



110-2 地圖與地理資訊系統

LAB 05

向量資料處理 vector data handling

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今日實習

向量資料處理

1

向量資料處理

2

點位資料分析

3

多邊形圖徵簡化

向量資料操作實習使用圖資

- 臺灣村里界 : **taiwan_village_3826.shp**
- 舊台中市、台中縣 : **taichung_city.shp;**
taichung_county.shp
- 台北市區界 : **taipei_town_3826.shp**
- 臺北市前100大里 : **largest_100_village.shp**
- 台北市北投區里 : **beitou.shp**
- 台北市診所 : **taipei_pharmacy.shp**

檔案連結：<https://drive.google.com/drive/folders/1q-pMVKomzzFMLja8FeDk-7oi7urd4NUr?usp=sharing>
(NTU COOL 上面也有了)

資料來源：
台灣中央政府的open data;
台北市政府的open data

TWD 97 TM2

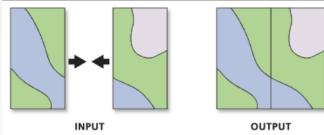
EPSG: 3826

向量資料操作

第一部分

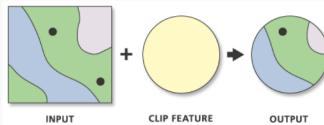
Merge, clip, intersect, union, dissolve

Merge



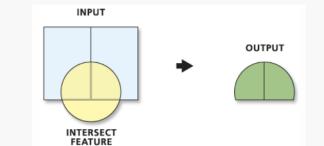
將兩個以上的圖層合併成單一圖層

Clip



依據選取圖層的形狀，對目標圖層進行切割，
擷取出想要的部分

Intersection



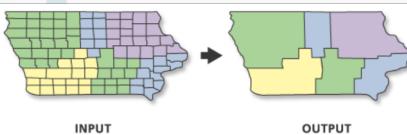
將兩個以上的圖層取交集，並同時包含這
些圖層的屬性

Union



將兩個以上的圖層取聯集，並同時包含這
些圖層的屬性

Dissolve



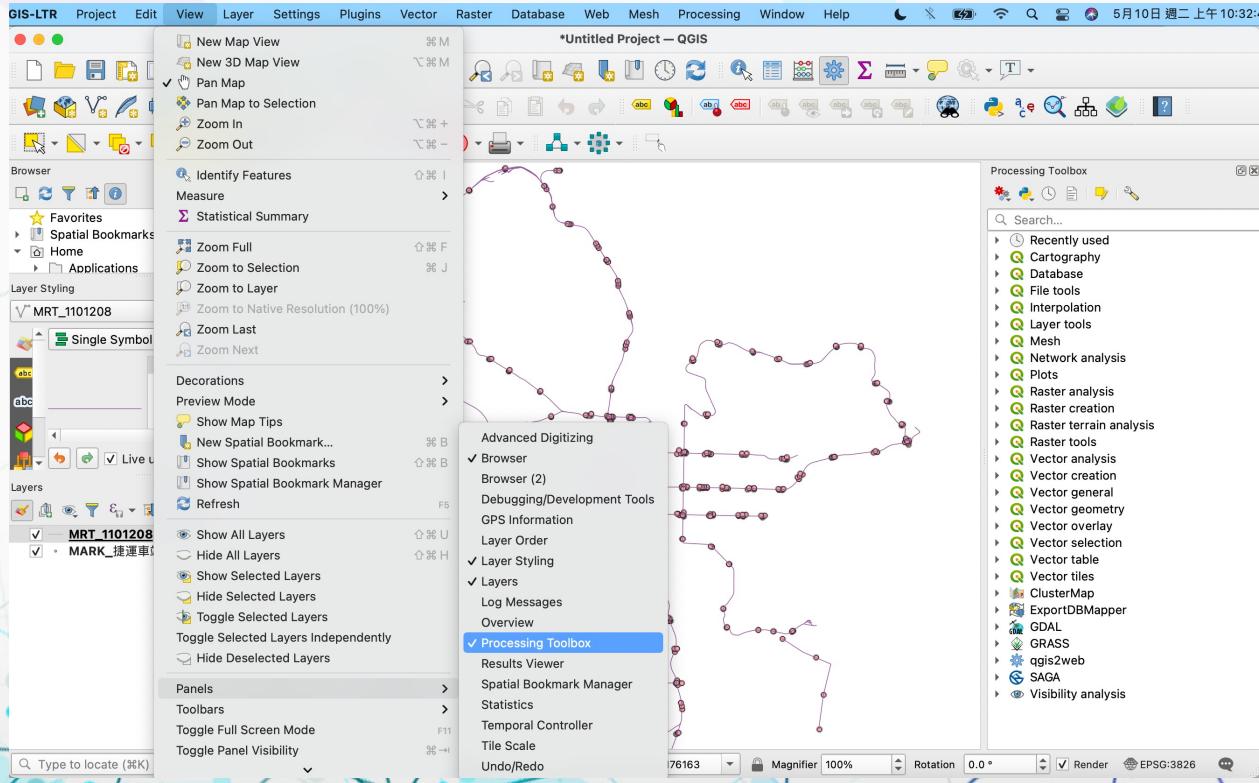
依據目標屬性欄位，將共通的圖徵進行融合

Processing Toolbox

工具箱

如果工具箱不見掉 . . .

