PrimeThought Software Solutions

General Layer Operation

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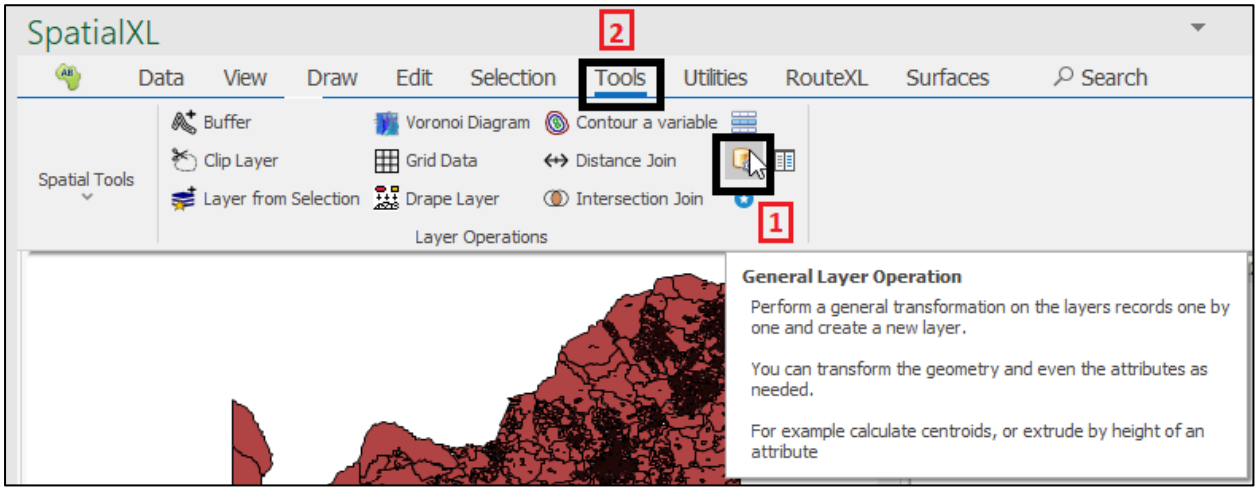
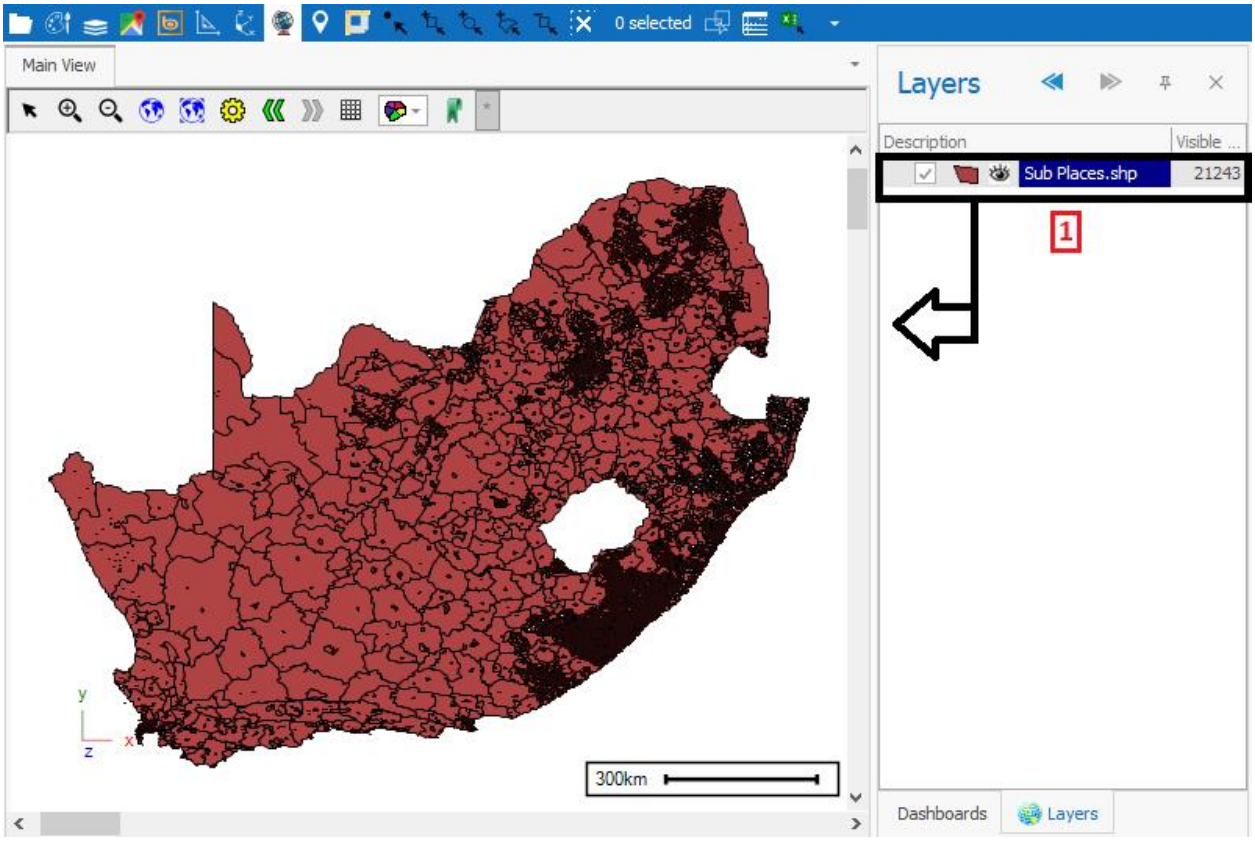
General Layer Operation(1) is a tool available in all our spatial products, it is found in the **Tools** tab(2) of the spatial pane:

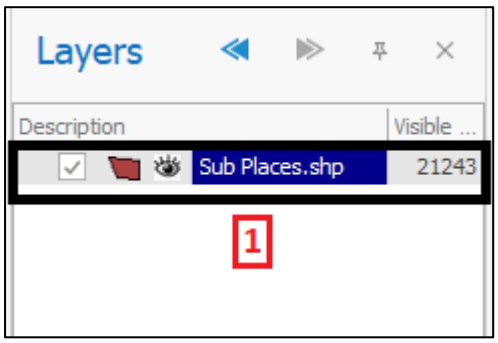


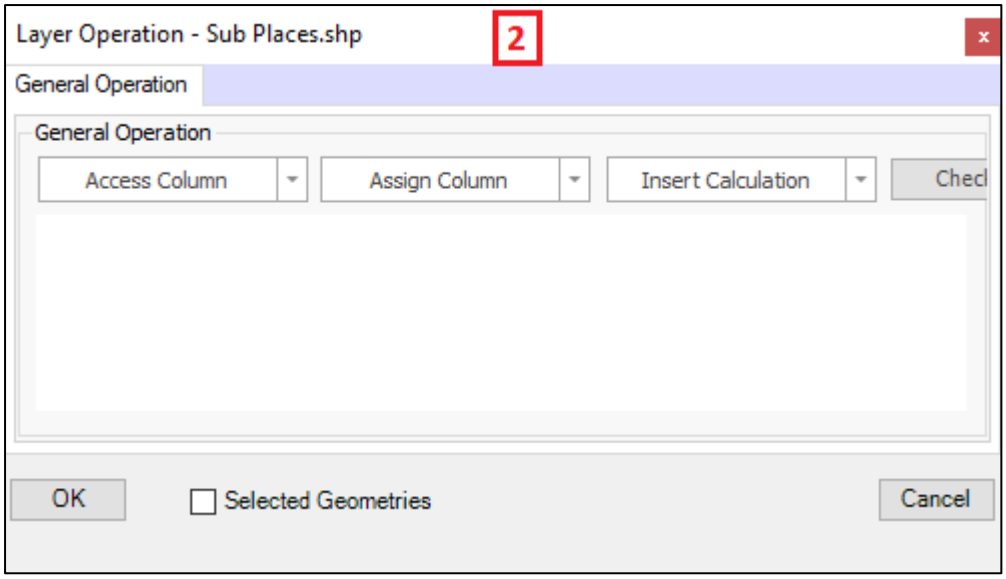
This tool is used to perform a general transformation on a layer's records one by one and create a new layer. You can transform the geometry and even the attributes as needed; for example calculate centroids or extrude by height of an attribute.

In this example I will perform a calculate centroids operation on my **Sub Places** layer(1) which consists of a set of polygons. What this will do is calculate the centroids of these polygons for me and then create a separate layer where these centroids will exist as points:

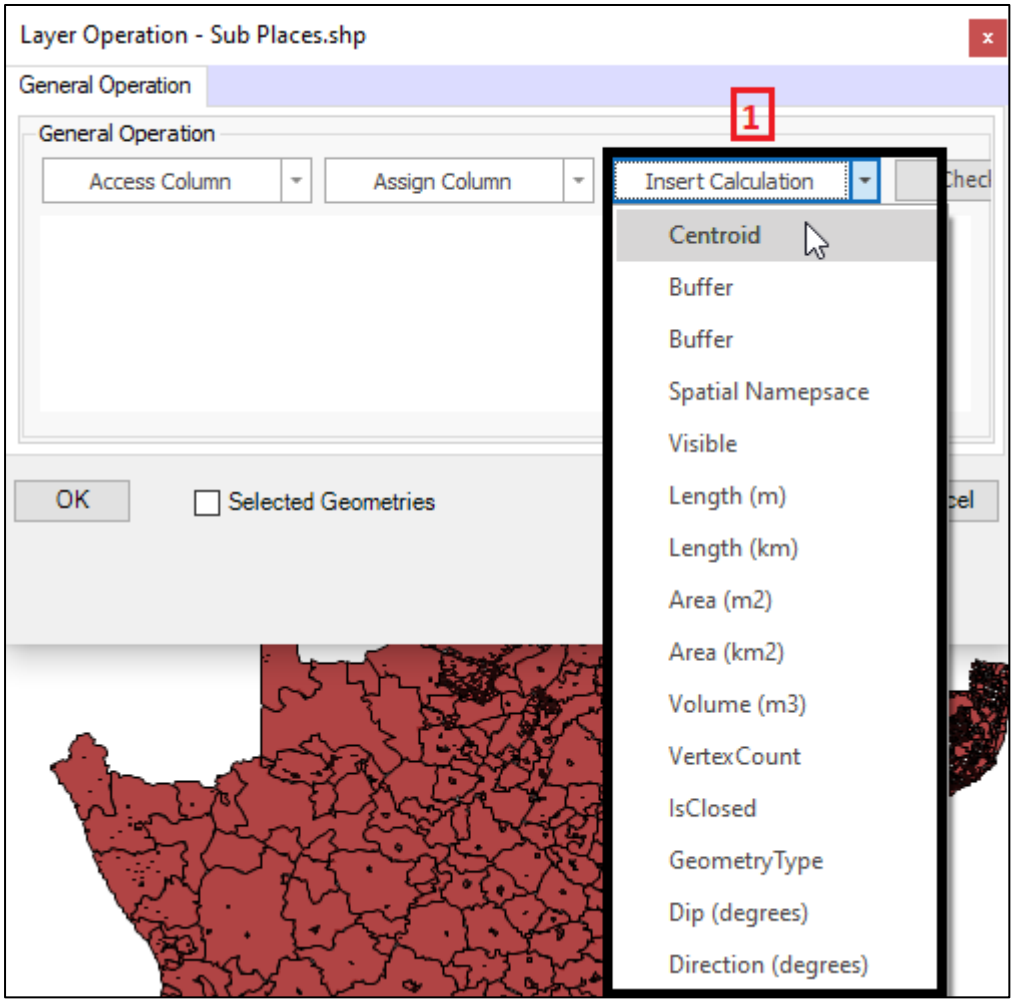


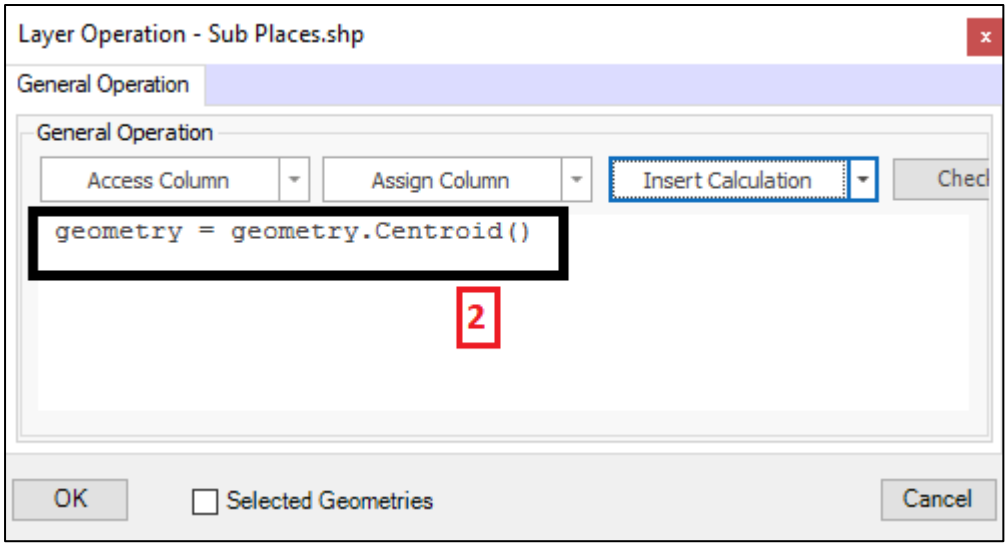
Before opening the tool make sure the correct layer is highlighted in your layer control(1). Then click the tool which will bring up the following dialogue(2):

