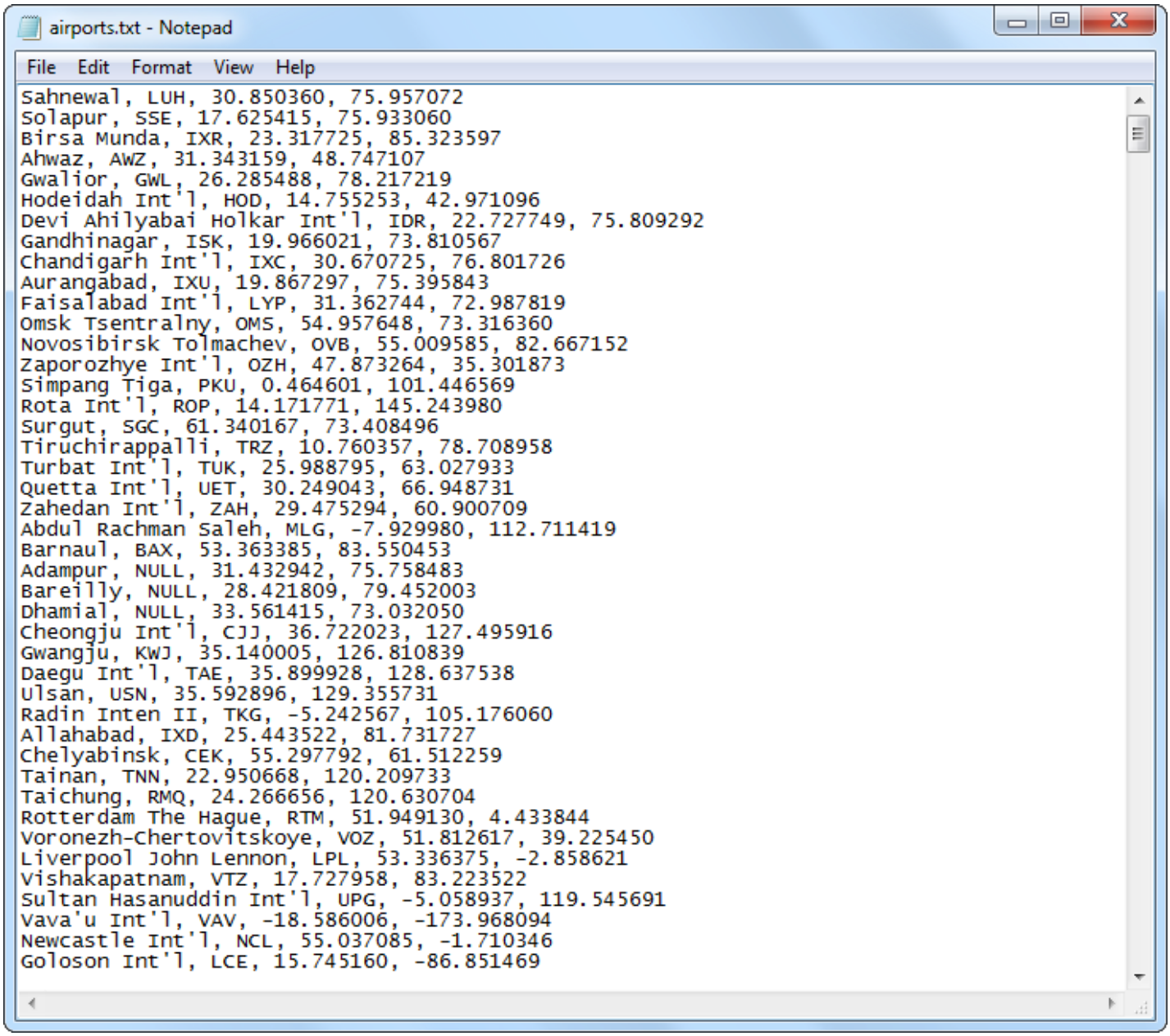


[redacted] ``unicode_line = line [redacted]. UTF-8 [redacted]

```
output_file = open('c:/Users/Ujaval/Desktop/airports.txt', 'w')
for f in layer.getFeatures():
  geom = f.geometry()
  line = '%s, %s, %f, %f\n' % (f['name'], f['iata_code'],
           geom.asPoint().y(), geom.asPoint().x())
  unicode_line = line.encode('utf-8')
  output_file.write(unicode_line)
output_file.close()
```



13. ■■■ ■■■ ■■ ■■■ ■■ ■■■ ■■■ ■ ■ ■■■■. ■■■ ■■■■■ ■■■■ ■■ shapefile■■ ■■■ ■■■■ ■ ■ ■■ ■■■■.


airports.txt - Notepad
File Edit Format View Help
Sahnewal, LUH, 30.850360, 75.957072
Solapur, SSE, 17.625415, 75.933060
Birsa Munda, IXR, 23.317725, 85.323597
Ahwaz, AWZ, 31.343159, 48.747107
Gwalior, GWL, 26.285488, 78.217219
Hodeidah Int'l, HOD, 14.755253, 42.971096
Devi Ahilyabai Holkar Int'l, IDR, 22.727749, 75.809292
Gandhinagar, ISK, 19.966021, 73.810567
Chandigarh Int'l, IXC, 30.670725, 76.801726
Aurangabad, IXU, 19.867297, 75.395843
Faisalabad Int'l, LYP, 31.362744, 72.987819
Omsk Tsentralny, OMS, 54.957648, 73.316360
Novosibirsk Tolmachev, OVB, 55.009585, 82.667152
Zaporozhye Int'l, OZH, 47.873264, 35.301873
Simpang Tiga, PKU, 0.464601, 101.446569
Rota Int'l, ROP, 14.171771, 145.243980
Surgut, SGC, 61.340167, 73.408496
Tiruchirappalli, TRZ, 10.760357, 78.708958
Turbat Int'l, TUK, 25.988795, 63.027933
Quetta Int'l, UET, 30.249043, 66.948731
Zahedan Int'l, ZAH, 29.475294, 60.900709
Abdul Rachman Saleh, MLG, -7.929980, 112.711419
Barnaul, BAX, 53.363385, 83.550453
Adampur, NULL, 31.432942, 75.758483
Bareilly, NULL, 28.421809, 79.452003
Dhamial, NULL, 33.561415, 73.032050
Cheongju Int'l, CJJ, 36.722023, 127.495916
Gwangju, KWJ, 35.140005, 126.810839
Daegu Int'l, TAE, 35.899928, 128.637538
Ulsan, USN, 35.592896, 129.355731
Radin Inten II, TKG, -5.242567, 105.176060
Allahabad, IXD, 25.443522, 81.731727
Chelyabinsk, CEK, 55.297792, 61.512259
Tainan, TNN, 22.950668, 120.209733
Taichung, RMQ, 24.266656, 120.630704
Rotterdam The Hague, RTM, 51.949130, 4.433844
Voronezh-Chertovitskoye, VOZ, 51.812617, 39.225450
Liverpool John Lennon, LPL, 53.336375, -2.858621
Vishakapatnam, VTZ, 17.727958, 83.223522
Sultan Hasanuddin Int'l, UPG, -5.058937, 119.545691
Vava'u Int'l, VAV, -18.586006, -173.968094
Newcastle Int'l, NCL, 55.037085, -1.710346
Goloson Int'l, LCE, 15.745160, -86.851469