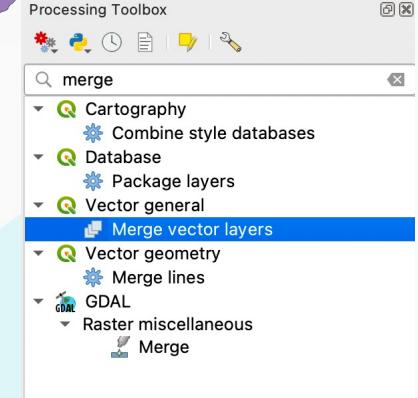
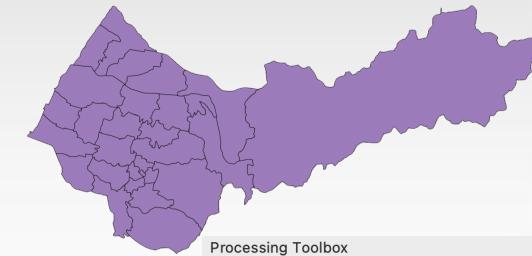
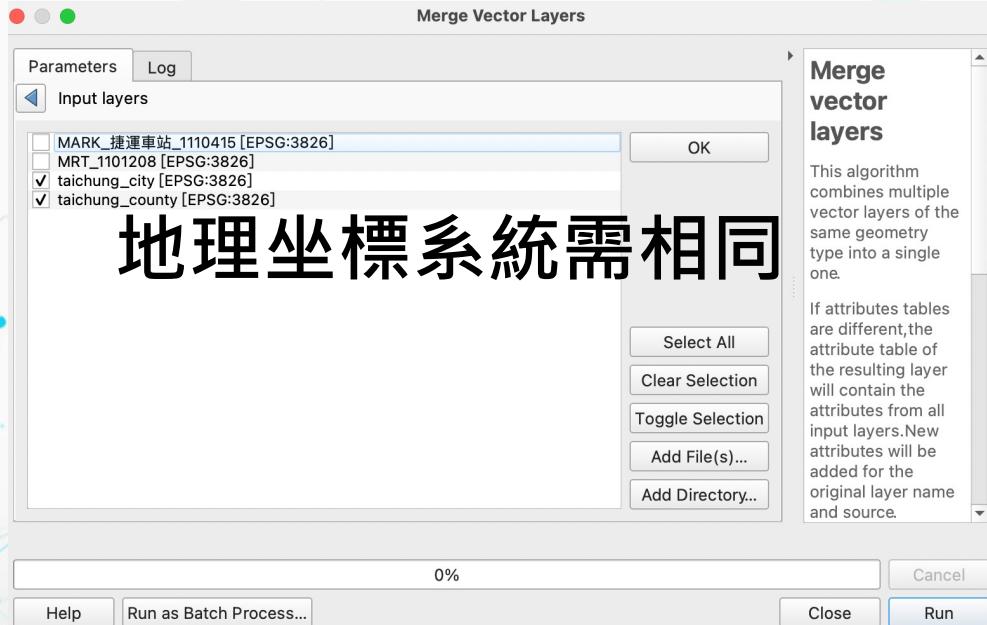
View > Panels > Processing Toolbox 勾起來



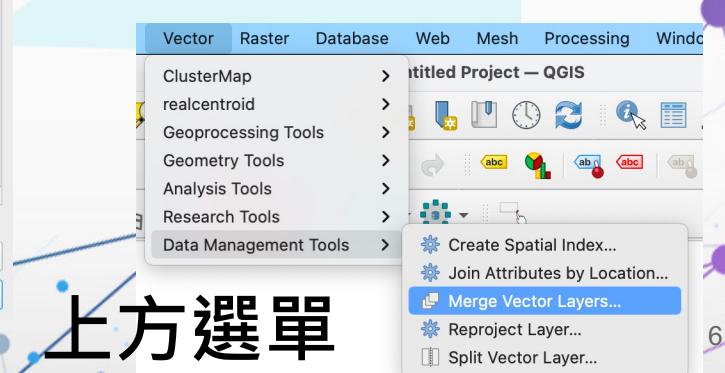
可以使用關鍵字搜尋

Merge

- 合併 舊臺中縣 與 舊臺中市



工具箱



上方選單

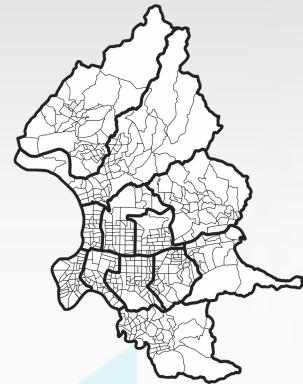
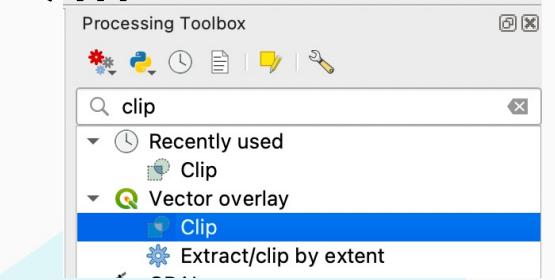
Clip

