

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 소프트웨어입니다. QGIS는 GIS 데이터를 처리하고 분석하는 데 사용되는 소프트웨어입니다. QGIS (PyQGIS)는 GIS 데이터를 처리하고 분석하는 데 사용되는 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 Identify tool to identify the airports. The Identify tool will display the name and IATA code of the airport.



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，可以通过以下方法访问 Python 控制台：
- 通过菜单栏：`Plugins` --> `Python Console`
 - 通过工具栏：Python 图标
 - 通过 GUI 标签：`Python Console`



6. `dir()` returns a list of attributes and methods for the active layer. This list can be used to check the available attributes and methods for the layer. `layer` is the name of the layer.

```
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 features are returned in the order they appear in the layer.

```

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




8. `f['name']` and `f['iata_code']` are attributes of the feature object `f`. The `print` statement prints the name and IATA code of each 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 geometry.

```

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