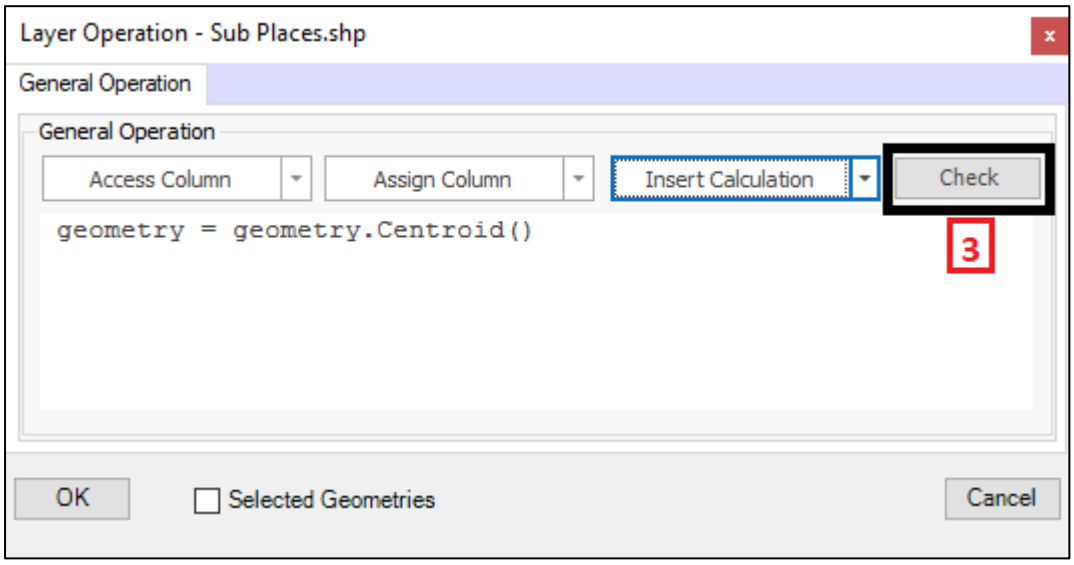


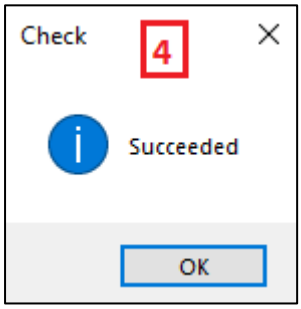


Under **Insert Calculation**(1) there is a range of predefined calculations that you can choose. In this example I will insert the **Centroid** calculation. As you can see the calculation is then entered below(2). To check if this operation works I can use the **Check** button(3) which will tell me if it succeeded or not(4):