- 挑選出在臺北市界內的村里。

工具箱

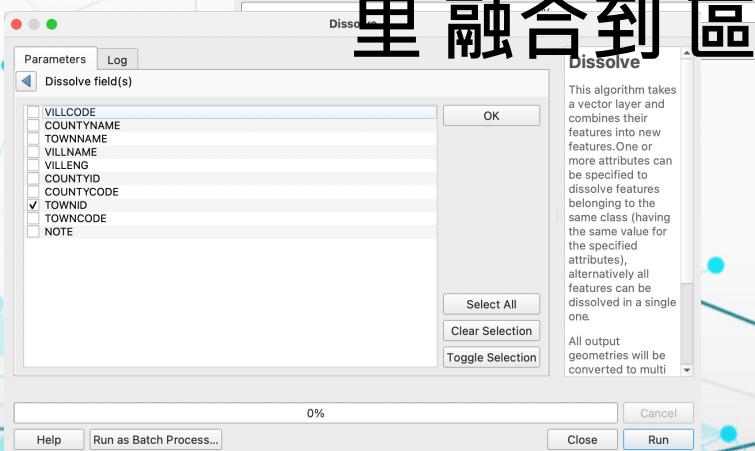
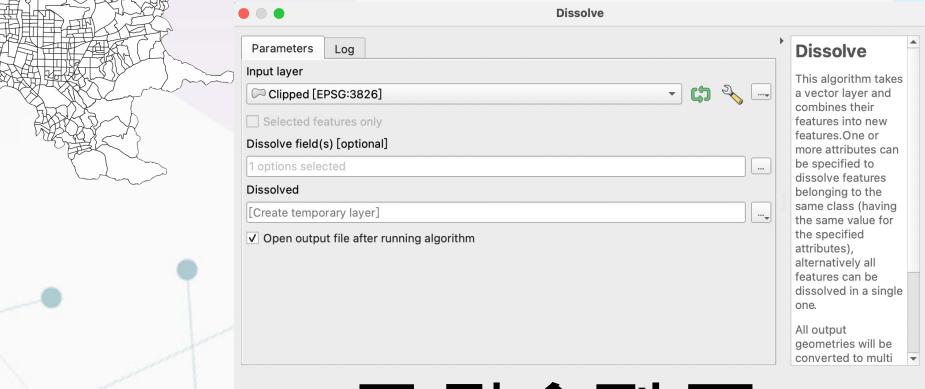


上方選單



- 把臺北市村里融合到12分區。

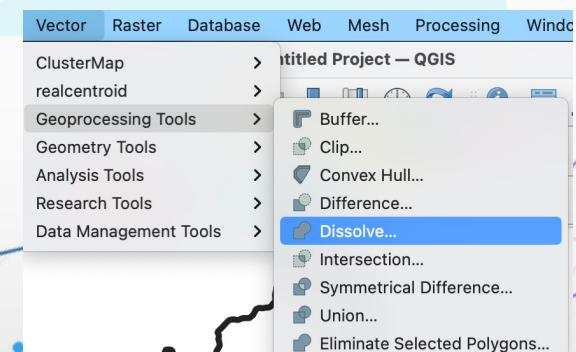
Dissolve

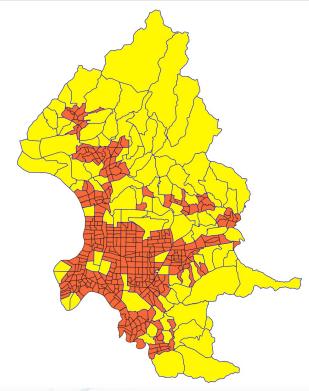
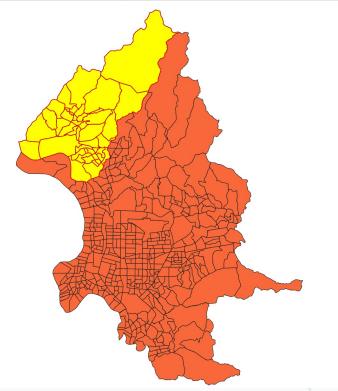


工具箱
Processing Toolbox

dissolve

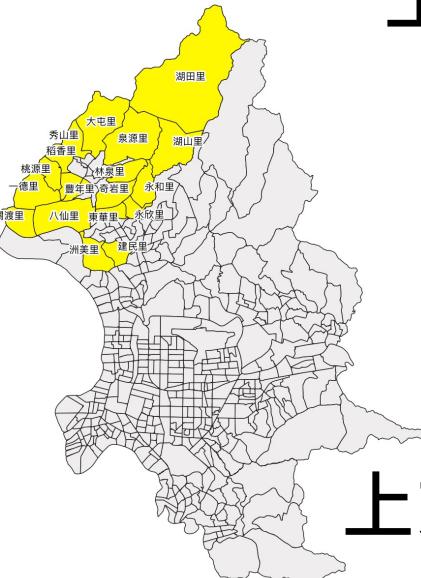
- Recently used
 - Dissolve
- Vector geometry
 - Aggregate
 - Dissolve**



