MAP DESIGN

In this chapter you will learn all steps necessary to compose common maps from available map layers. One type of map that you will create is a choropleth map that color-codes polygons to convey information about areas. The second is a "point feature map" that uses point markers to display spatial patterns in point data.

Learning Objectives

- *Create choropleth maps*
- *Create group layers*
- *Create custom classes in a legend*
- *Create point maps*
- *Create a point feature map based on a definition query*

Tutorial 3 .1

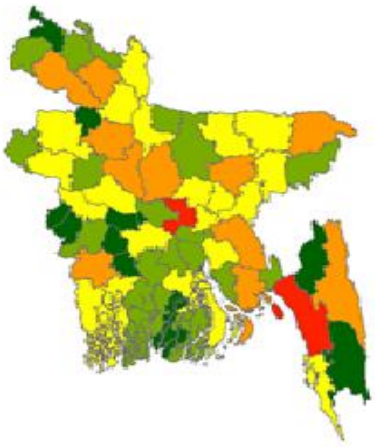
CREATE CHOROPLETH MAPS

3.1.1	Open and save a map document
3.1.2	Add a layer
3.1.3	Change a layer's name
3.1.4	Select a census attribute to display state population
3.1.5	Manually change class colors
3.1.6	Create a map layout

Tutorial 3.1

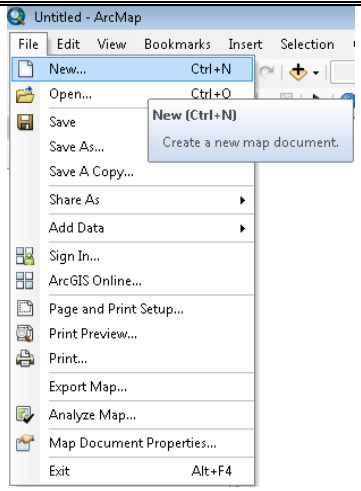
Create Choropleth Maps

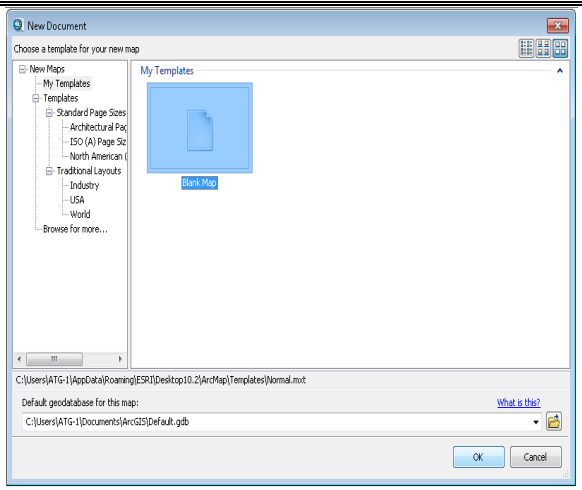
A choropleth map (as shown in the following figure) is a map in which polygon areas are colored or shaded to represent attribute values. In this tutorial you will use population data of Bangladesh to create choropleth maps.

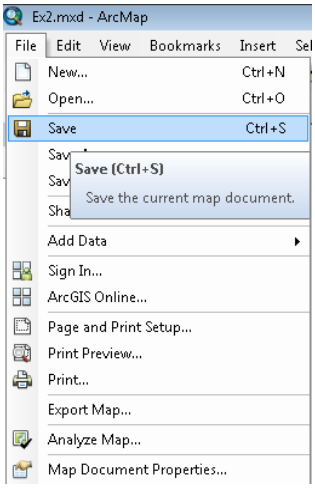


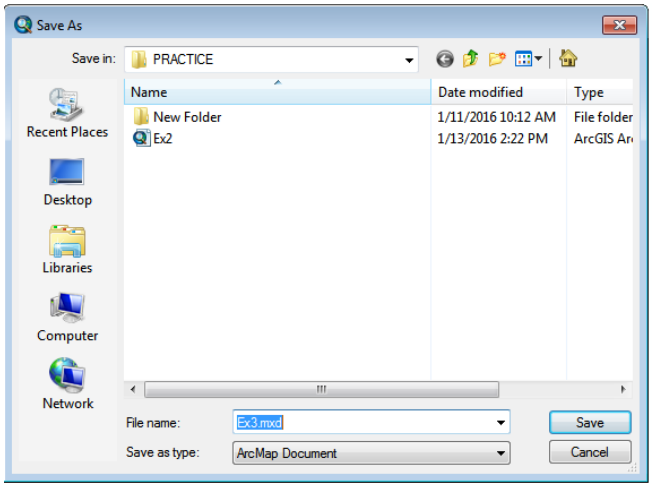
3.1.1 Open and save a map document

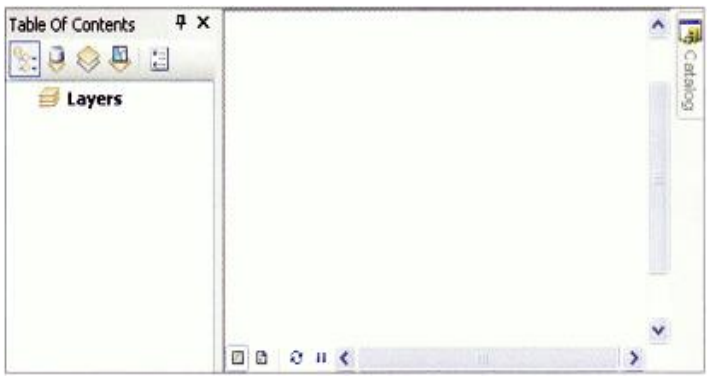
1. On your desktop, click Start, All Programs, ArcGIS, ArcMap 10.2.2
2. In the ArcMap – Click File, click New, click Blank Map ,click OK.
3. Save the file as Ex 3.mxd in Practice folder\Final







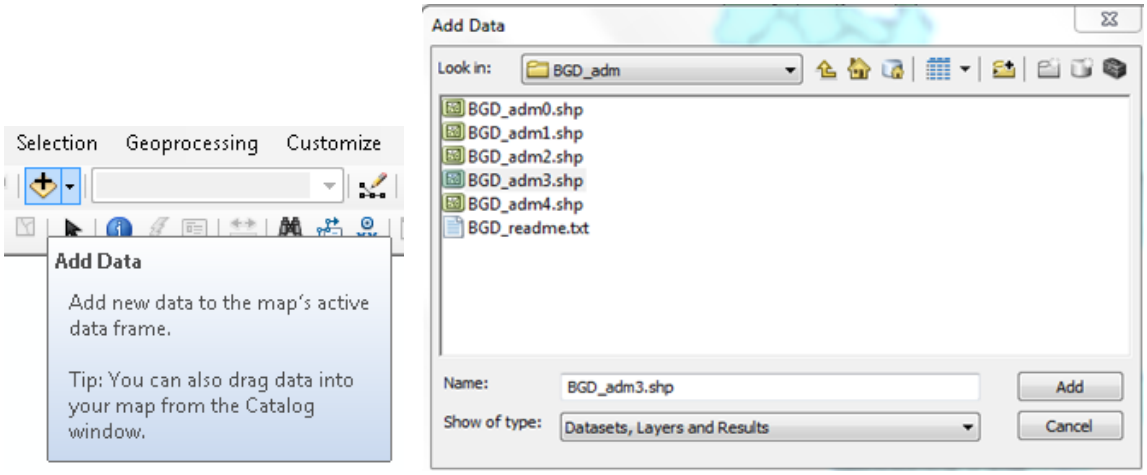


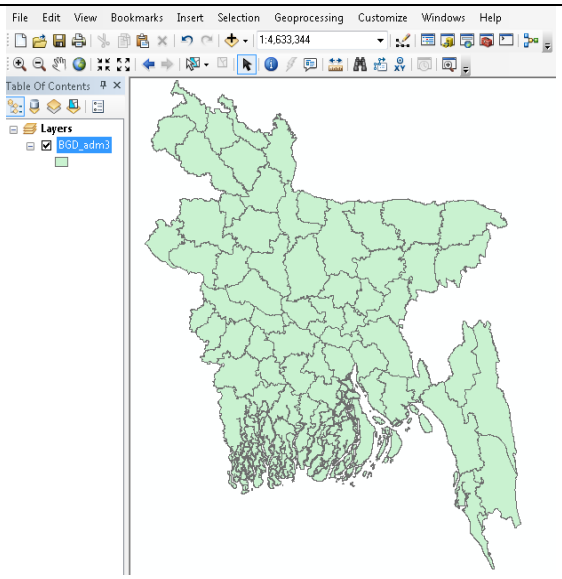


Arc Map opens a map with no layer added. You will add the layer needed for the exercises next.