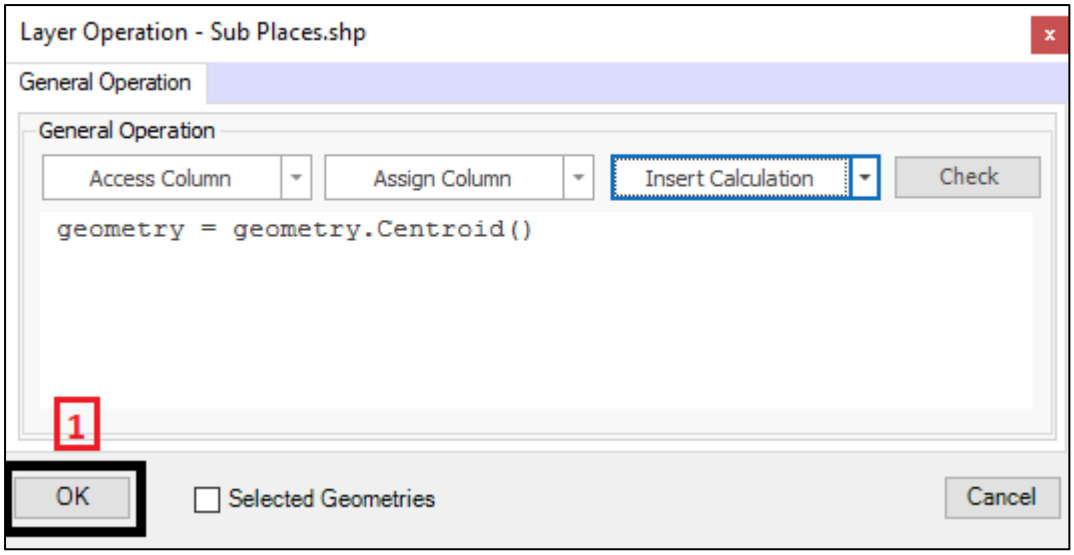


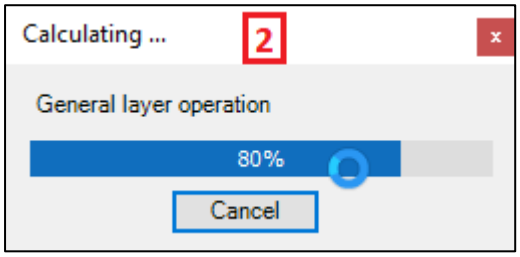


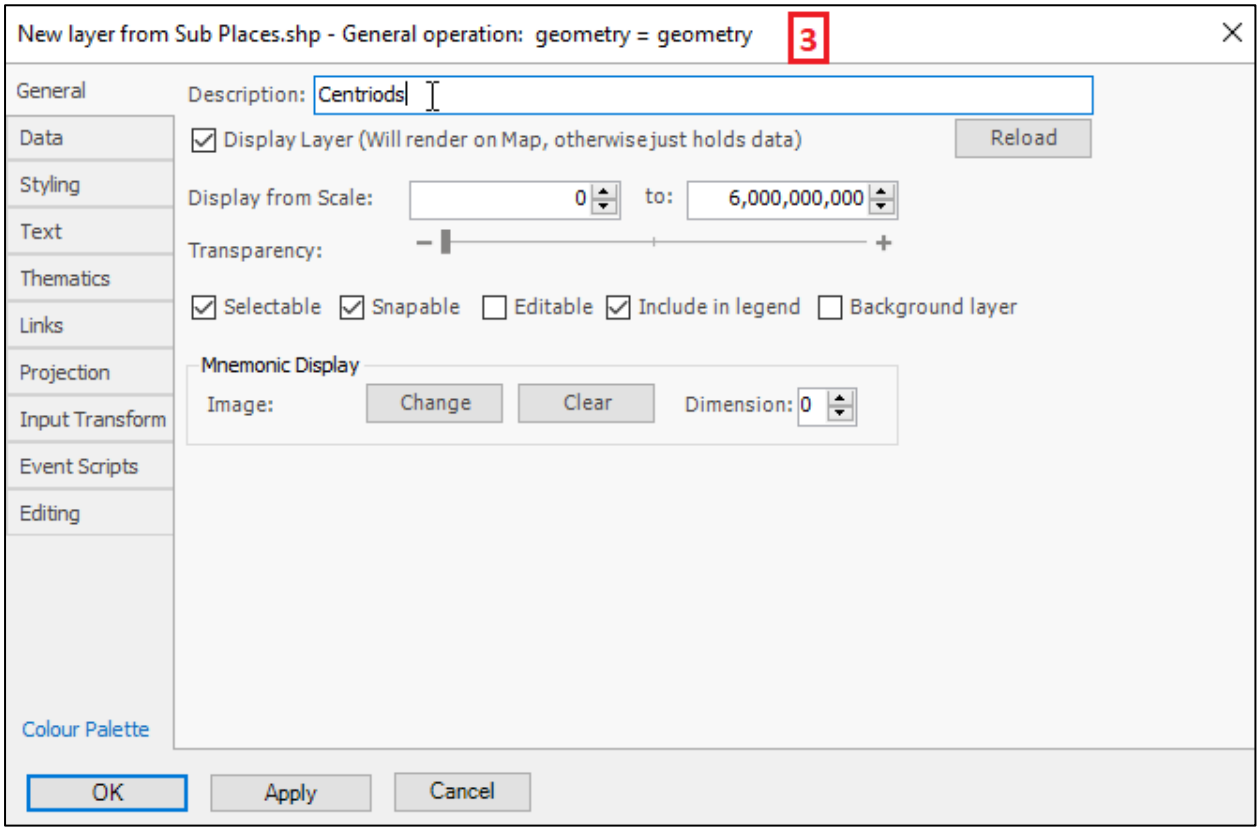


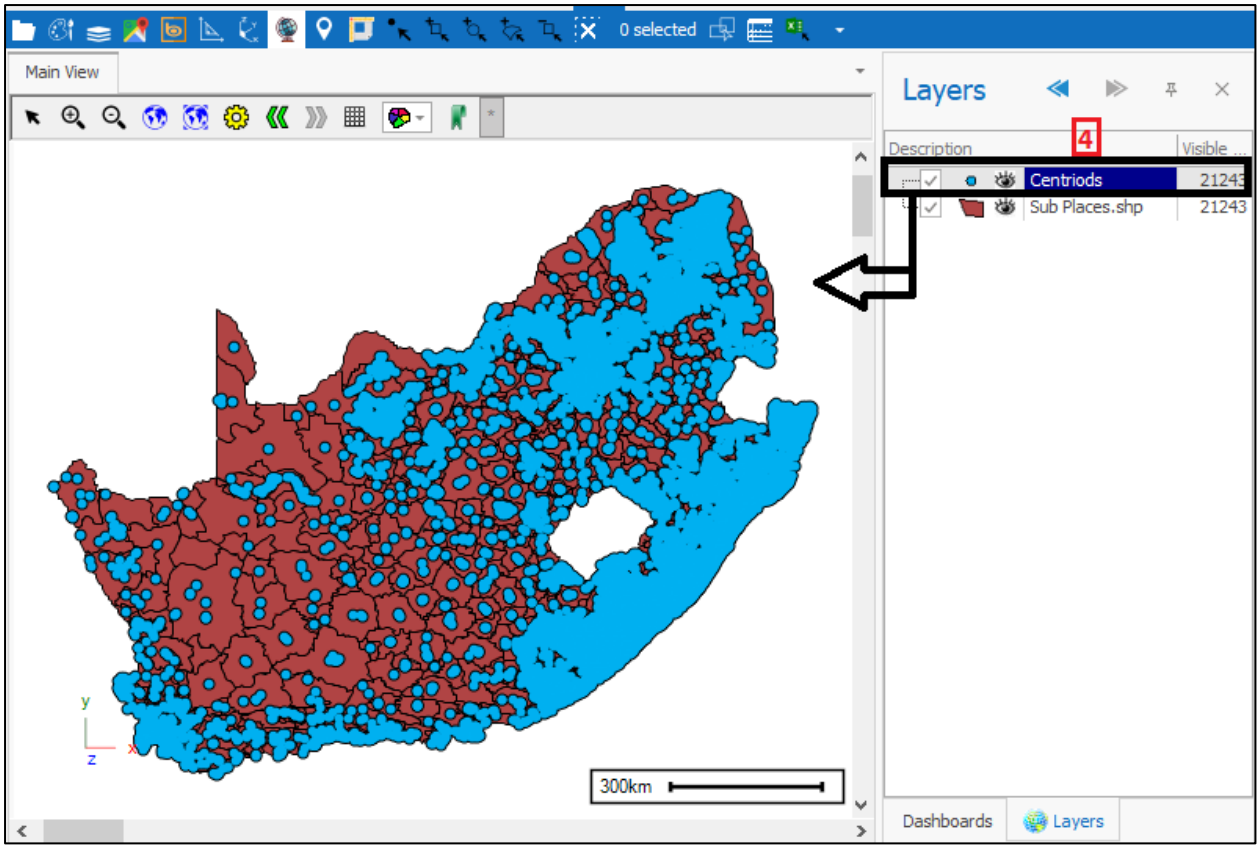


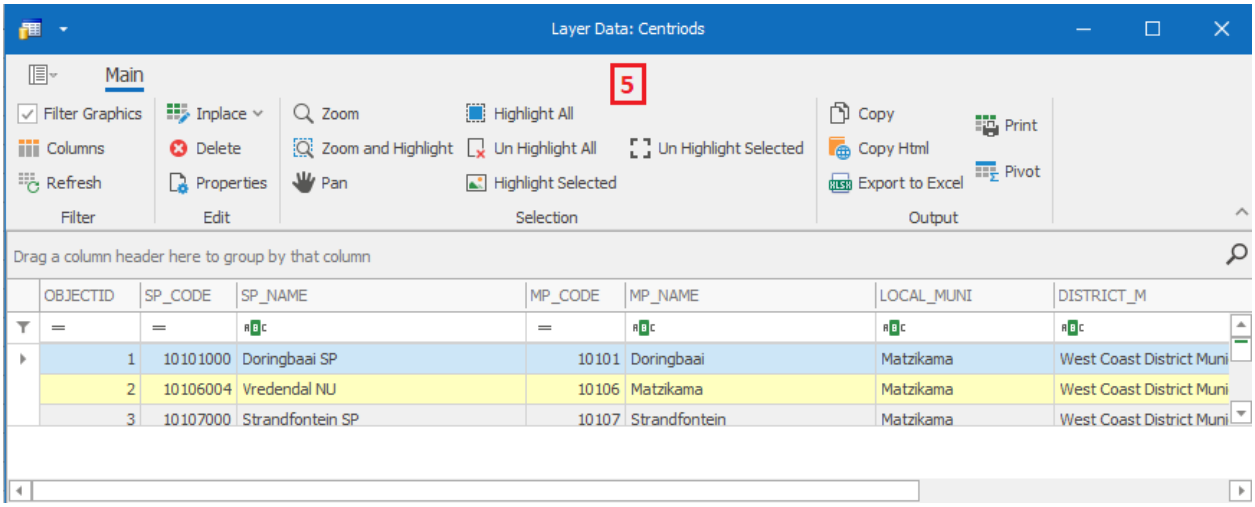
I can then click **OK**(1) and the operation will be done for me(2), I am prompted to set the properties for the new layer that will be made(3): My new layer is then added which contains just the centroids of my Sub Places polygons(4) along with all the other attribute data that was in the original layer, as can be seen by viewing the data grid(5):


Layer Operation - Sub Places.shp
General Operation
General Operation
Access Column