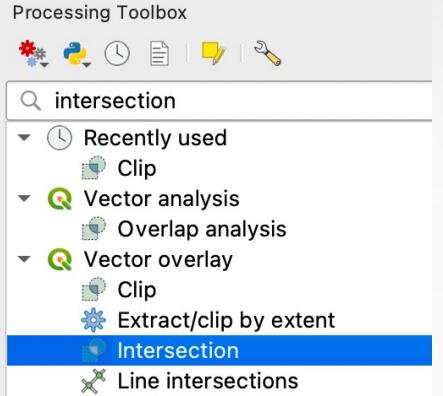


Intersection

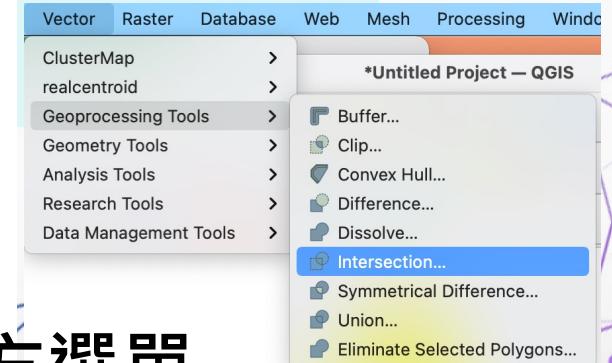
- 找出村里面積在台北市排名前 100 的村里「並且」位於北投的圖層

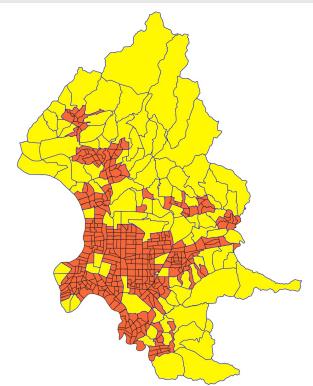
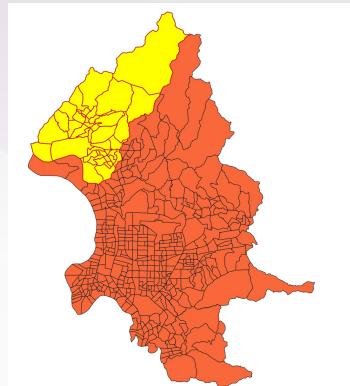


工具箱



上方選單

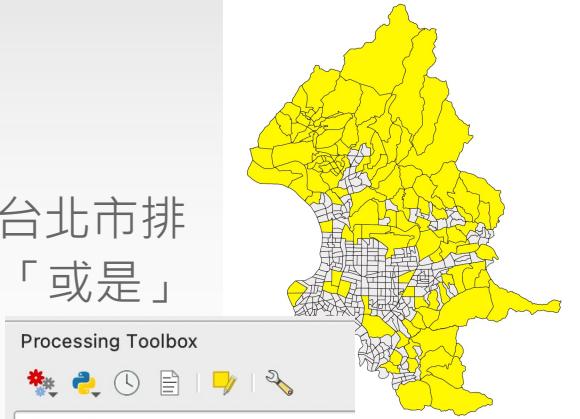




Union

- 找出村里面積在台北市排名前 100 的村里「或是」位於北投的圖層

The screenshot shows the QGIS Processing Toolbox interface. In the search bar, 'union' is typed. Below the search bar, the 'Vector overlay' section is expanded, and 'Union' is highlighted with a blue selection bar. The main window displays the 'Union' algorithm parameters. The 'Input layer' dropdown contains 'Intersection [EPSG:3826]'. The 'Overlay layer [optional]' dropdown contains 'beitou [EPSG:3826]'. Under 'Advanced Parameters', there is an 'Overlay fields prefix [optional]' field and a 'Union' section with a 'Create temporary layer' checkbox checked. A note at the bottom states: 'An Overlay layer can also be used, in which case features from each layer are treated as features that participate in that overlap.' At the bottom of the dialog are 'Help' and 'Run as Batch Process...' buttons, and a progress bar at the bottom left shows '0%'.



The screenshot shows the QGIS Processing Toolbox interface. The 'Processing' tab is selected. In the 'Geoprocessing Tools' section, 'Union...' is highlighted with a blue selection bar. A context menu is open over the 'Union...' option, listing various geoprocessing tools: Buffer..., Clip..., Convex Hull..., Difference..., Dissolve..., Intersection..., Symmetrical Difference..., Union..., and Eliminate Selected Polygons... . The context menu has a light blue background with white text, matching the style of the toolbox.