3.1.2 Add a layer

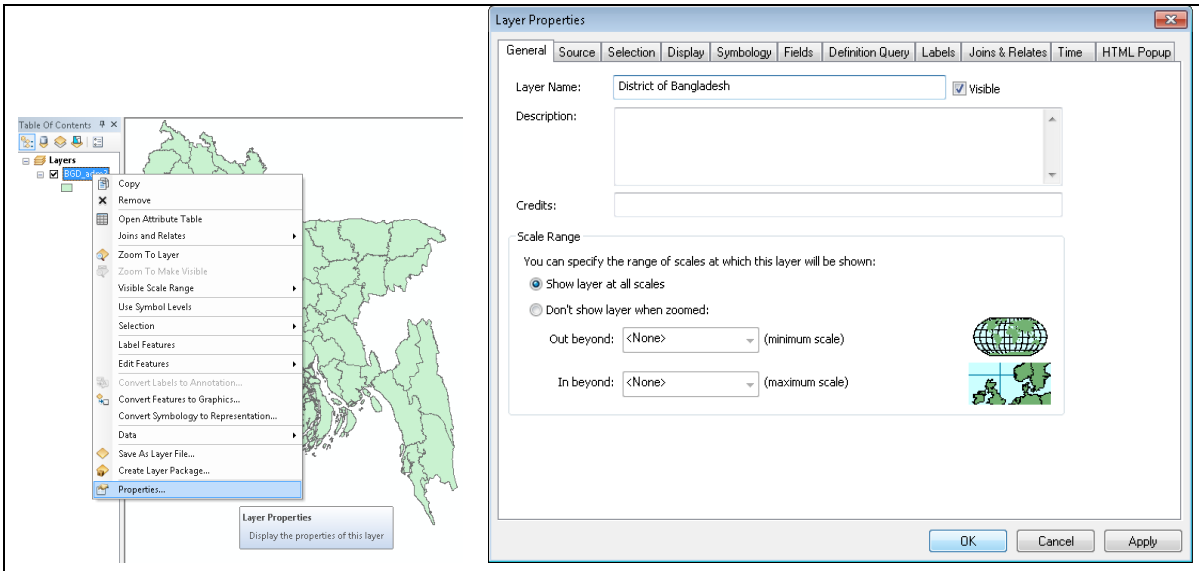
1. Click the Add Data button .
2. Navigate to D:\CE-210\Tutorial 3-3\DATA \BGD_adm3.shp

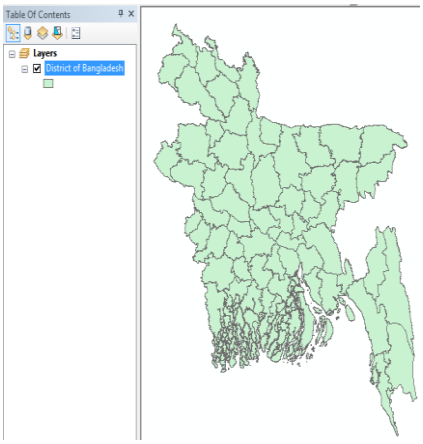




3.1.3 Change a layer's name

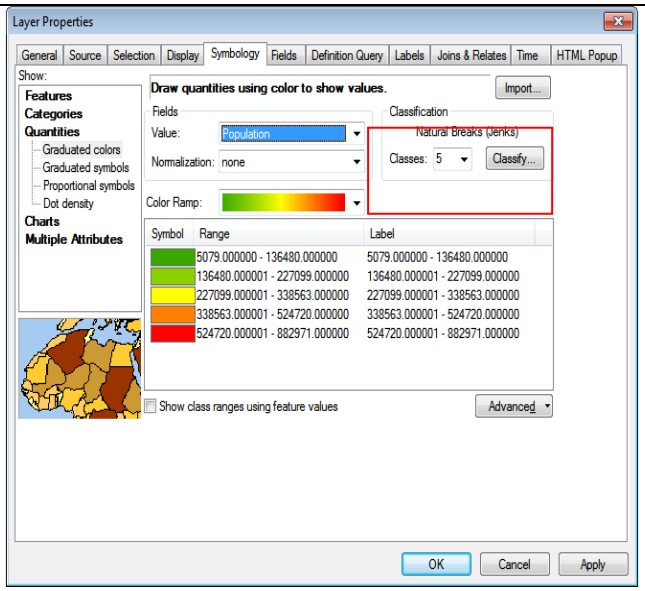
1. Right-click the BGD_adm3 layer in the TOC.
2. Click Properties.
3. Click the General tab.
4. Type **District of Bangladesh** as the new layer name and click OK.

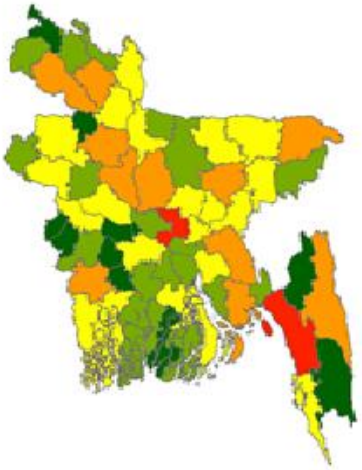




3.1.4 Select a census attribute to display state population

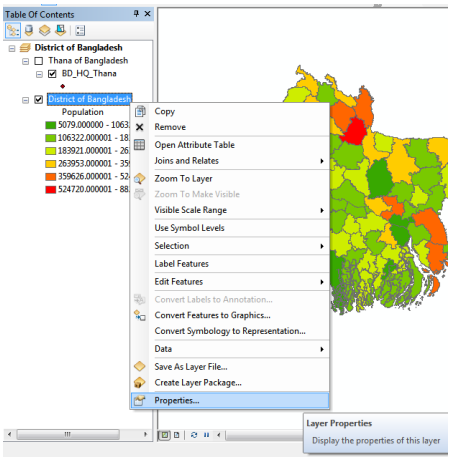
1. Right-click the **District Of Bangladesh** layer in the TOC.
2. Click Properties.
3. Click the Symbology tab.
4. In the Show box, click Quantities and Graduated colors.
5. In the Fields box, click the Value drop-down list and Population. Do not change other default settings.
6. Click the Color Ramp drop-down list, scroll down, and click the yellow-to-green-to-red color ramp.
7. Click OK.

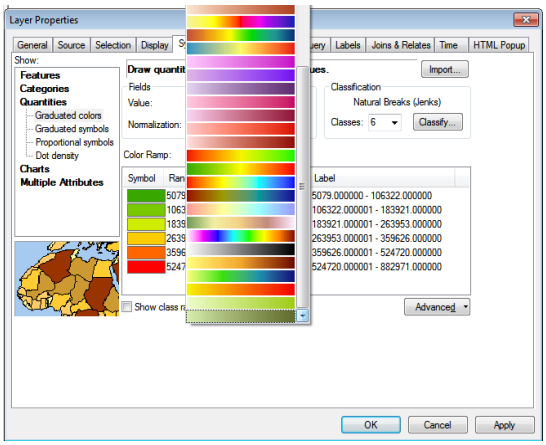


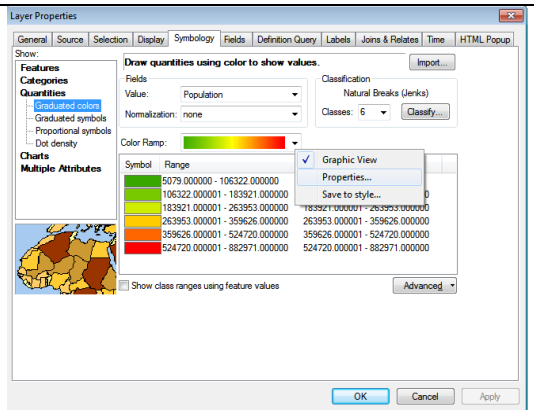


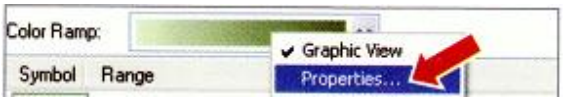
3.1.5 Manually change class colors

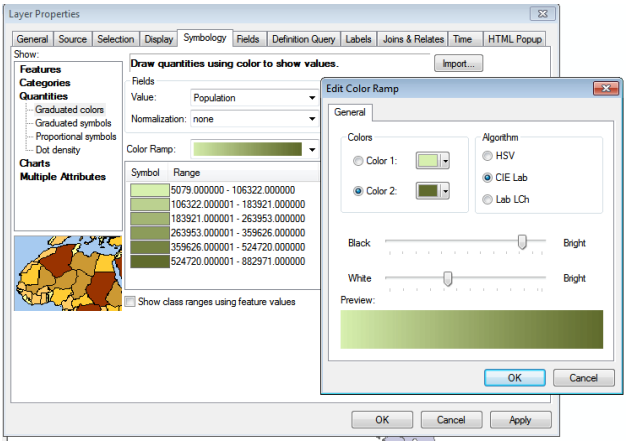
1. Turn on and Right-click the population layer and click Properties.
2. In the Layer Properties dialogue box, click the Symbology tab.
3. Click the Color Ramp drop-down list and scroll to and click the last color ramp.
4. Right-click the color Ramp and select Properties.
5. Click the color box beside Color 1 and click the Arctic White paint chip.
6. Click the color box beside Color 2, click the Dark Navy paint chip, and click OK twice.