Assign Column
Insert Calculation
Check
geometry = geometry.Centroid()
1
OK
Selected Geometries
Cancel

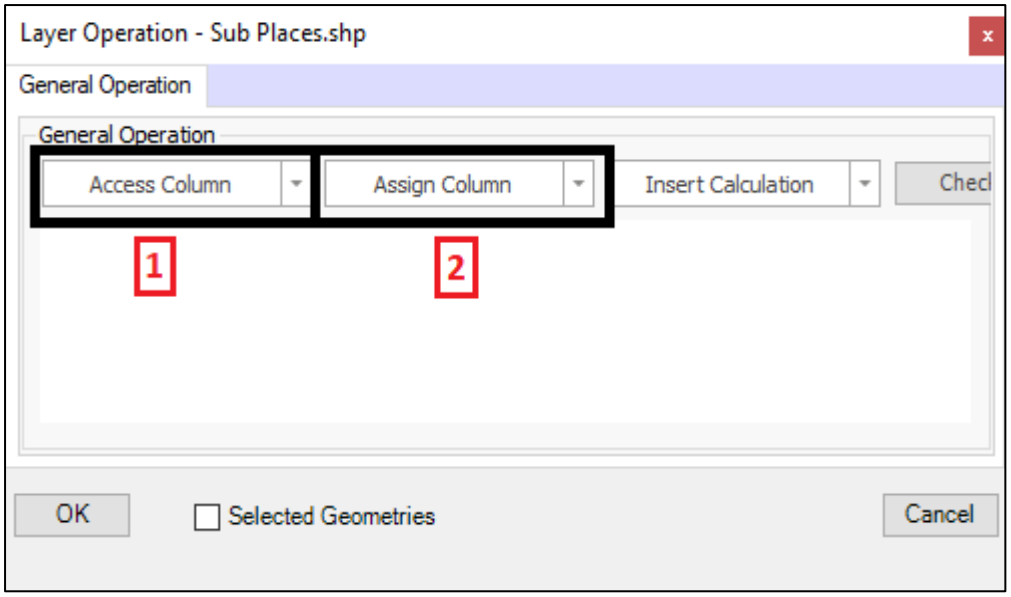

Calculating ...
2
General layer operation
80%
Cancel


New layer from Sub Places.shp - General operation: geometry = geometry
3
General
Data
Styling
Text
Thematics
Links
Projection
Input Transform
Event Scripts
Editing
Colour Palette
Description: Centriods
Display Layer (Will render on Map, otherwise just holds data)
Reload
Display from Scale: 0 to: 6,000,000,000
Transparency:
Selectable
Snapable
Editable
Include in legend
Background layer
Mnemonic Display
Image:
Change
Clear
Dimension: 0
OK
Apply
Cancel