地理坐標系統需相同

上方選單

工具箱

向量資料操作 第二部分

凸殼 Convexhull

最小範圍幾何 Minimum Bounding Geometry

凸殼 Convex hull

- 臺北市藥局的服務範圍

工具箱



1. 先把點圖層 融合 (dissolve)

2. 再針對「融合」 點圖層做凸殼分析

上方選單

Processing Toolbox

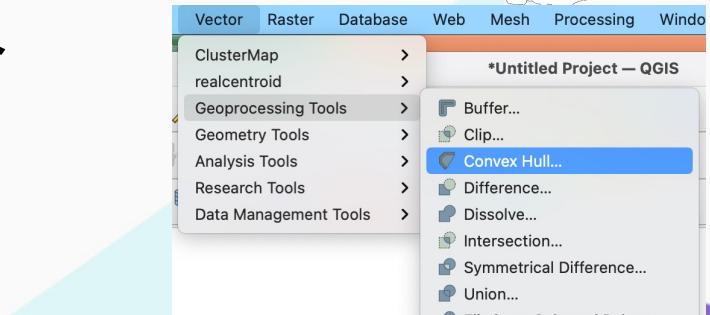
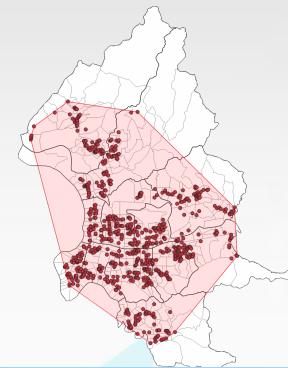


convex

Vector geometry

Convex hull

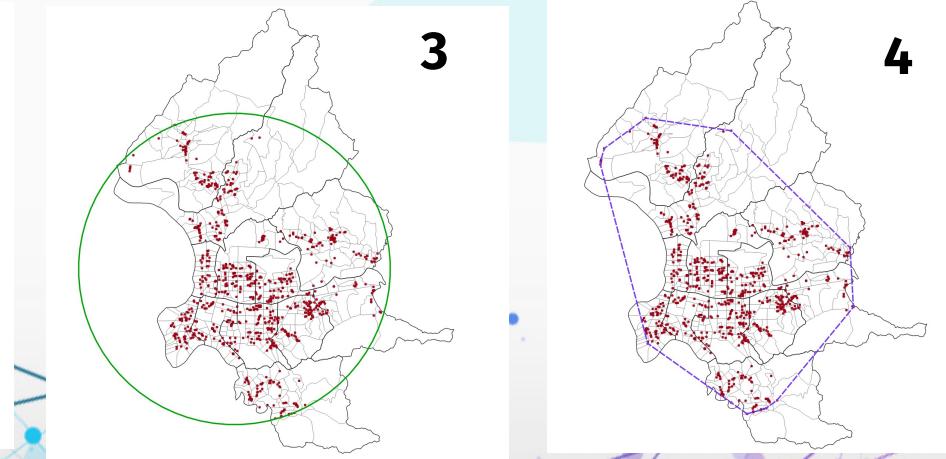
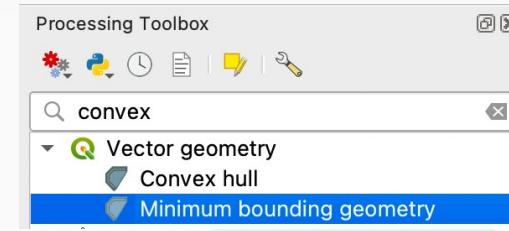
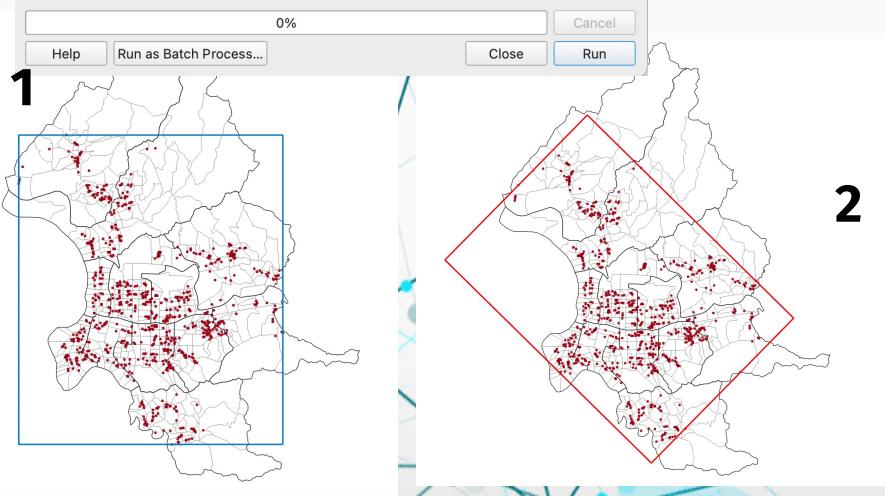
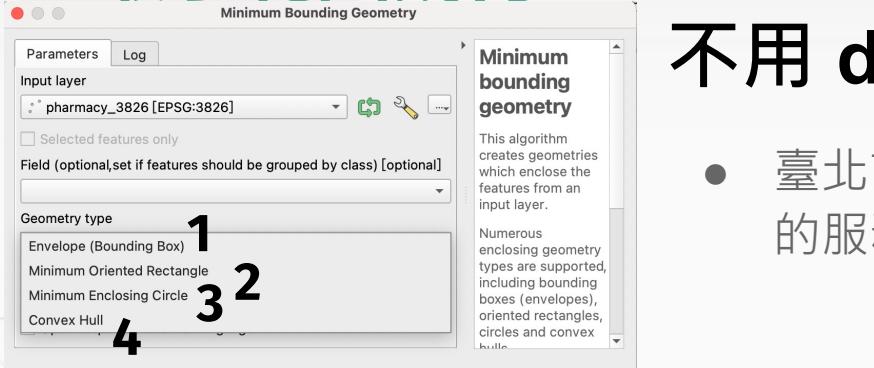
Minimum bounding geometry