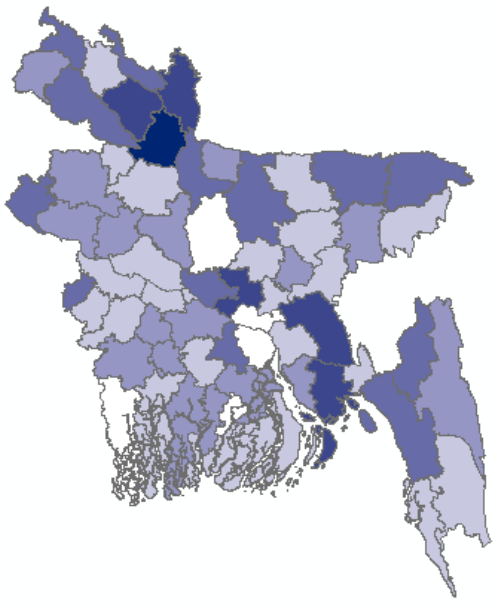






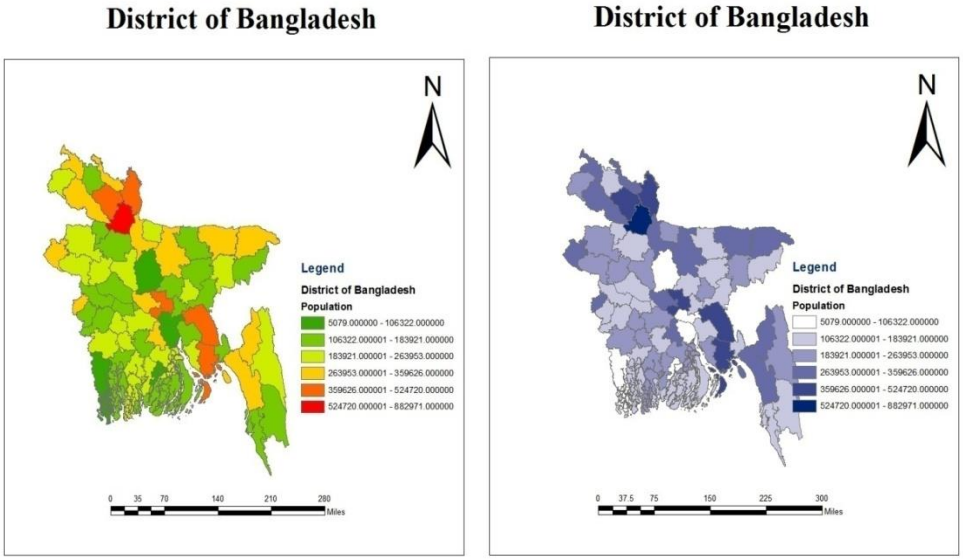






3.1.6 Create a map layout

Create a map layout with appropriate notations. (You can keep default color ramp or can change color manually)



Tutorial 3.2

Create Group Layers

3.2.1	Add a group layer to the map
3.2.2	Add a layer to the group
3.2.3	Saving layer file

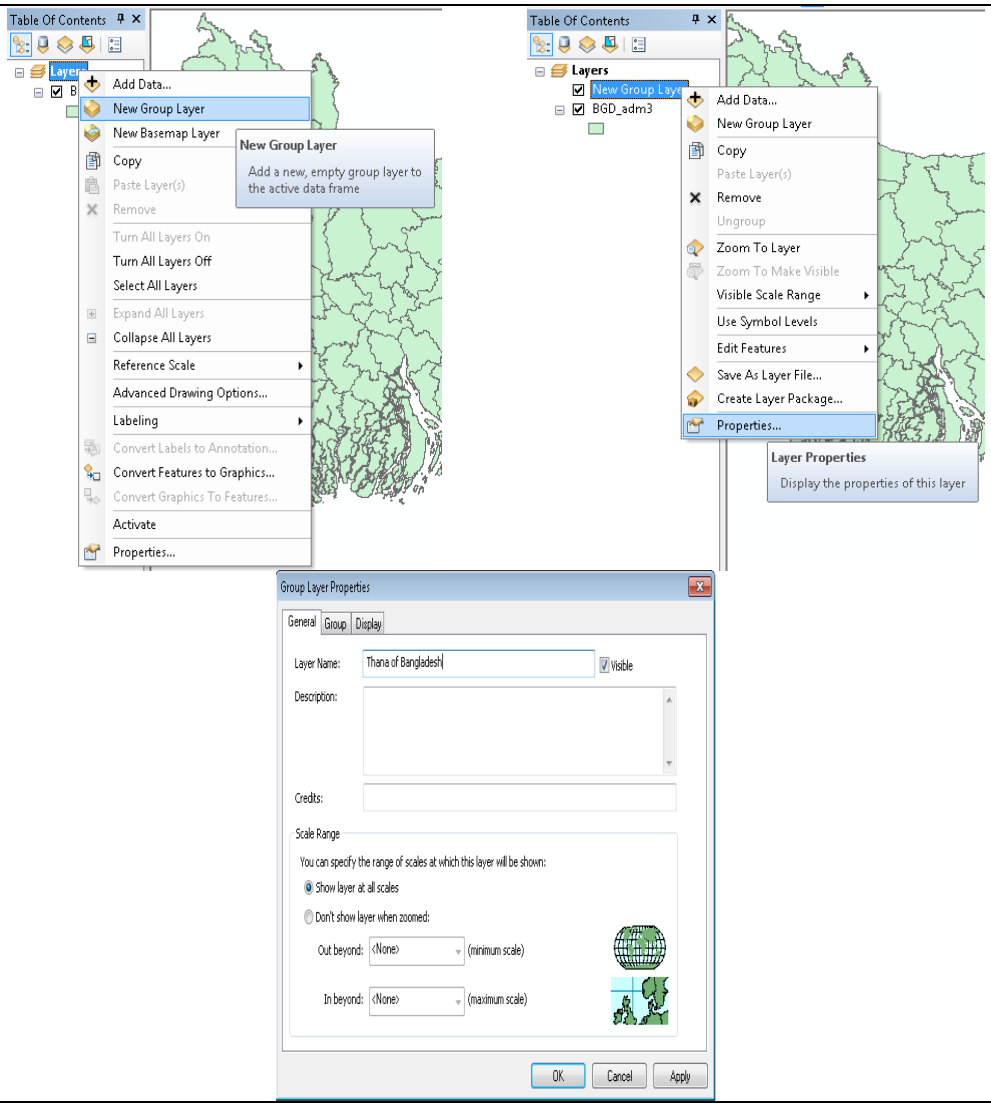
Tutorial 3.2

Create Group Layers

Group layers contain other layers allowing for better organization of the layers in your map. Group layers have behavior similar to other layers in the TOC. Turning off the visibility of a group layer turns off the visibility of all its component layers.

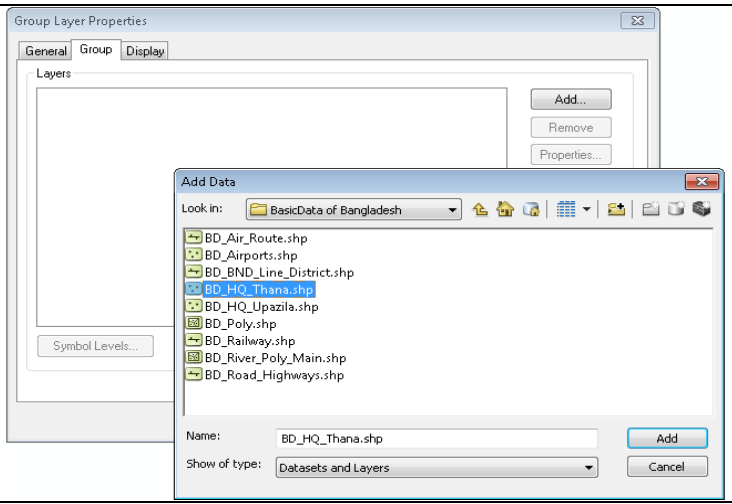
3.2.1 Add a group layer to the map

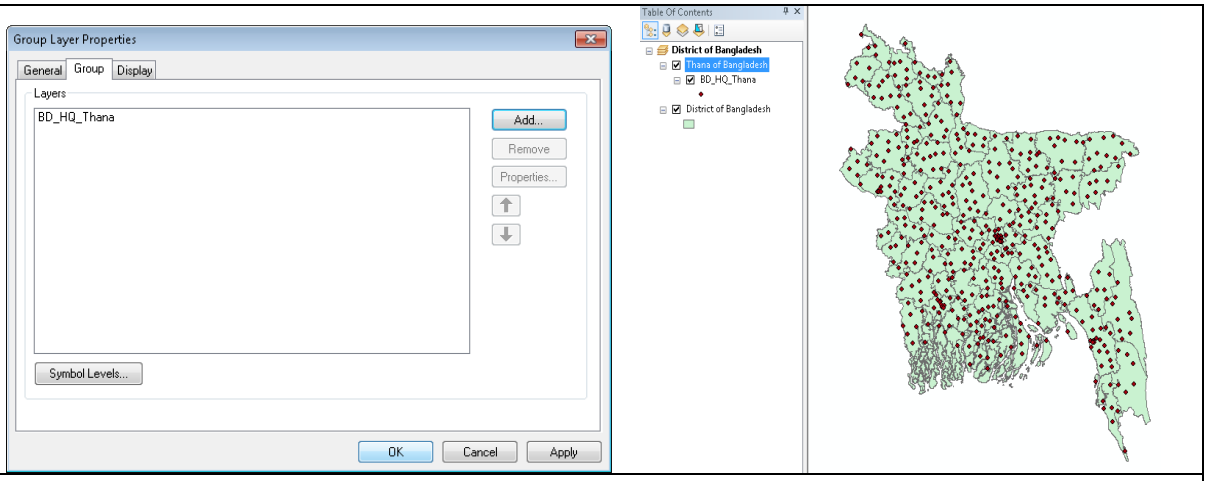
1. Right-click layers in the TOC.
2. Click New Group Layer.
3. Right-click the resulting New Group Layer and click Properties.
4. Click the General tab.
5. Type as the group layer name “Thana Of Bangladesh”(**but do not click OK**)