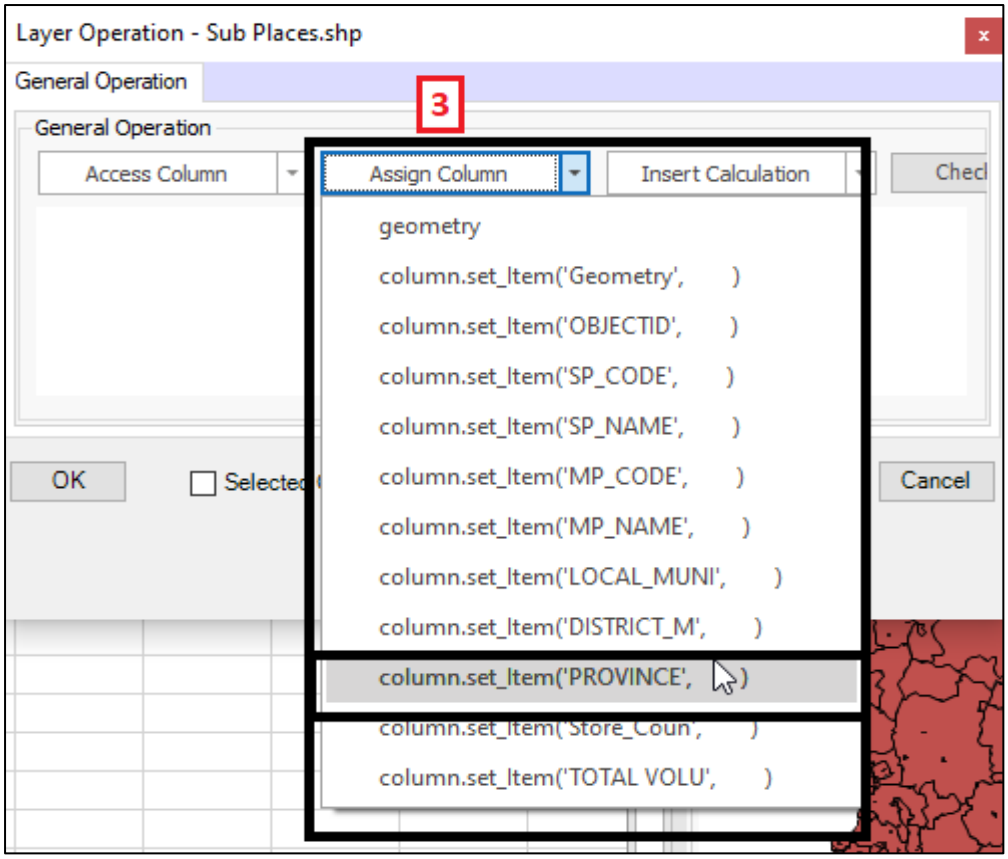


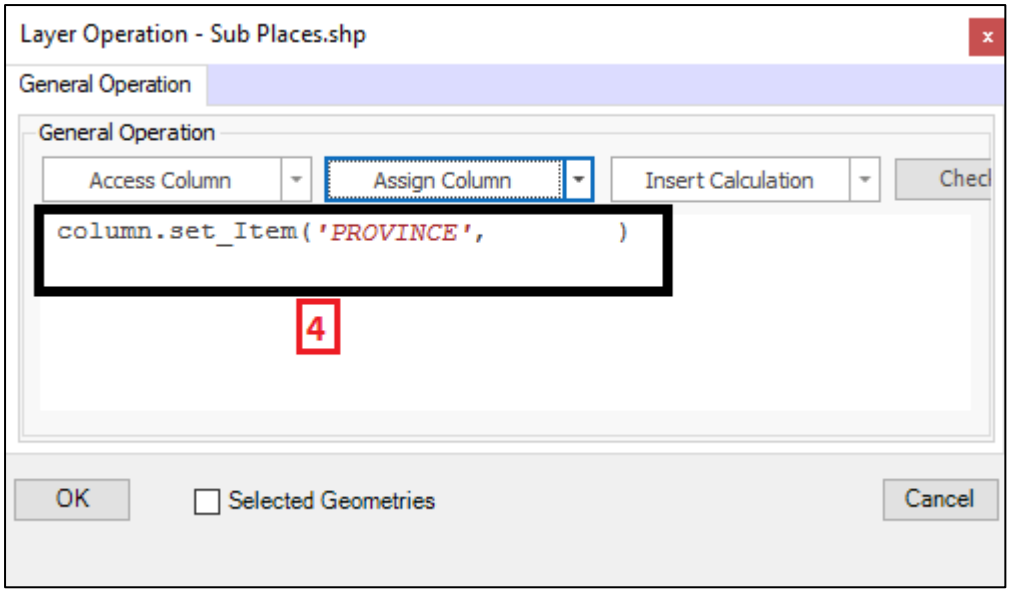


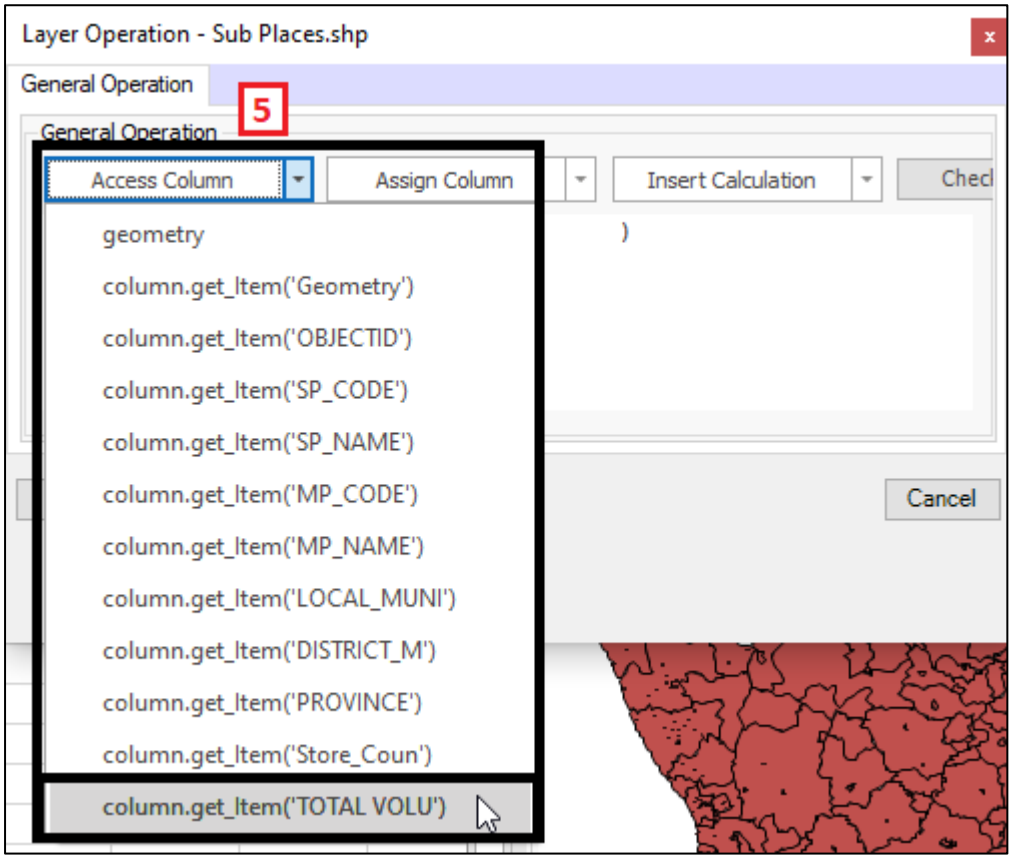
Access Column(1) allows you to add a column in your data, to get values from, in doing an operation. For example I will divide the values in one column by those in another and then assign the result to a another column for which I will make use of **Assign Column**(2) as well, which allows me to assign values to columns:

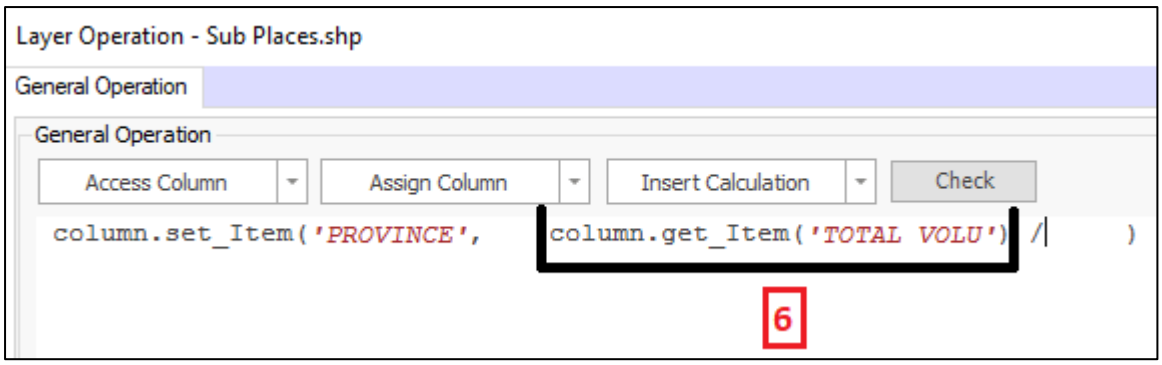


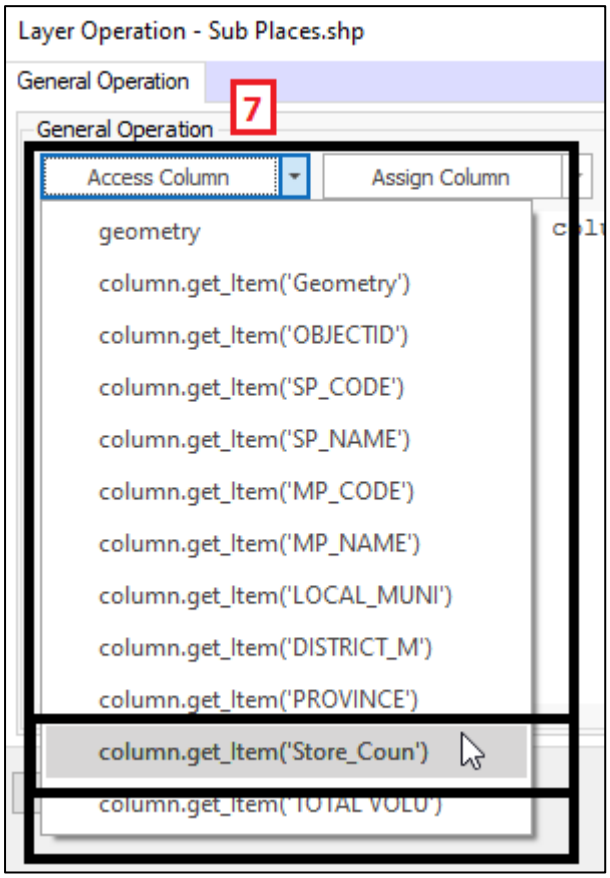
I start by choosing the column in my data that I would like to assign values to(3)(4) , then within this expression I type in, as the value, the calculation, which requires accessing columns(5)(6)(7)(8):

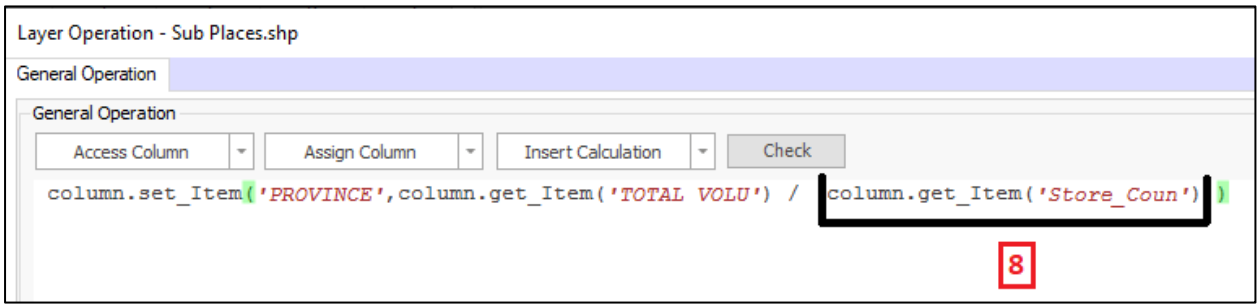



Layer Operation - Sub Places.shp
General Operation
General Operation
Access Column
Assign Column
Insert Calculation
Checl
column.set_Item('PROVINCE',)
4
OK
Selected Geometries
Cancel