最小範圍幾何 Minimum Bounding Geometry

不用 dissolve

工具箱



進階凸殼 Advanced Convex hull

工具箱

Minimum Bounding Geometry

Parameters Log

Input layer: pharmacy_3826 [EPSG:3826]

Selected features only

Field (optional, set if features should be grouped by class) [optional]: abc region

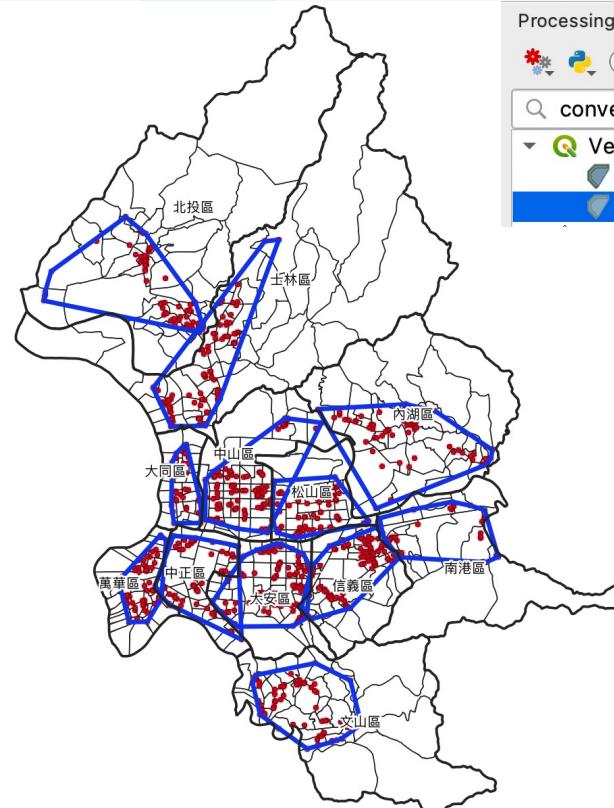
Geometry type: Convex Hull

Bounding geometry: [Create temporary layer]

Open output file after running algorithm

0% Progress

Help Run as Batch Process... Cancel Run



Processing Toolbox

convex

Vector geometry

- Convex hull
- Minimum bounding geometry**

(參考用，已經幫你做好了)
從地址萃取區域
Field calculator

Only update 0 selected features

Create a new field

Output field name: region

Output field type: Text (string)

Output field length: 10

Expression: substr("地址", 4, 3)

function substr

Returns a part of a string.

Syntax

substr(string, start[, length])

Arguments

string: the full input string

start: integer representing start position to extract beginning with 1; if start is negative, the return string will begin at the end of string minus the start value

length: integer representing length of string to extract; if length is negative, the return string will omit the given number of characters from the end.

You are editing information on this layer but the layer is currently not in edit mode. If you click OK, edit mode will automatically be turned on.