3.2.2 Add a layer to the group

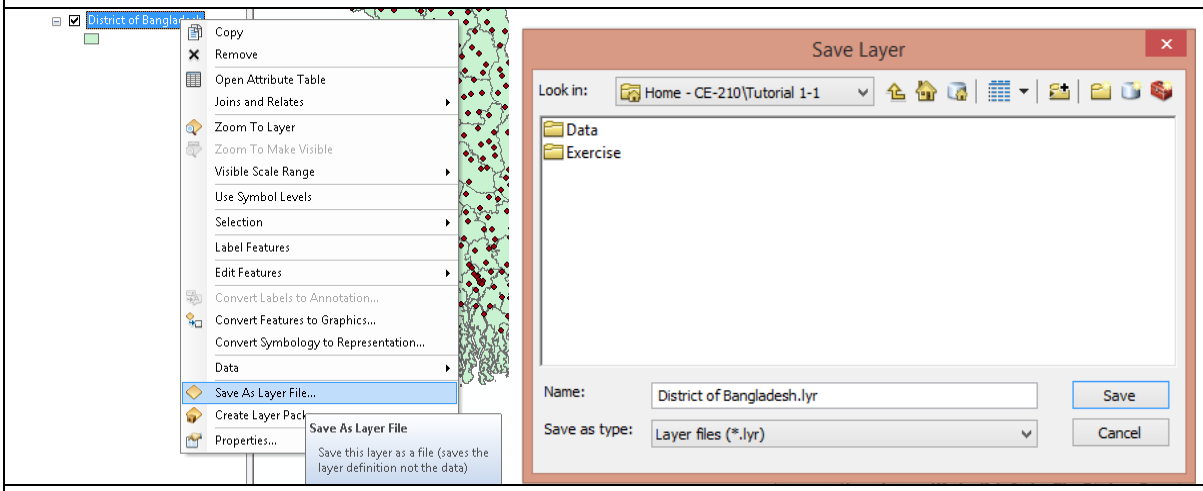
1. Click the Group tab in the Group Layer Properties window.
2. Click the Add button and navigate to D:\CE-210\Tutorial 3-3\DATA of Bangladesh
3. Click BD_HQ_Thana and click Add and OK.





3.2.3 Saving layer file

1. Right-click the District Of Bangladesh layer group and click Save As Layer File.
2. Navigate to the Home-CE-210\Practice.
3. Type **District of Bangladesh .lyr** in the Name field.
4. Click Save.



Tutorial 3.3

Create choropleth map using custom attribute scales

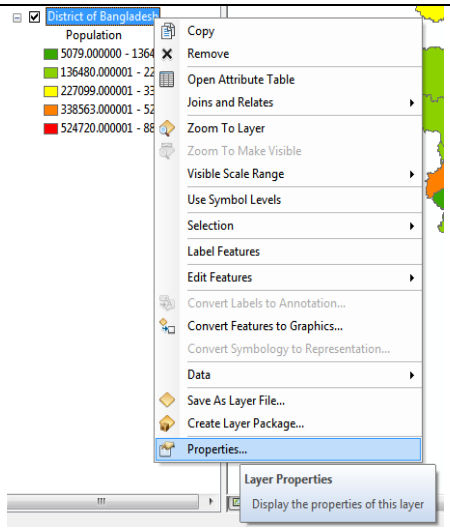
3.3.1	Classification method: Natural Breaks
3.3.2	Classification method: Manual
3.3.3	Classification method: Quantile
3.3.4	Classification method: Geometric Interval
3.3.5	Classification method: Standard Deviation

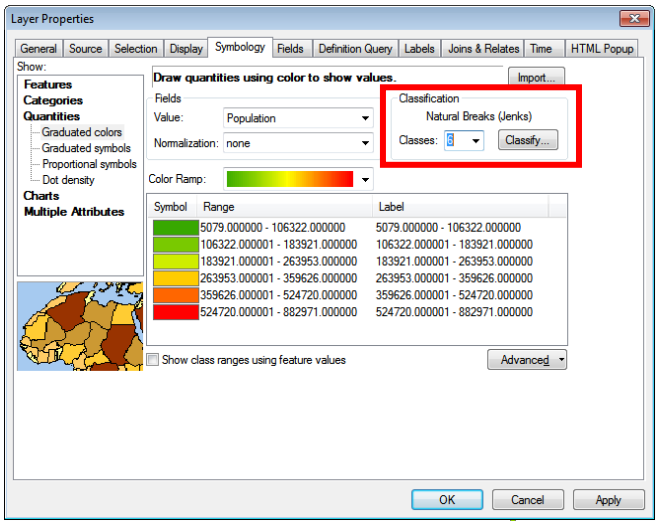
Tutorial 3.3

Create choropleth map using custom attribute scales

3.3.1 Classification method: Natural Breaks

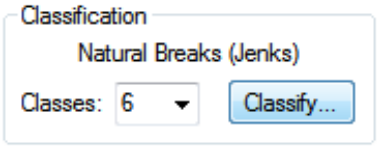
1. Zoom to the full extent .
2. Right-click the District Of Bangladesh and click Properties.
3. In the Layer Properties dialogue box, click the Symbology tab.
4. In the classification panel, click the Classes drop-down list, select 6 and classify.
5. Keep the classification method as Natural Breaks (Jenks)
6. Change the layer name as "Natural Breaks".

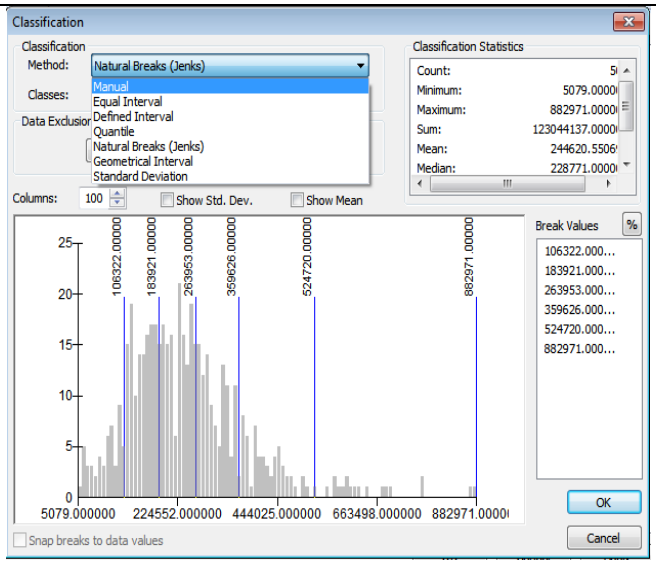




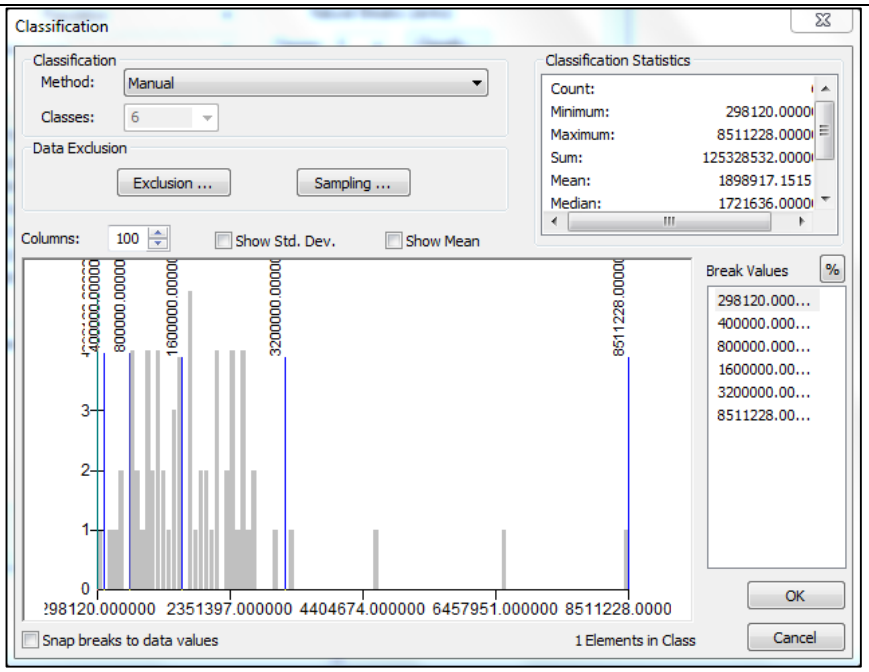
3.3.2 Classification method: Manual

1. Click the Add Data button .
2. Navigate to D:\CE-210\Tutorial 3-3\DATA \BGD_adm3.shp
3. Change the layer name to "Manual"
4. Click the classify option and then from the drop-down list for the classification Method select Manual.
5. In the Break Values panel, click the fifth value.
6. Type 32,00,000 and press Enter.
7. Continue clicking the break values above the last one changed and enter the following:16,00,000; 8,00,000; 4,00,000.Let the first (minimum) value remain 2,98,120 and last (maximum) value remain 85,11,228.

