

Further Work – Using Expressions

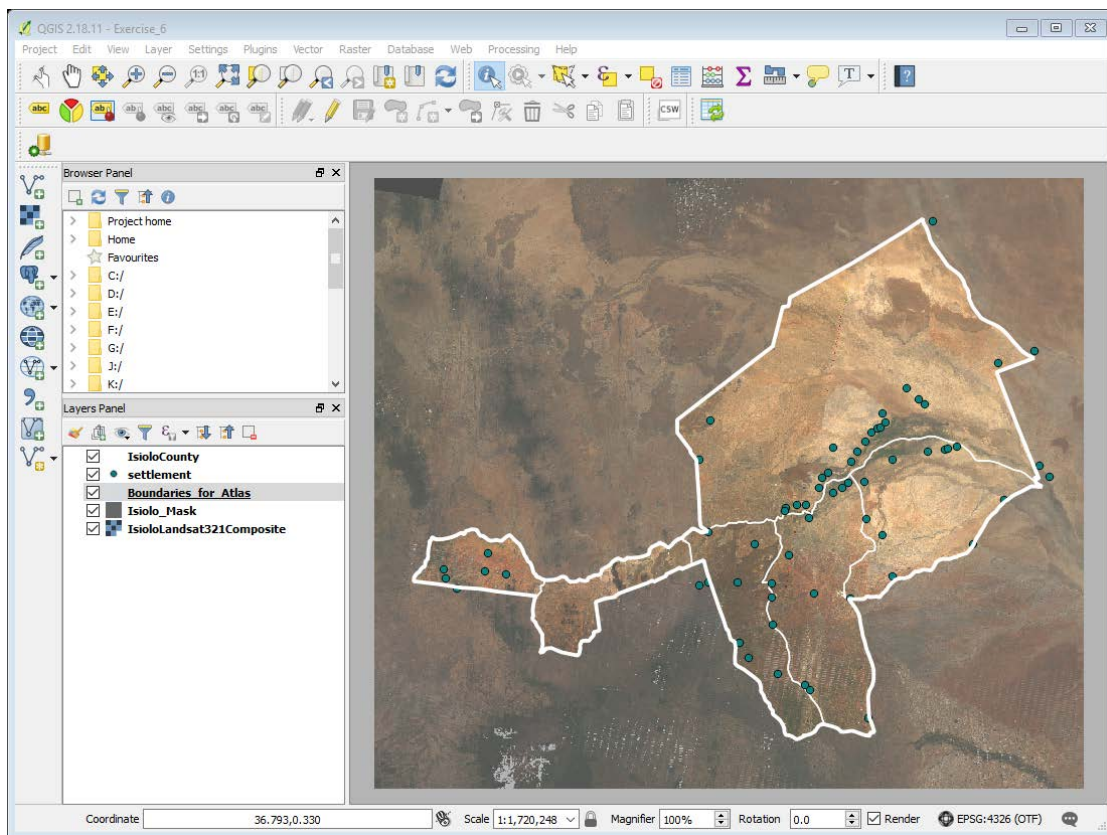
Objective – To learn how to use expressions for labelling and symbology in QGIS

The data we are using for this exercise is for Isiolo county, Kenya.

- Open the following QGIS project:

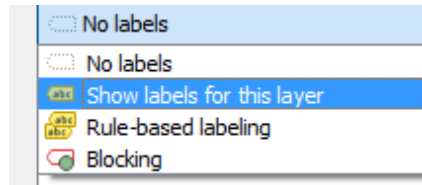
C:\Intro_Quantum_GIS\Exercises\Further Work\FW_expressions.qgs

- The map project should appear similar to below. The data shown is Landsat imagery, administrative boundaries and settlements.



Step 1 – Labelling the administrative boundaries

- Right click on the Boundaries_for_Atlas layer → Properties→Labels
- Change the top drop down menu option to be “Show labels for this layer” as shown below:



- Choose **admin_level** as the Field to label with from the “Label with” drop down menu.
Set the other properties as follows:

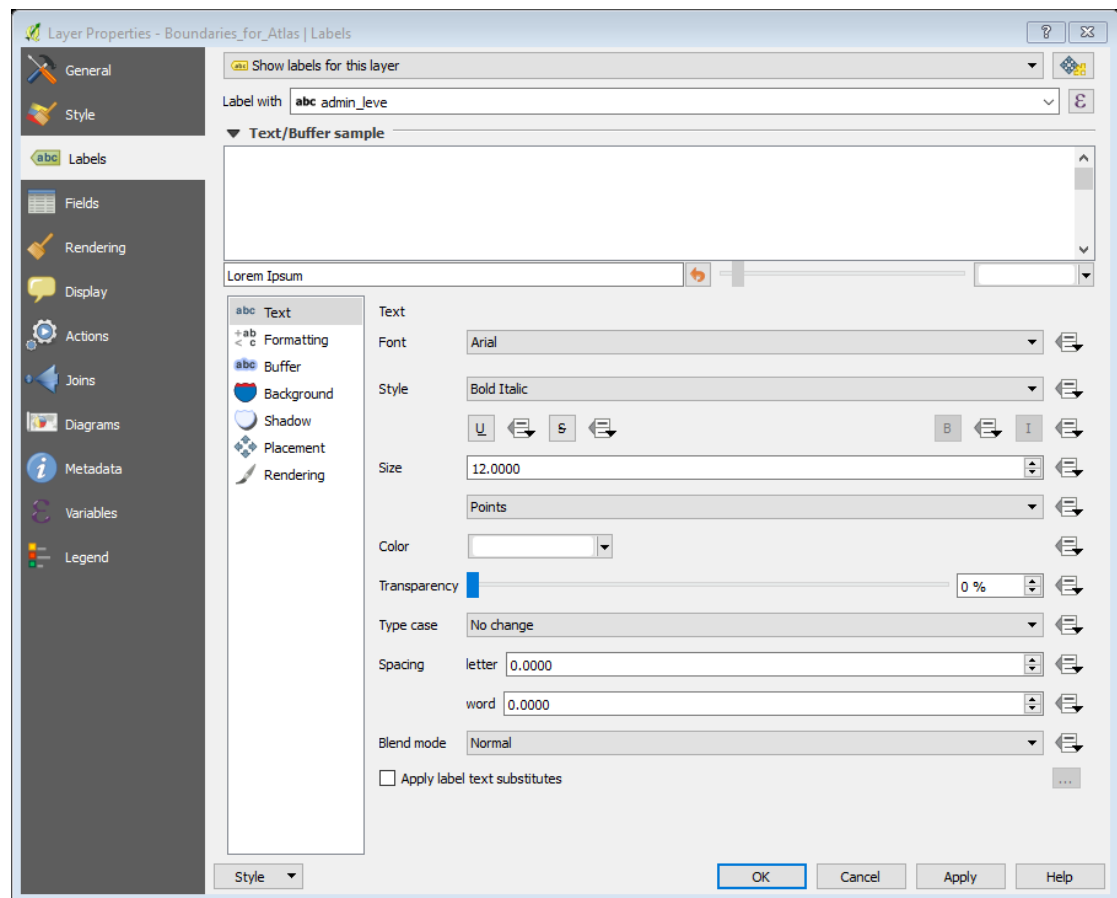
Text tab

Text font – Arial

Text Style – Bold Italic

Size – 12

See the screenshot below:



Shadow tab

Tick Draw drop shadow

Offset 50 degrees

2.0000

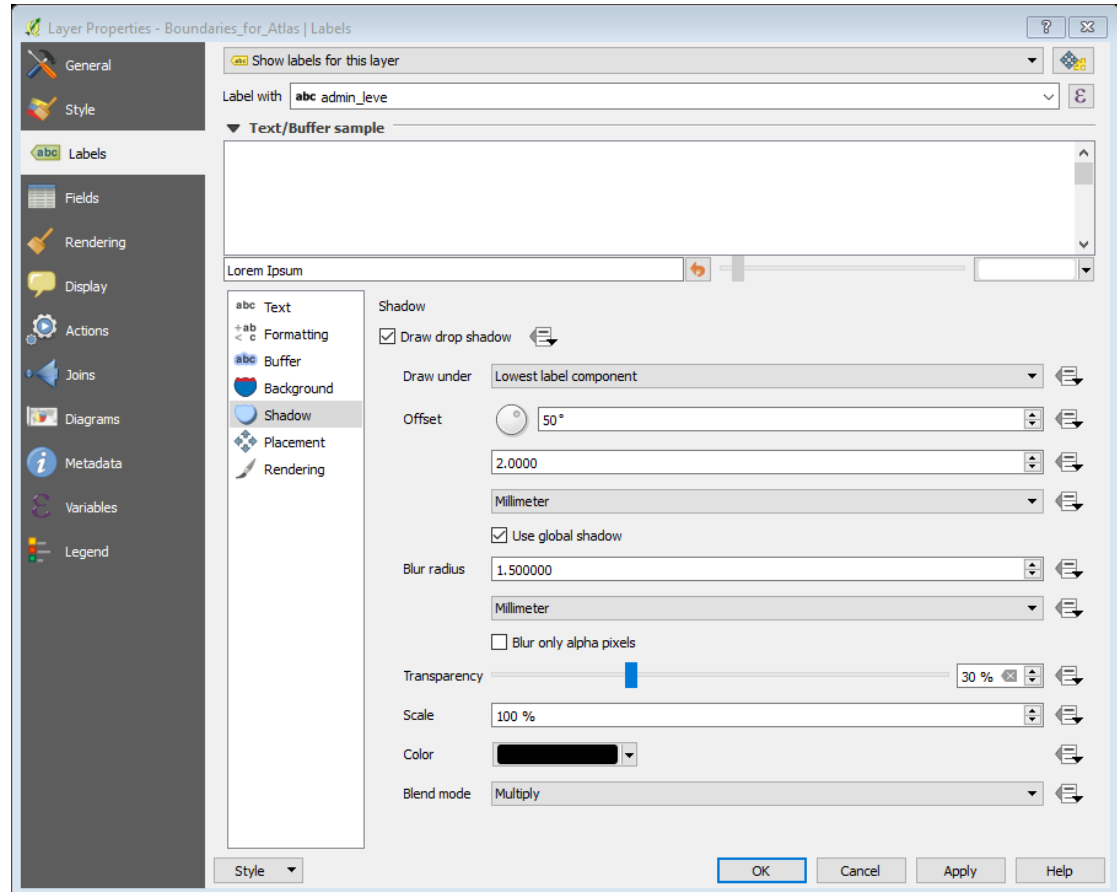
Millimeter

Tick use global shadow

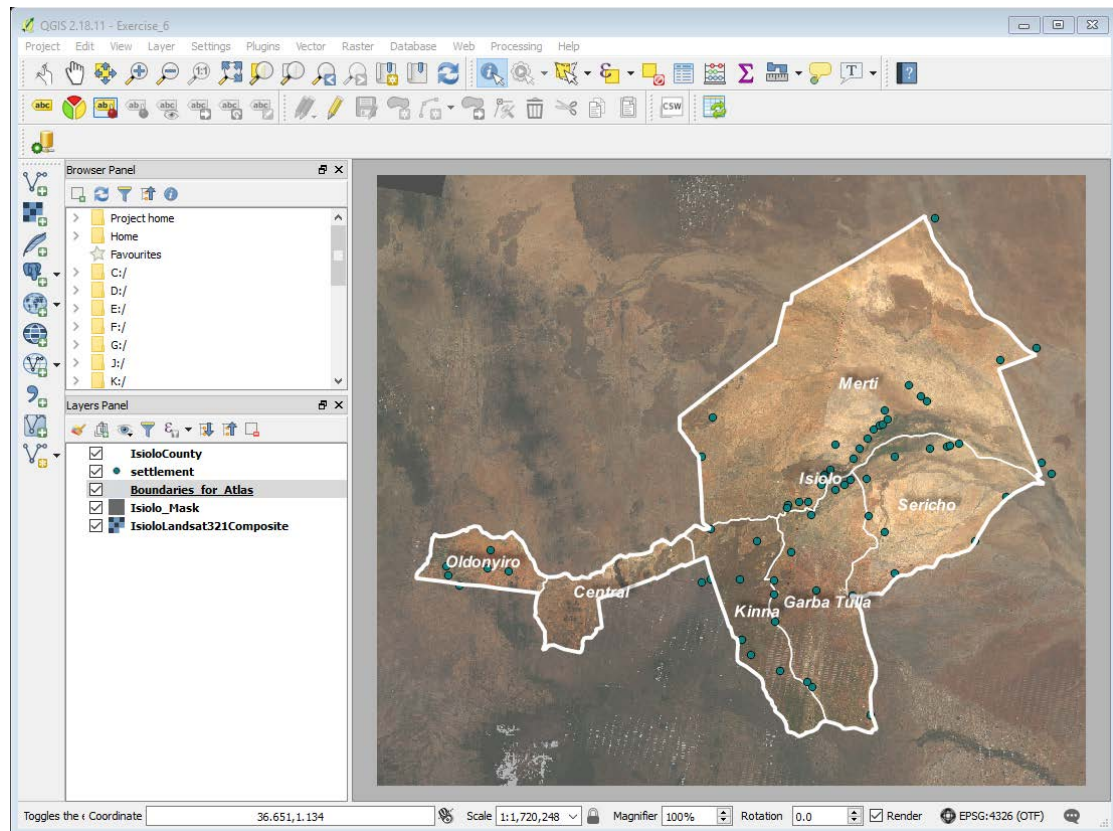
Blur radius 1.5

Blend mode Multiply

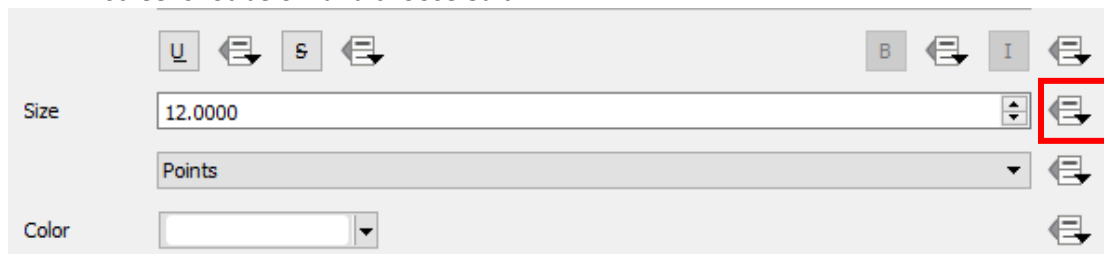
See the screenshot below:

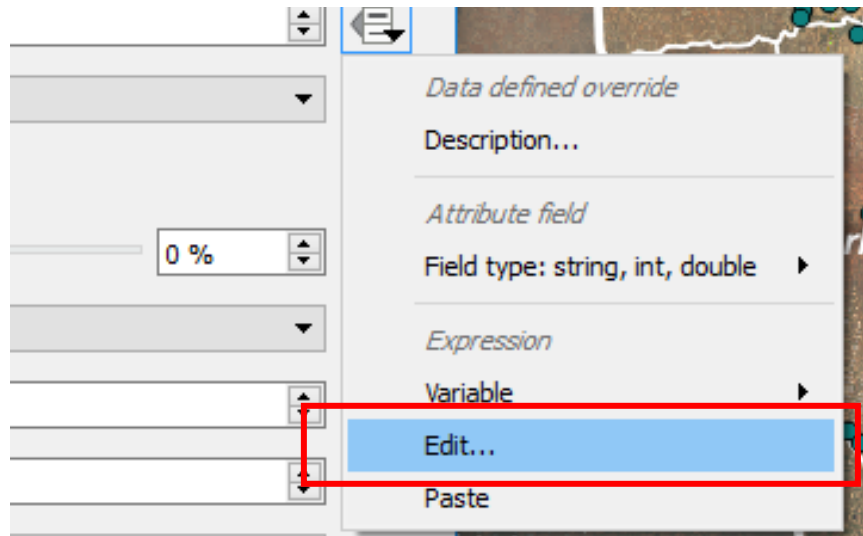


- The map should now appear similar to below:

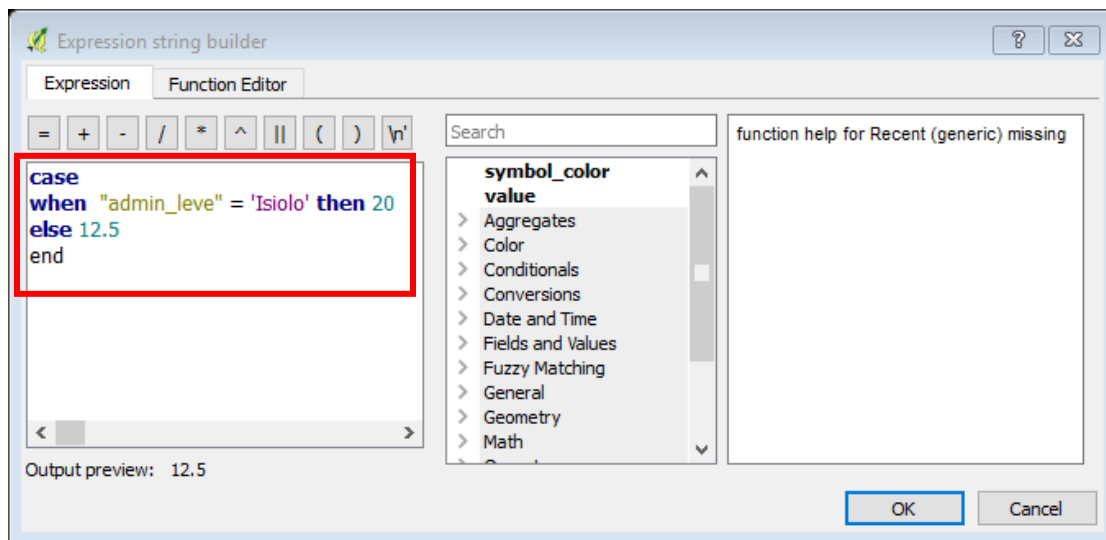



- The issue with these labels is that the Isiolo label should be larger than the smaller administrative areas. This can be achieved using an expression within the labelling properties.
- Navigate back into the labels tab of the layer properties for Boundaries_for_Atlas -> Right click->Properties->Labels
- Within the text tab to the right of the size box click onto the icon highlighted in the screenshot below and choose edit:

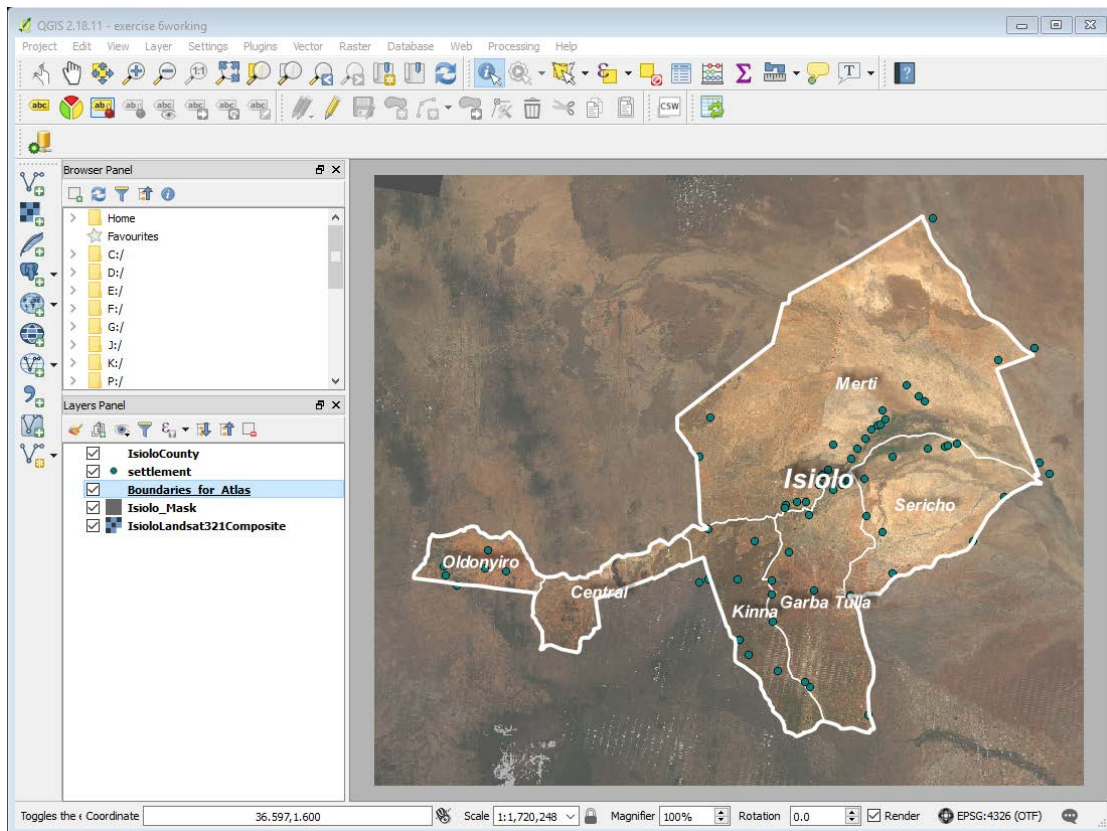




- A pop up query dialog should appear.
- Within this box we will write a query to change the text size based on the boundary being named Isiolo. Write the following into the dialog box:



- This query states that when the “admin_level” field is equal to Isiolo then set the size of the text to be **20**. For any other features set the size of the text to be **12.5**.
- Within the QGIS layer properties anytime that this symbol is present  it is possible to set up a query to change how the specific property of the layer is displayed. This is called **data driven** properties.
- Click OK to exit the properties dialog. The labels should now appear as shown below:

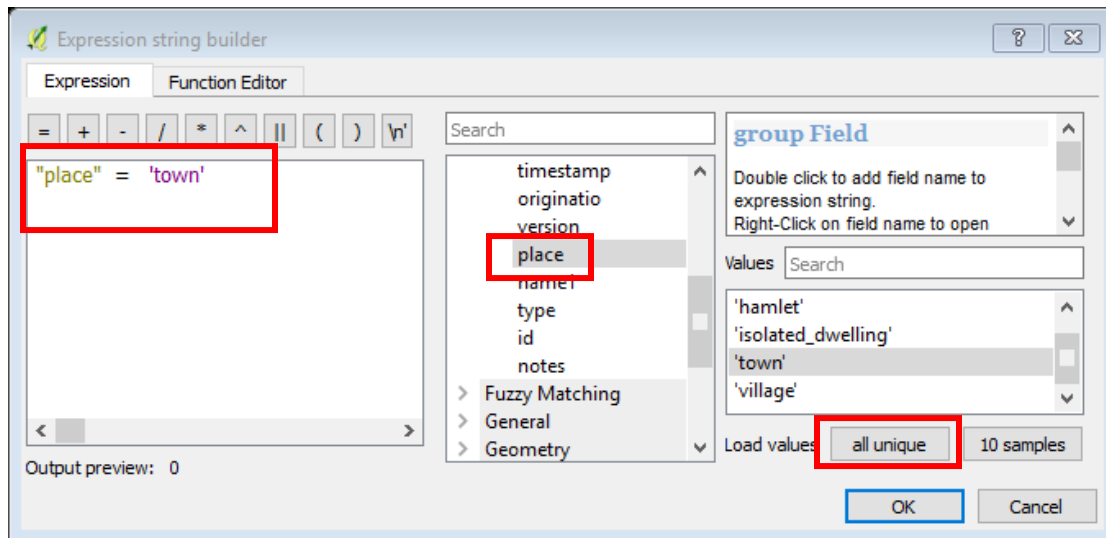


Step 2 – Symbolising the settlements

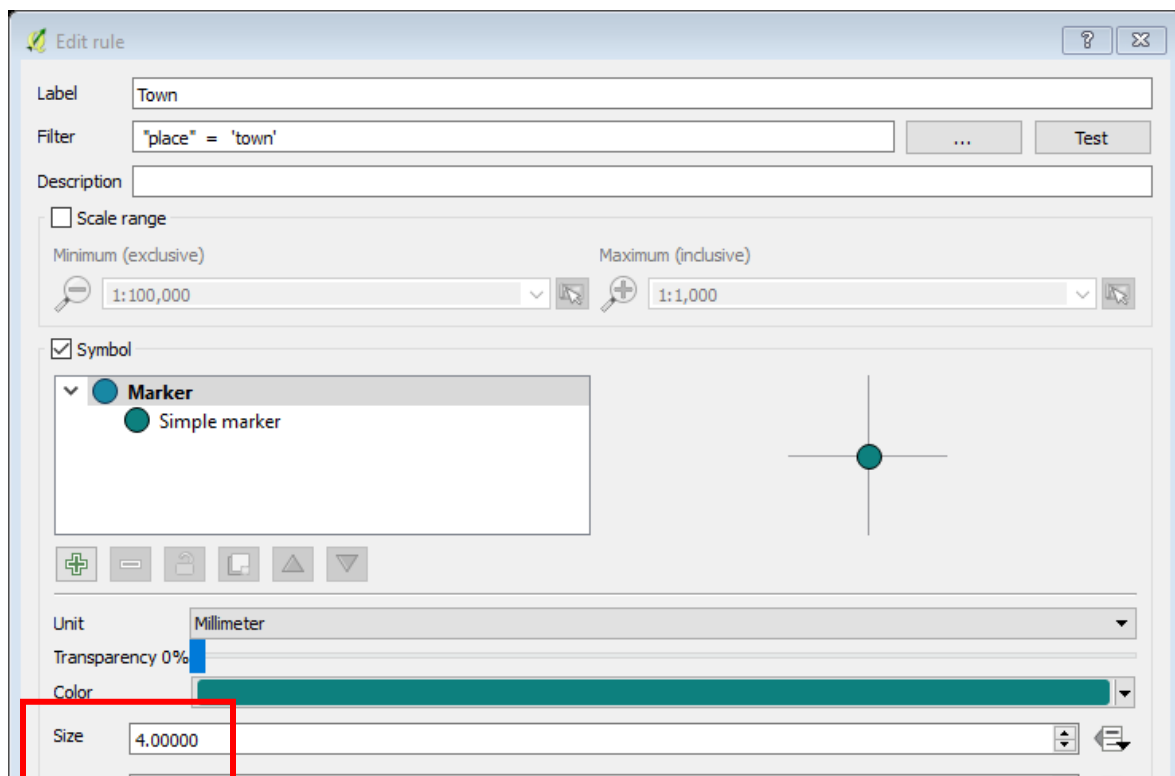
- In this next step we are going to symbolise the settlements based on the type of settlement.
- Right click on the settlement layer → Properties → Style
- From the top drop down menu choose “Rule-based”
- Double click on the (no filter) text as highlighted below to open the query dialog:



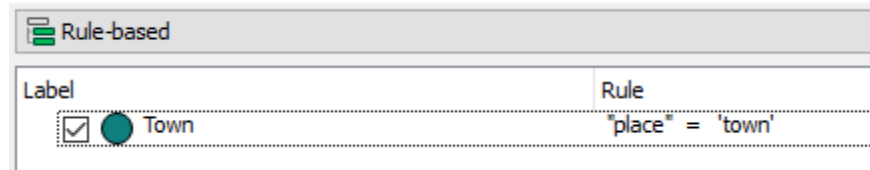
- Type “Town” into the Label input box. Then click onto the button to the right of the Filter input box. This will open the query dialog
- Expand the fields and values menu from the central box and double click on “place”. This will make it appear in the query window.
- With the field name “place” highlighted in the central window click on the “all unique” button to see all unique values in the place field as shown below:




- Click OK
- Within the Edit rule dialog window change the colour as you wish (click onto the colour drop down and choose from the options) then set size of the town features to be 4 as highlighted below:



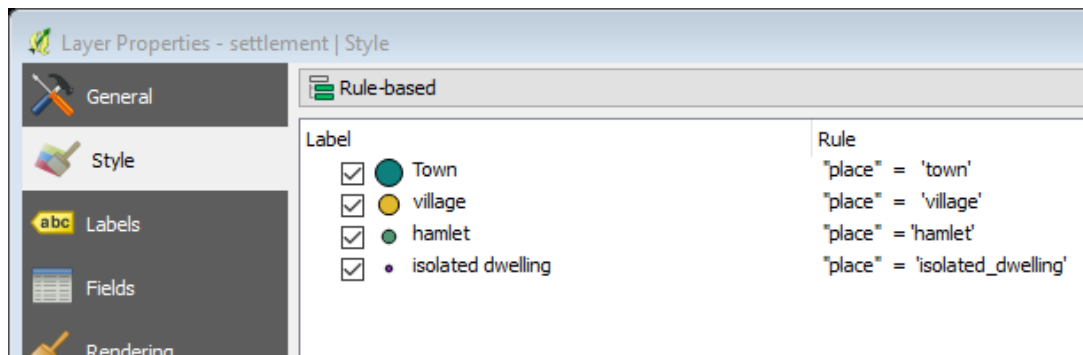
- Click OK
- The Rule-based style window should appear as shown below:



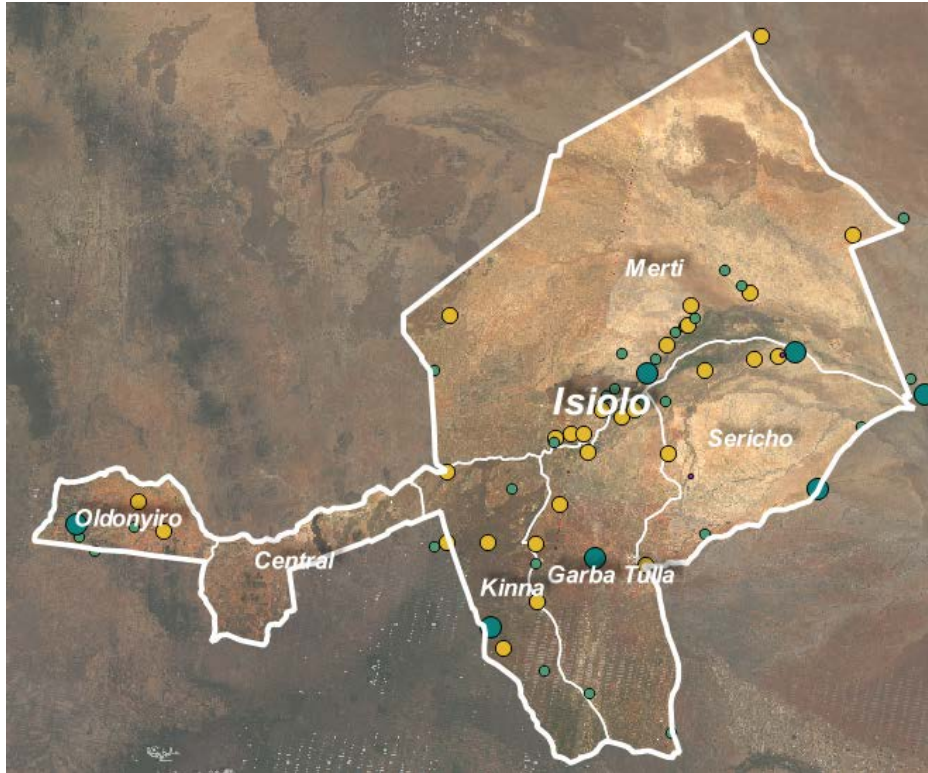
- Click the  button to add a new rule and complete the dialogs as with the town but for the following:

| Place | circle size | Text colour |
|-------------------|-------------|--------------------|
| Isolated dwelling | 1 | Delegate to choose |
| hamlet | 2 | Delegate to choose |
| village | 3 | Delegate to choose |



