

Getting Started with Python Programming

QGIS Tutorials and Tips



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QGIS는 오픈 소스 GIS 소프트웨어로 GIS를 사용하여 데이터를 시각화하고 분석하는 데 사용됩니다. QGIS는 GIS 데이터를 처리하고 분석하는 데 사용되는 다양한 도구와 기능을 제공합니다. QGIS는 GIS 데이터를 처리하고 분석하는 데 사용되는 다양한 도구와 기능을 제공합니다. QGIS (PyQGIS)는 오픈 소스 GIS 소프트웨어입니다.

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Natural Earth의 Airports 데이터를 다운로드합니다.

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

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



2. QGIS `ne_10m_airports` 数据集加载到 QGIS 中。



3. Click the Identify tool icon in the toolbar. Click on a point on the map. The Identify tool will display a list of attributes for the selected feature. The attributes are: name, iata_code, and others.



4. QGIS 是一个开源的地理信息系统。它支持多种数据格式，并且可以通过 Python 脚本进行定制和扩展。在 QGIS 中，可以通过以下路径访问 Python 控制台：
- Project --> Plugins --> Python Console
 - 或者通过主菜单：Python --> Console



6. `dir()` returns a list of attributes and methods for the active layer. This list can be used to check if a specific attribute or method exists. For example, `layer` is the active layer object, and `dir(layer)` returns a list of its attributes and methods.

```
dir(layer)
```



7. `getFeatures()` returns a list of features. Each feature is a dictionary with keys for the feature's attributes and values for the attribute values. The keys are the attribute names and the values are the attribute values. The list of features is returned as a list of dictionaries.

```

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




8. `f['name']` and `f['iata_code']` are attributes of the feature object `f`. `f['name']` returns the name of the airport and `f['iata_code']` returns the IATA code of the airport.

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



```

    geom = f.geometry()
    print geom.asPoint()

```

```

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

```



10. `geom.asPoint().x()` returns the x-coordinate of the point.

```

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

```



11. 00 000 000 000 00 00 00 000 0 0 00 00 000000. 0 00 000 00,
0000, 00 000 000 000000 000 000 000000. ``%s`` 0 ``%f`` 000 000 000000
0000 00000.

```

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

```



```
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()
```



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airports.txt - Notepad

File Edit Format View Help

Sahnewal, LUH, 30.850360, 75.957072
Solapur, SSE, 17.625415, 75.933060
Birsamunda, 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