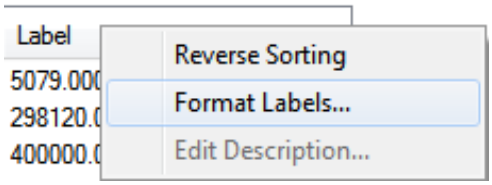


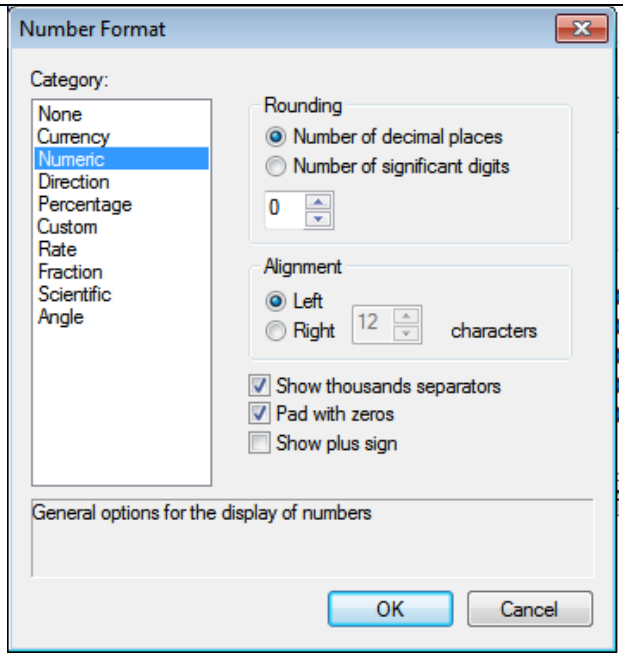






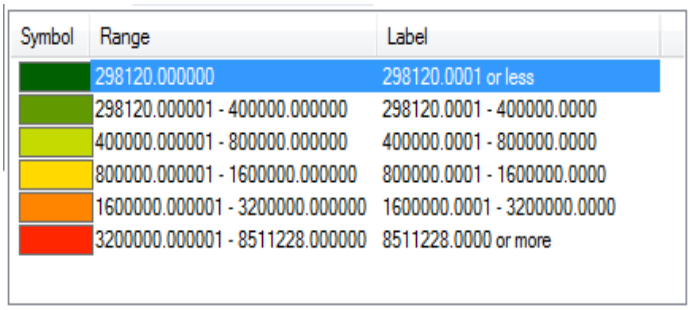
8. Click the gray Label heading, and then click Format Labels.
9. In the Number Format dialogue box, select Show thousands separates and click OK.





10. In the Label field of the Symbology tab, change the first value to 2,98,120 or less and the last label to 85,11,228 or more.

11. Click OK.



3.3.3 Classification method: Quantile

1. Click the Add Data button .

2. Navigate to D:\CE-210\Tutorial 3-3\DATA \BGD_adm3.shp

3. Change the layer name to "Quantile"

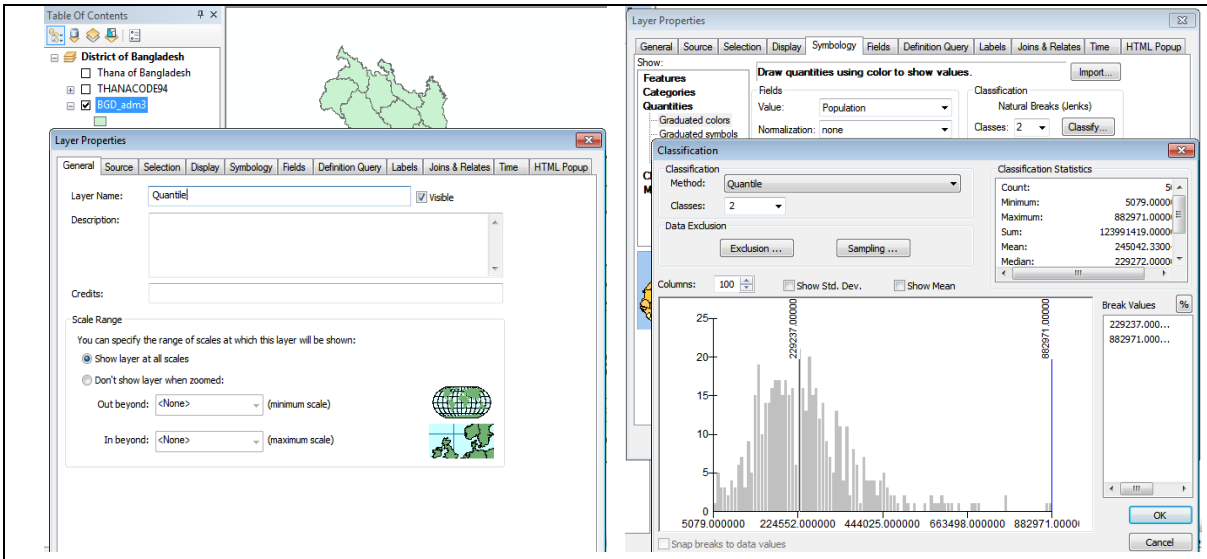
4. Zoom to the full extent .

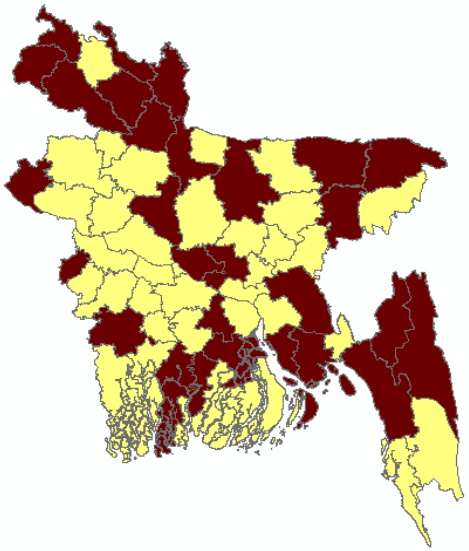
5. Right-click the Quantile and click Properties.

6. In the Layer Properties dialogue box, click the Symbology tab.

7. In the classification panel, click the Classes drop-down list, select 2 and classify.

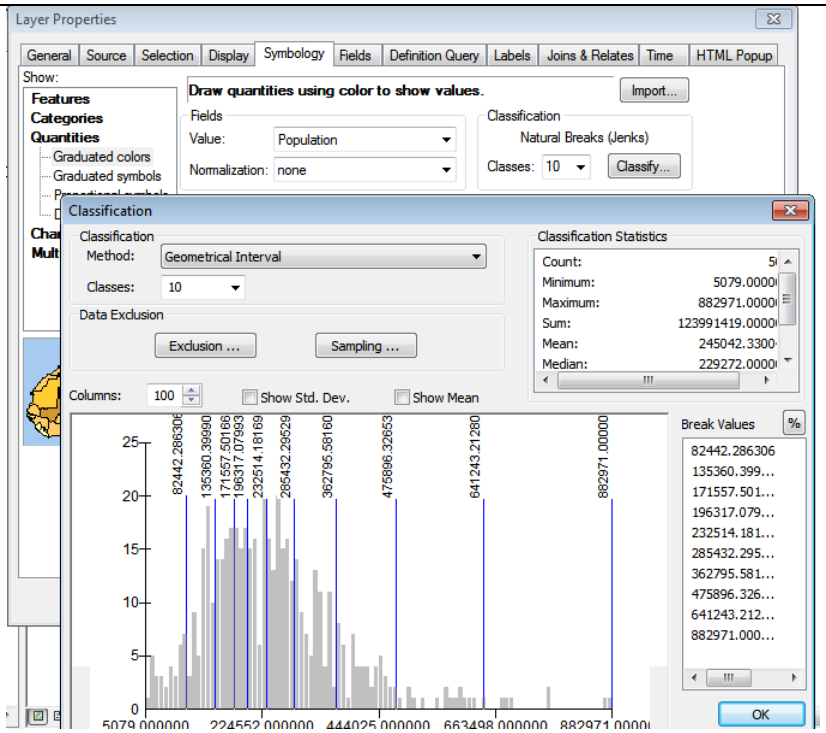
8. Select the classification method as Quantile.

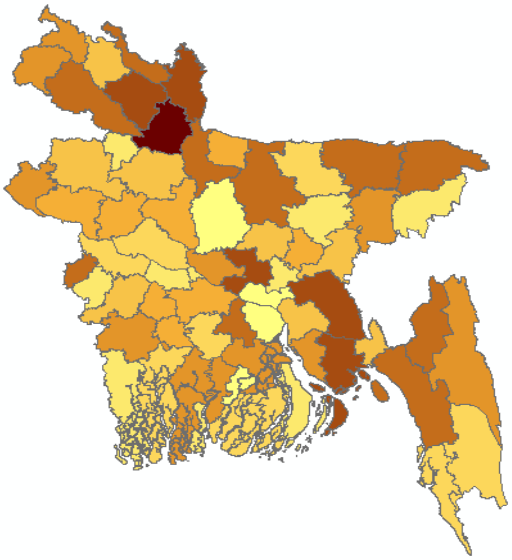




3.3.4 Classification method: Geometric Interval

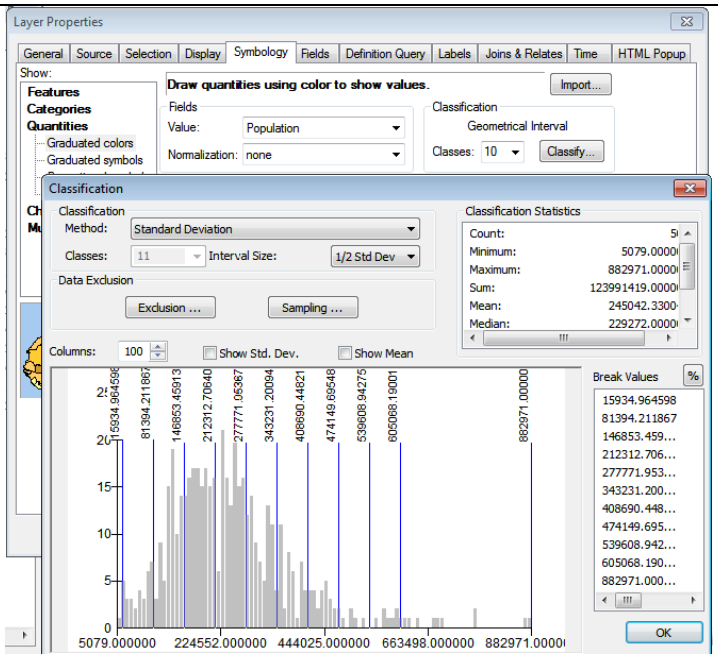
1. Click the Add Data button .
2. Navigate to D:\CE-210\Tutorial 3-3\DATA \BGD_adm3.shp
3. Change the layer name to "Geometric Interval"
4. Zoom to the full extent .
5. Right-click the Geometric Interval and click Properties.
6. In the Layer Properties dialogue box, click the Symbology tab.
7. In the classification panel, click the Classes drop-down list, select 10 and classify.
8. Select the classification method as Geometric Interval.