- The style dialog should appear similar to below:




- Click OK to set the style properties.
- The map should appear similar to below:



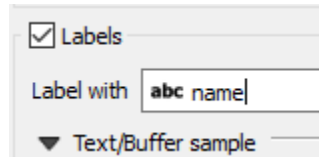
Step 3 – Rule based labelling for the settlements

- In this next step we are going to set up the labels for the settlements using rules as we did for the symbols. We are only going to label the towns and villages.
- Navigate back into the layer properties for the settlements → Properties→Labels→Rule-based labelling.
- Click onto the  to open the Edit rule dialog box
- Type Town into the Description input box.
- Click onto the  button to the right of the Filter input box to open the rule query dialog.
- Enter the query in the same way as you did for the labels using the fields and values drop down menu in the central box. The Edit rule dialog should appear similar to below:

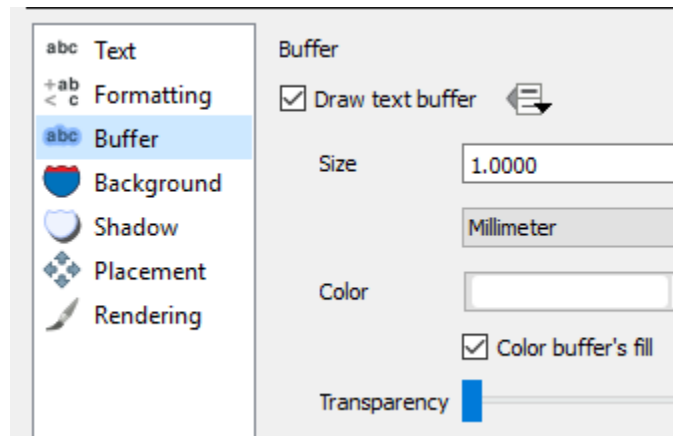
 Edit rule

| | |
|--------------------------------------|------------------|
| Description | Town |
| Filter | "place" = 'town' |
| <input type="checkbox"/> Scale range | |

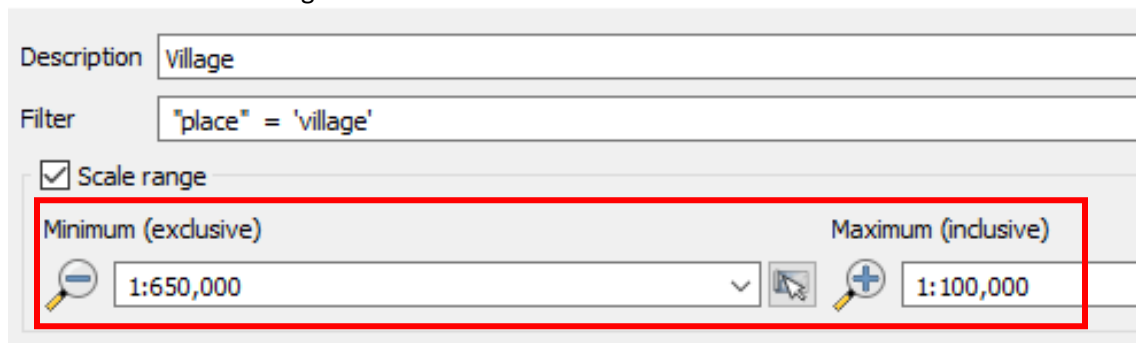
- Set the label with drop down menu to be “name” as shown below:



- Set the text size to be 11.
- Click onto the Buffer tab and click the check box to Draw text buffer and set the size to be 1 as shown below:



- Click OK
- Add another rule to label the villages. Use the same steps as before but make the text size 8 with the same buffer as the town text.
- Because there are many villages we want to set a scale range so that the labels only appear when we are zoomed in to the map beyond 1:650,000.
- Set the scale range as shown below:



Step 4 – Adding roads to the map

- Add the roads to the map located here:

C:\Intro_Quantum_GIS\Exercises\Data\Vector\Road.shp

- Using what you have learnt on the course so far symbolise the roads using a single symbol colour with a line thickness of 0.4.
- Save the project as *Exercise_FW_expressions.qgs*