Help Cancel OK

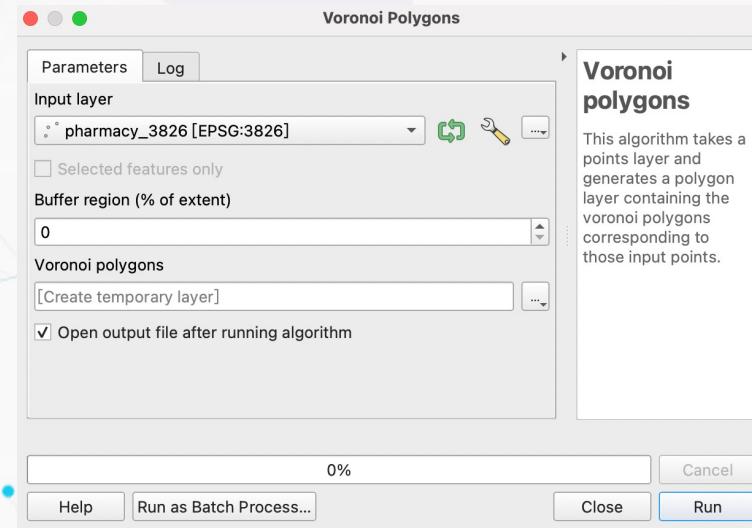
向量資料操作 第三部分

泰森多邊形、德洛涅三角形

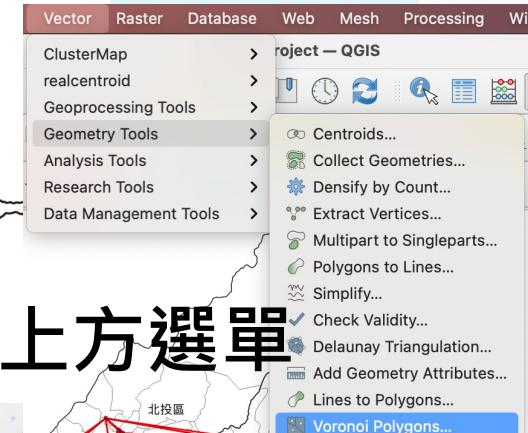
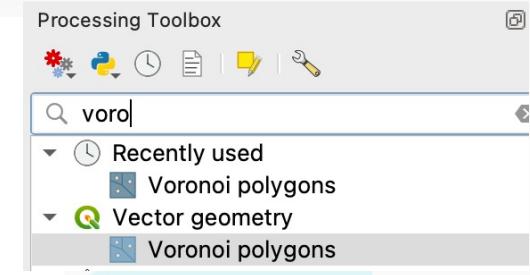
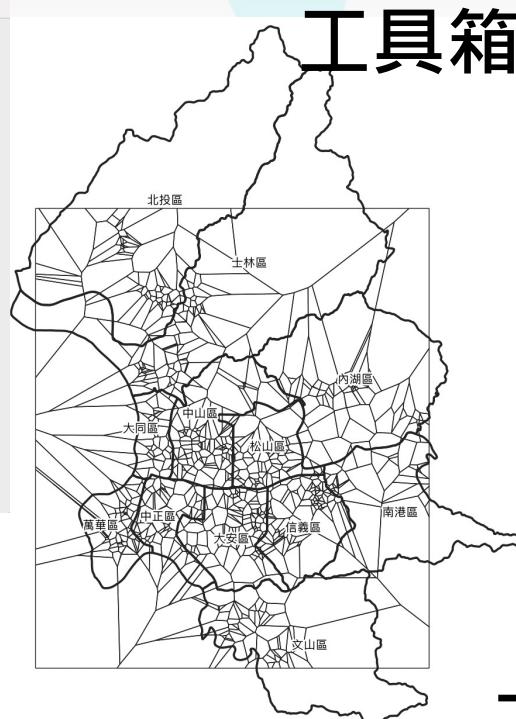
Thiessen (Voronoi) Polygon 、Delaunay triangulation

- 臺北市每一間藥局的服務範圍

泰森多邊形 Thiessen (Voronoi) Polygon

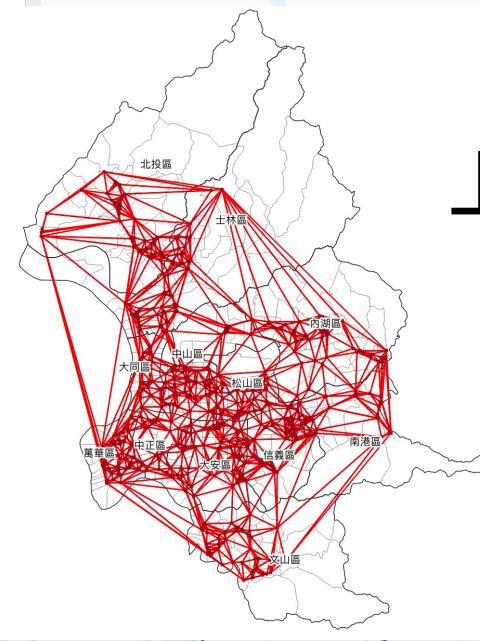
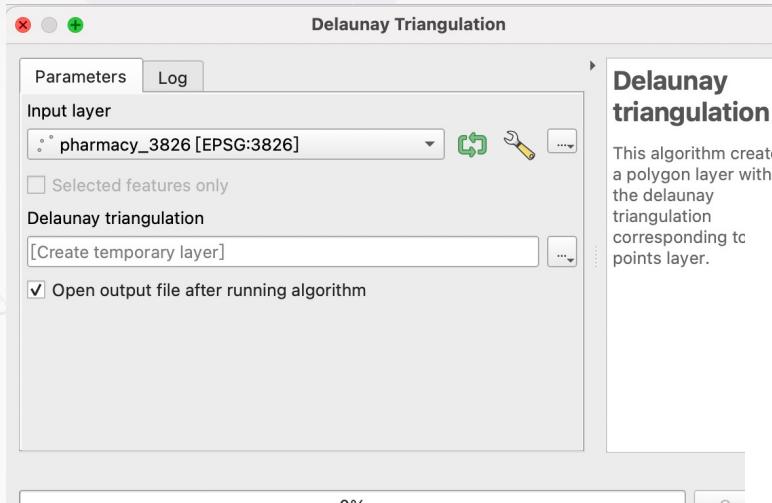