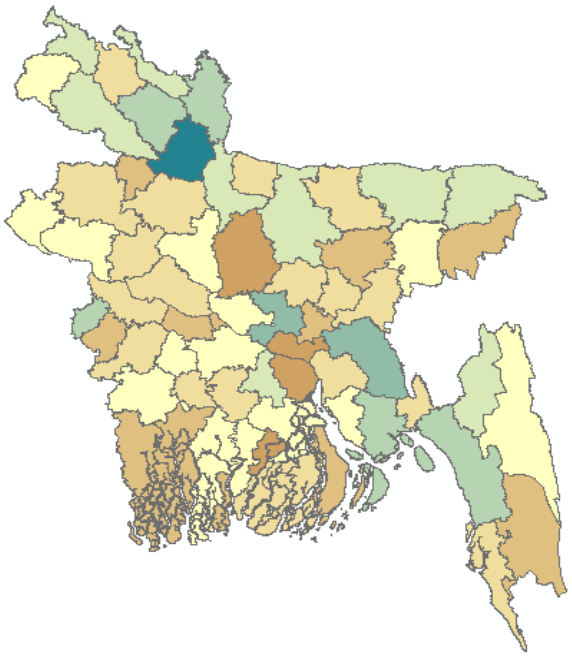




3.3.5 Classification method: Standard Deviation

1. Click the Add Data button .
2. Navigate to D:\CE-210\Tutorial 3-3\DATA \BGD_adm3.shp
3. Change the layer name to "Standard Deviation"
4. Zoom to the full extent .
5. Right-click the Standard Deviation and click Properties.
6. In the Layer Properties dialogue box, click the Symbology tab.
7. In the classification panel, click classify.
8. Select the classification method as Standard Deviation
9. Break Classes at" as ***½ Std. Dev.***





Tutorial 3.4

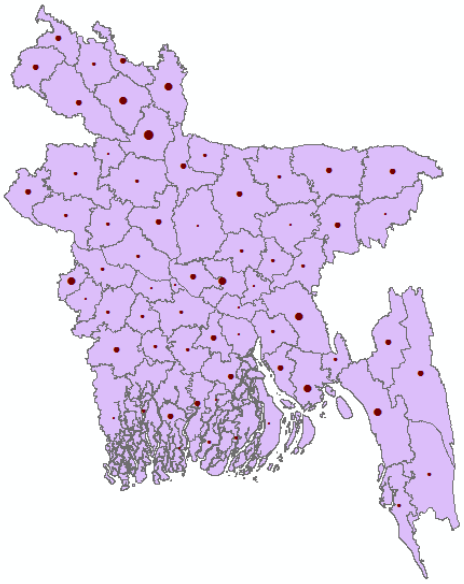
Create point maps

3.4.1	Manually change the symbol
3.4.2	Create a point map based on definition query
3.4.3	Change a layer's name and symbol

Tutorial 3.4

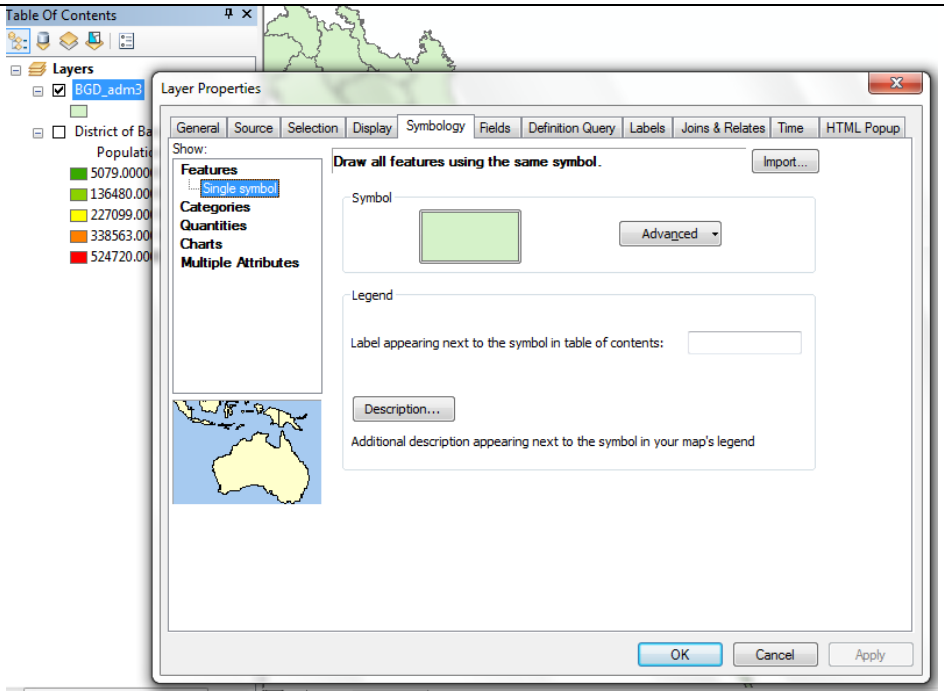
Create point maps

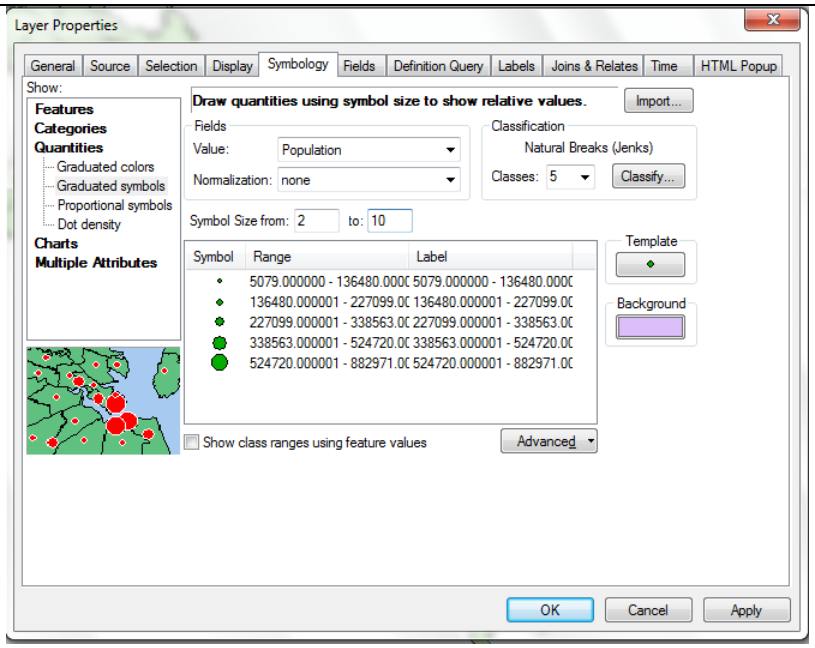
Point maps show exact location of data or events using individual point markers for each event. You will create a point map (as shown in the following figure) showing Total Population of Bangladesh as points with size graduated point markers that represent total Population.