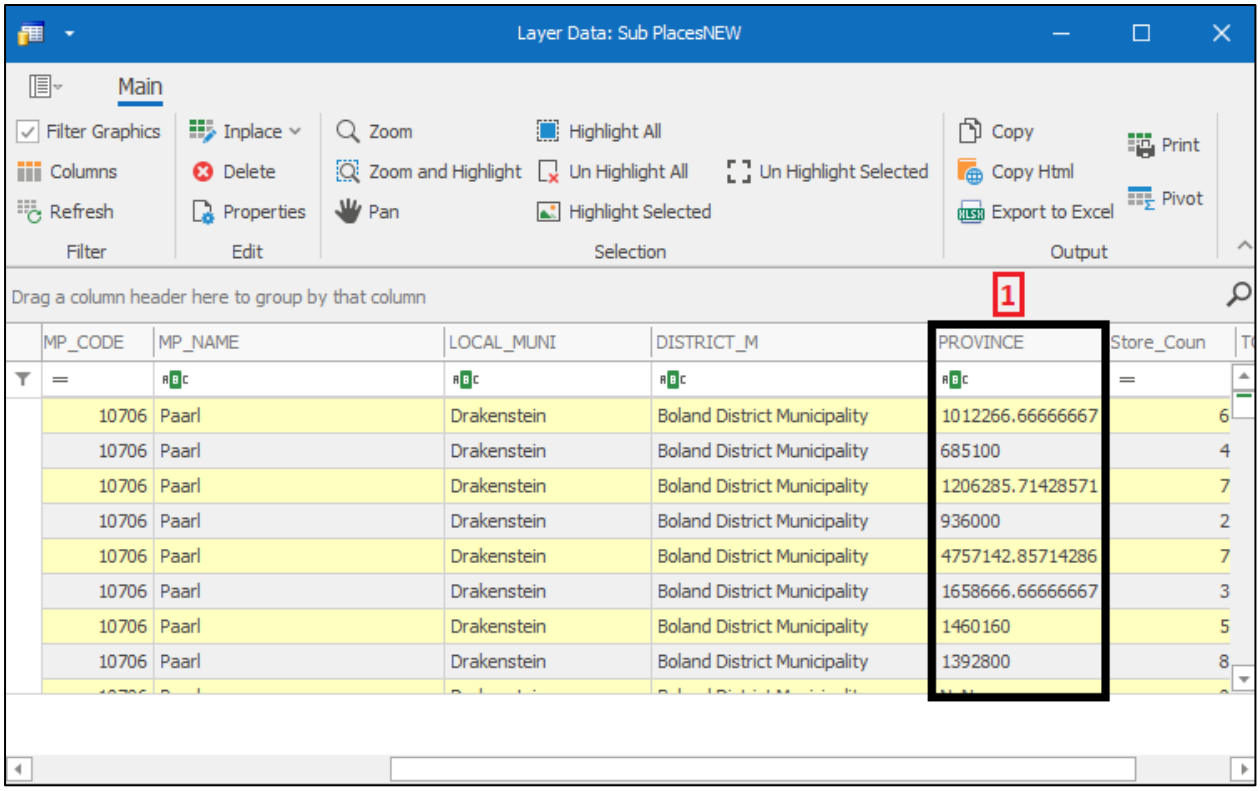

Layer Operation - Sub Places.shp
General Operation
5
General Operation
Access Column
Assign Column
Insert Calculation
Checl
)
Cancel
geometry
column.get_Item('Geometry')
column.get_Item('OBJECTID')
column.get_Item('SP_CODE')
column.get_Item('SP_NAME')
column.get_Item('MP_CODE')
column.get_Item('MP_NAME')
column.get_Item('LOCAL_MUNI')
column.get_Item('DISTRICT_M')
column.get_Item('PROVINCE')
column.get_Item('Store_Coun')
column.get_Item('TOTAL VOLU')





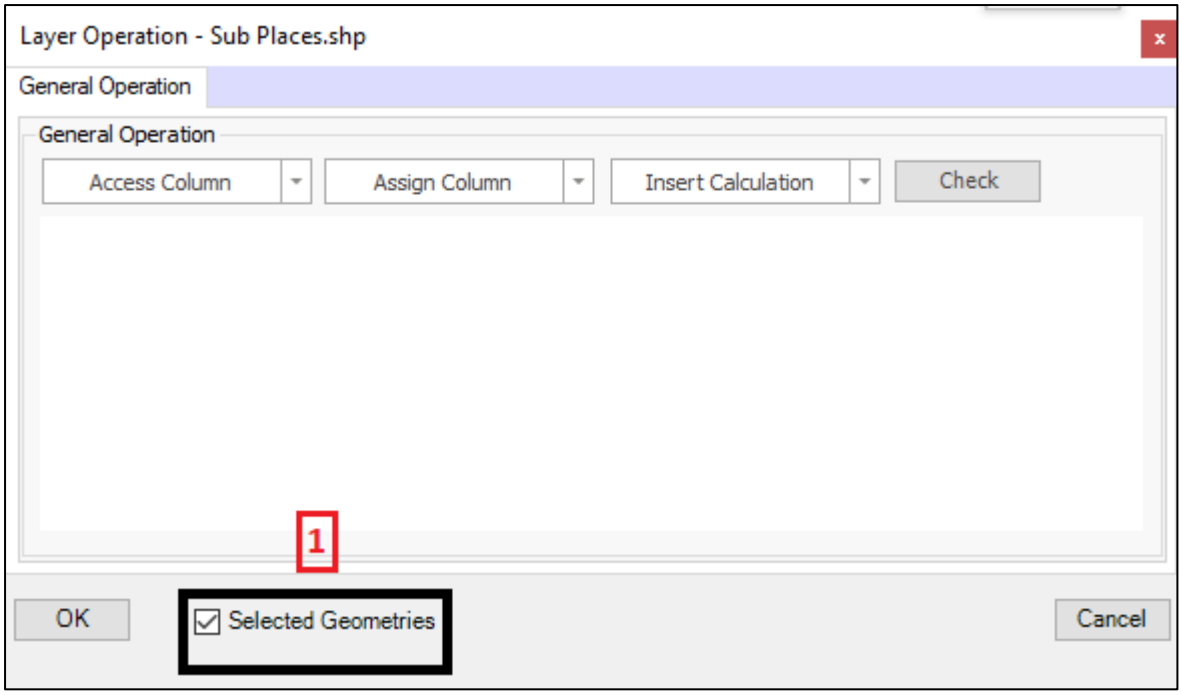


Now that I have entered in my full expression I can go ahead and run this operation and then in the layer data grid of the new layer that was created you can see my Province column has been assigned the values of the calculation that I did(1):



Note: Each time a layer operation is done a new layer will be created with the result of that operation. In this example all the data in the original layer is in the new layer except with the layer operation result as well, which in this case is the quotients of my Total Volume and Store Count columns populated in my Province column.

If you only want to do the operation on selected geometries, then you would have **Selected Geometries**(1) ticked on:



Scripts

With the General Layer Operation you can also define scripts to do things in addition to the predefined calculations from the "Insert Calculation" dropdown.

Examples:

1. Sometimes you may have a layer where the X and Y coordinates are together in one column and the Z value is in its own column called "Level" perhaps.
   The result can be that the layer only gets plotted in 2D using the X and Y coordinates.

   In order to get the layer to be plotted at the correct level (Z coordinate) and not just in flat 2D you can run the following script on the layer:

   Row['Geometry'] = Row.Geometry.Project3D().Transform(new PrimeThought.Spatial.AffineTransform(0,0, Row['Z']))

   The 'Z' is a placeholder for the name of whatever column has the Z coordinate in your data.

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