坐標不可有空幾何
No null geometry allowed



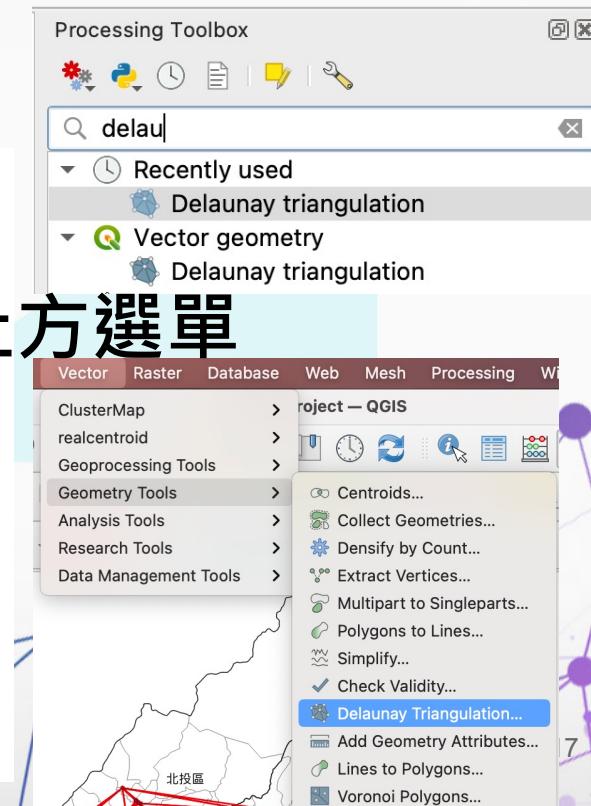
上方選單

德洛涅三角形 Delaunay triangulation



工具箱

上方選單



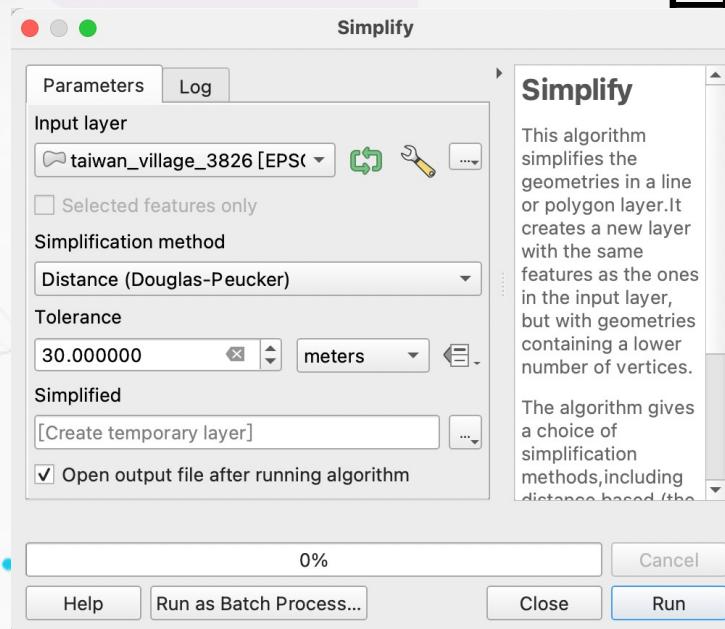
向量資料庫操作

第四部分

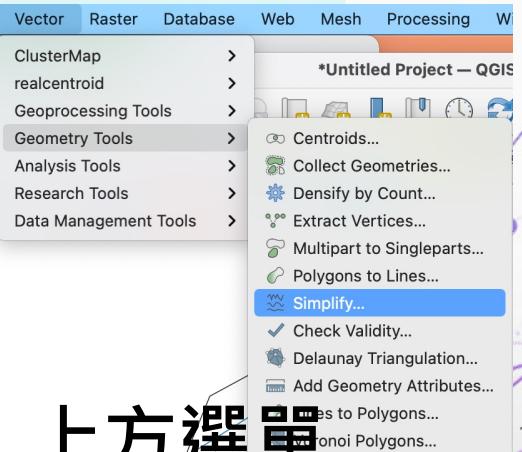
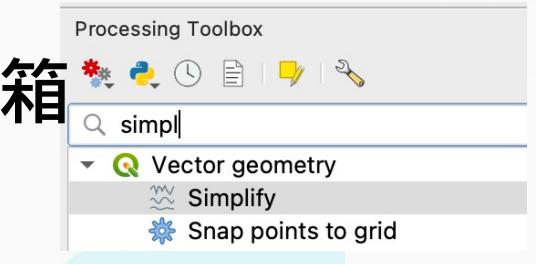
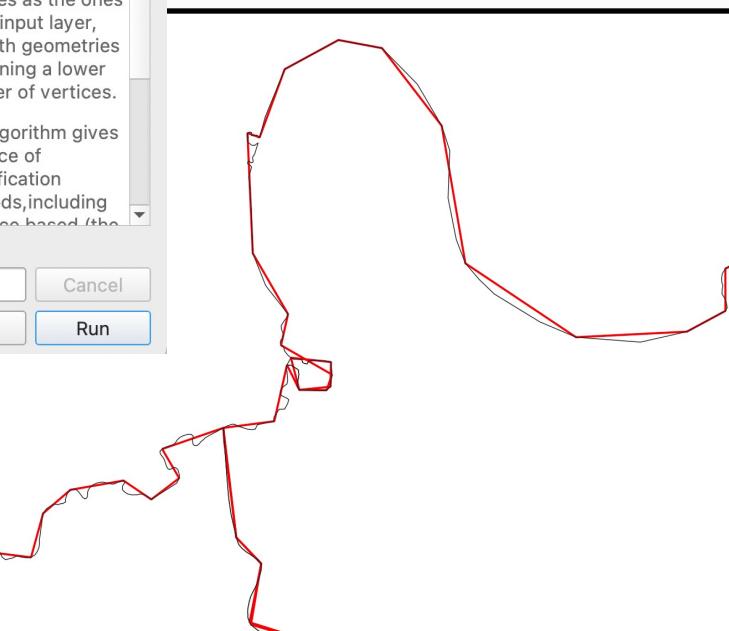
多邊形圖徵簡化

圖徵簡化 Simplify

工具箱



30 meters



上方選單

檔案大小縮減（資料載入速度變快）