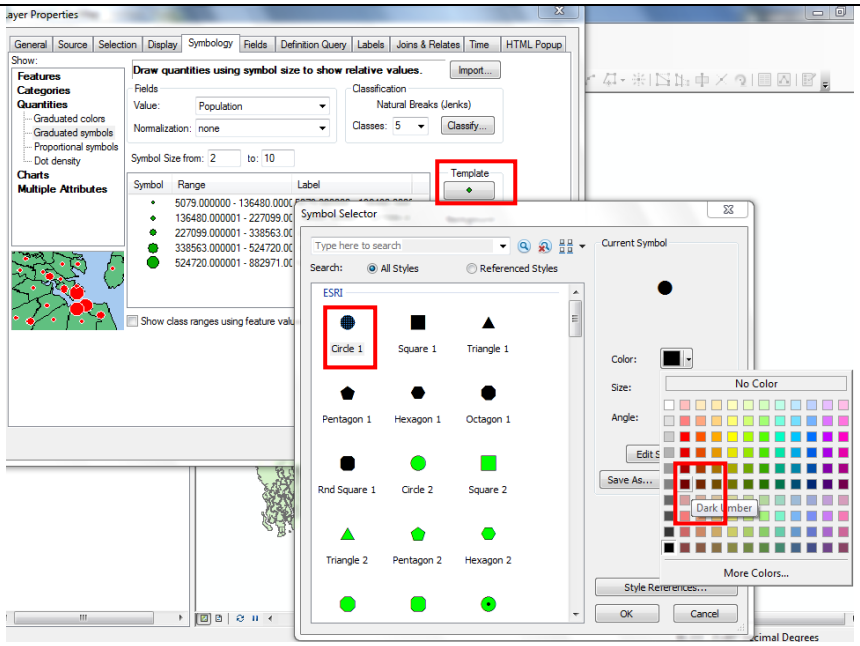


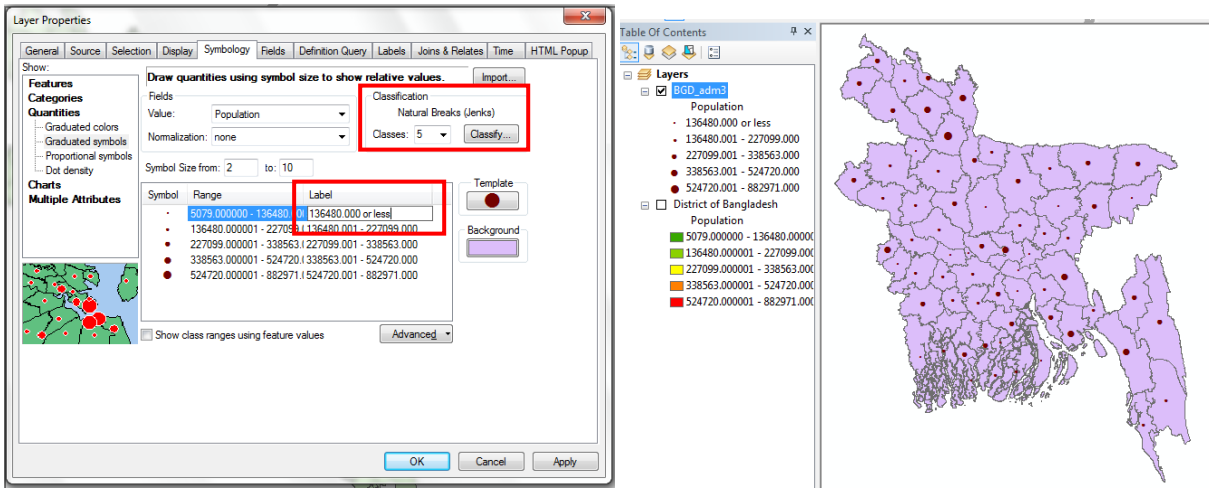
3.4.1 Manually change the symbol

1. Add BGD_adm3.shp file.
2. Double-click in the BGD_adm3.layer to open its Layer Properties window.
3. Click the Symbology tab and change Quantities to Graduated Symbols.
4. In the Fields panel, change the Value to Population, symbol size to 2-10, the template symbol to a Dark Umber CIRCLE 1 and assign the break points and legend labels.
5. Click OK & zoom to the full extent.


Table Of Contents
Layers
BGD_adm3
District of Ba
Populatio
5079.0000
136480.00
227099.00
338563.00
524720.00
Layer Properties
General
Source
Selection
Display
Symbology
Fields
Definition Query
Labels
Joins & Relates
Time
HTML Popup
Show:
Features
Single symbol
Categories
Quantities
Charts
Multiple Attributes
Draw all features using the same symbol.
Import...
Symbol
Advanced
Legend
Label appearing next to the symbol in table of contents:
Description...
Additional description appearing next to the symbol in your map's legend
OK
Cancel
Apply


Layer Properties
General
Source
Selection
Display
Symbology
Fields
Definition Query
Labels
Joins & Relates
Time
HTML Popup
Show:
Features
Categories
Quantities
Graduated colors
Graduated symbols
Proportional symbols
Dot density
Charts
Multiple Attributes
Draw quantities using symbol size to show relative values.
Import...
Fields
Value:
Population
Normalization:
none
Classification
Natural Breaks (Jenks)
Classes:
5
Classify...
Symbol Size from:
2
to:
10
Symbol
Range
Label
5079.000000 - 136480.000(
5079.000000 - 136480.000(
136480.000001 - 227099.0(
136480.000001 - 227099.0(
227099.000001 - 338563.0(
227099.000001 - 338563.0(
338563.000001 - 524720.0(
338563.000001 - 524720.0(
524720.000001 - 882971.0(
524720.000001 - 882971.0(
Template
Background
Show class ranges using feature values
Advanced
OK
Cancel
Apply

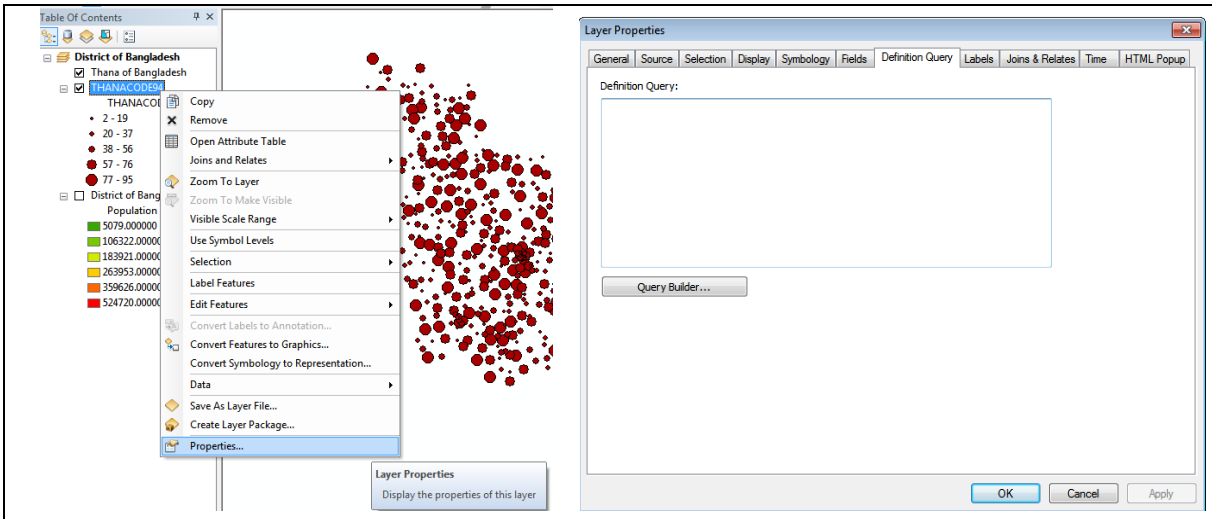


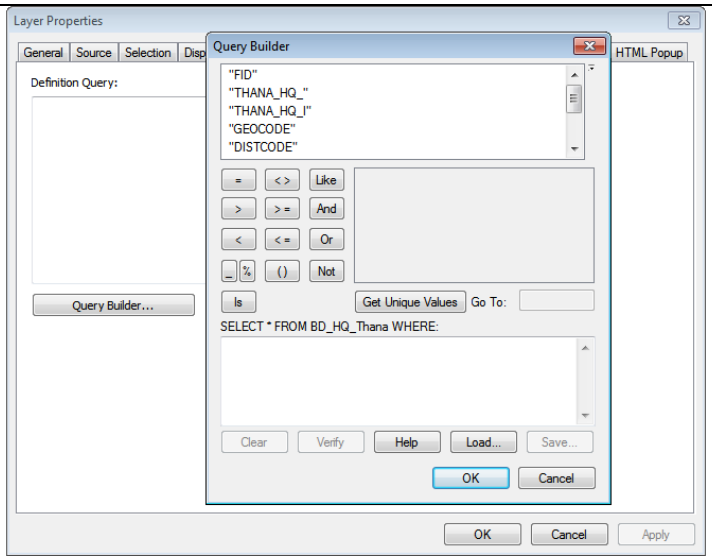


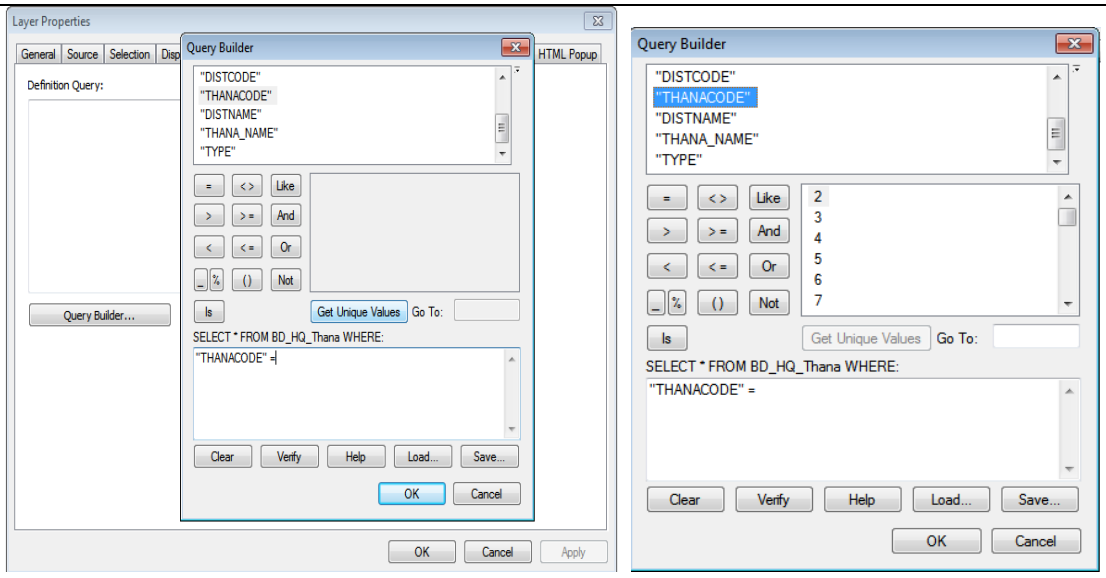
3.4.2.1 Create a definition query

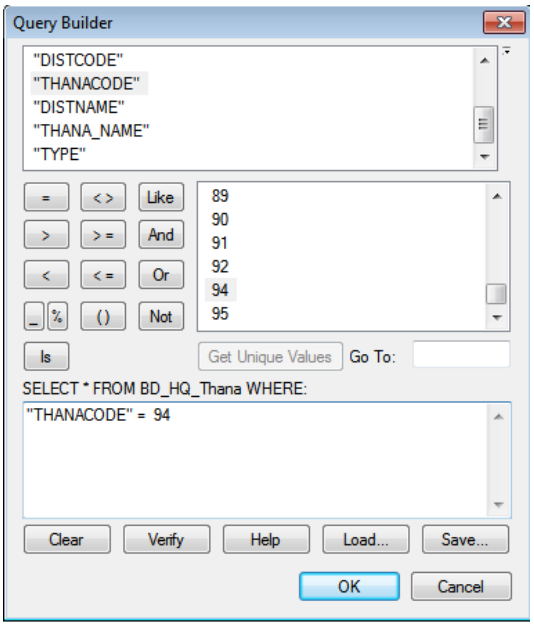
3.4.2.1 Create a definition query

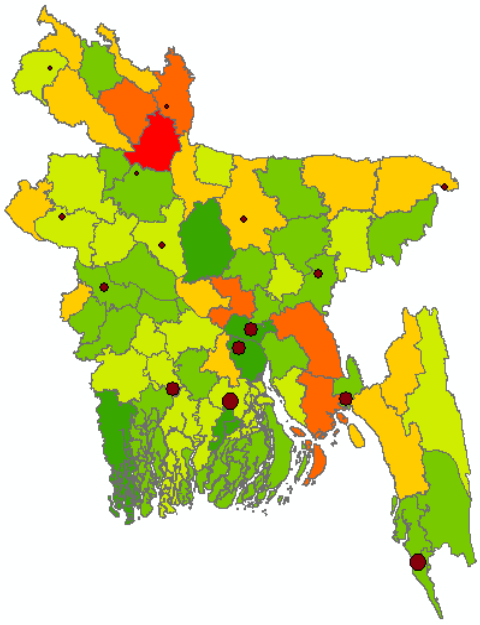
1. Right-click the BD_HQ_Thana layer and click Properties.
2. Click the Definition Query tab and Query Builder button.
3. In the Query Builder window, double-click "THANACODE"
4. Click = as the logical operator.
5. Click Get Unique Values.
6. In the Unique Values list, double-click '94' and Click OK.


Table Of Contents
District of Bangladesh
Thana of Bangladesh
THANACODE94
2 - 19
20 - 37
38 - 56
57 - 76
77 - 95
Population
5079.000000
106322.00000
183921.00000
263953.00000
359626.00000
524720.00000
Copy
Remove
Open Attribute Table
Joins and Relates
Zoom To Layer
Zoom To Make Visible
Visible Scale Range
Use Symbol Levels
Selection
Label Features
Edit Features
Convert Labels to Annotation...
Convert Features to Graphics...
Convert Symbology to Representation...
Data
Save As Layer File...
Create Layer Package...
Properties...
Layer Properties
Display the properties of this layer
Layer Properties
General
Source
Selection
Display
Symbology
Fields
Definition Query
Labels
Joins & Relates
Time
HTML Popup
Definition Query:
Query Builder...
OK
Cancel
Apply


Layer Properties
General
Source
Selection
Disp
HTML Popup
Definition Query:
Query Builder...
Query Builder
"FID"
"THANA_HQ_"
"THANA_HQ_I"
"GEOCODE"
"DISTCODE"
=
< >
Like
>
> =
And
<
< =
Or
_
%
( )
Not
Is
Get Unique Values
Go To:
SELECT * FROM BD_HQ_Thana WHERE:
Clear
Verify
Help
Load...
Save...
OK
Cancel
OK
Cancel
Apply

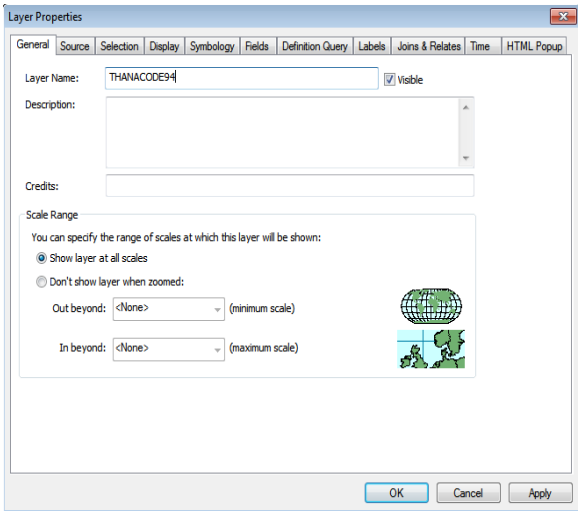

Layer Properties
General
Source
Selection
Disp
HTML Popup
Definition Query:
Query Builder...
Query Builder
"DISTCODE"
"THANACODE"
"DISTNAME"
"THANA_NAME"
"TYPE"
=
< >
Like
>
> =
And
<
< =
Or
_
%
( )
Not
Is
Get Unique Values
Go To:
SELECT * FROM BD_HQ_Thana WHERE:
"THANACODE" =
Clear
Verify
Help
Load...
Save...
OK
Cancel
OK
Cancel
Apply
Query Builder
"DISTCODE"
"THANACODE"
"DISTNAME"
"THANA_NAME"
"TYPE"
=
< >
Like
>
> =
And
<
< =
Or
_
%
( )
Not
2
3
4
5
6
7
Is
Get Unique Values
Go To:
SELECT * FROM BD_HQ_Thana WHERE:
"THANACODE" =
Clear
Verify
Help
Load...
Save...
OK
Cancel

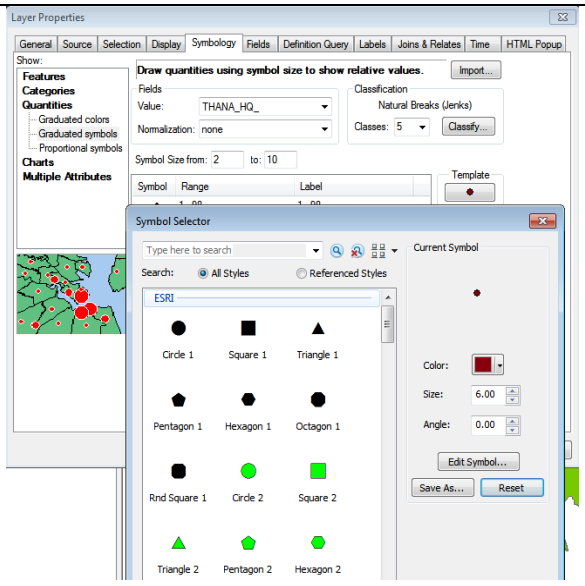


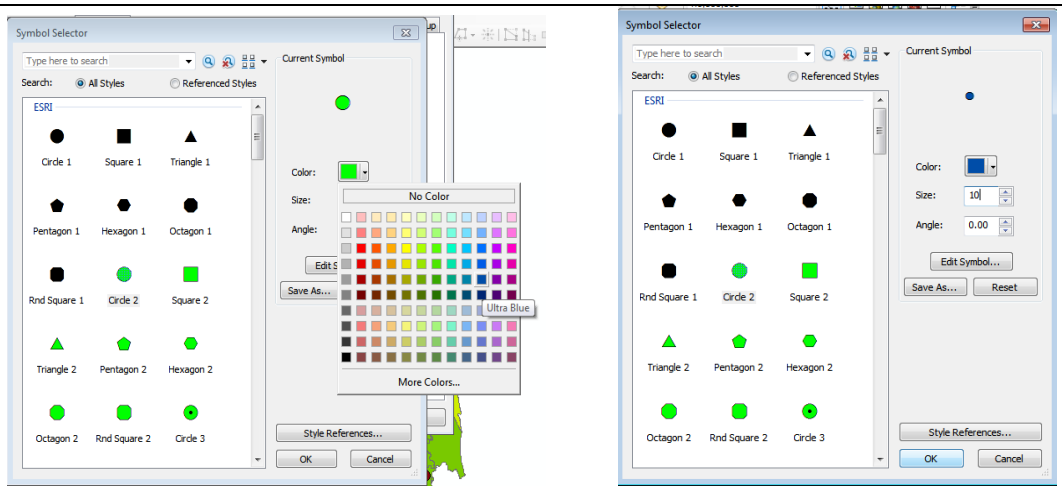


3.4.3 Change a layer's name and symbol

1. Right-click the BD_HQ_Thanalayer and click Properties.
2. Click the General tab and change the name of the layer to **THANACODE94**
3. Click the Symbology tab to Features and the Symbol button.
4. Click the Circle 2 icon, change the color to Ultra Blue, and change the size to 10 & Click OK twice.






Symbol Selector
Type here to search
Search:
All Styles
Referenced Styles
ESRI
Circle 1
Square 1
Triangle 1
Pentagon 1
Hexagon 1
Octagon 1
Rnd Square 1
Circle 2
Square 2
Triangle 2
Pentagon 2
Hexagon 2
Octagon 2
Rnd Square 2
Circle 3
Current Symbol
Color:
Size:
Angle:
No Color
Ultra Blue
More Colors...
Edit Symbol...
Save As...
Reset
Style References...
OK
Cancel

