GIS Curriculum for PMGSY

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Intended Audience:

NRIDA YCEs

GIS Nodal Officers (State)

GIS Analysts (State)

Module 1	Module 2	Module 3	Module 4	Module 5
Introduction to GIS and Load your CSV Data in Qgis	Georeferencing and Create Layers	Creating GIS Maps and Reports	Functions in QGIS	Working with Google Earth

M1 – Introduction to GIS and Load your CSV Data in Qgis

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Learning Objectives

Converting CSV file to a meaningful GIS map

Symbolic Representation of Facilities

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Module 1 – Exercise 1

Strategic Facility data like Agro, Education, Medical and Transportation / Admin has been geotagged by NRIDA during PMGSY-III scheme. This data could be useful in planning and analyzing the proposed road. The objective of this exercise is to map this tabular data into a GIS map and representing the various facilities symbolically.

Data Resources you will require:

1. All the required Excel, layers, project files, Icon etc. are supplied to you in the file : M1 Exercise1 Load your CSV Data in Qgis.zip

2. This exercise uses a dataset called ' FacilityDetailsForCitizen'. This dataset is for Kerala and is already provided to you in the repository.

Alternatively, you may also download this data from OMMAS website by following the below steps:
OMMAS Citizen page →   Other Reports →   Facility Details→   Select 'Kerala' from State drop down →   View
Export this file as Excel →   Save as file in CSV format
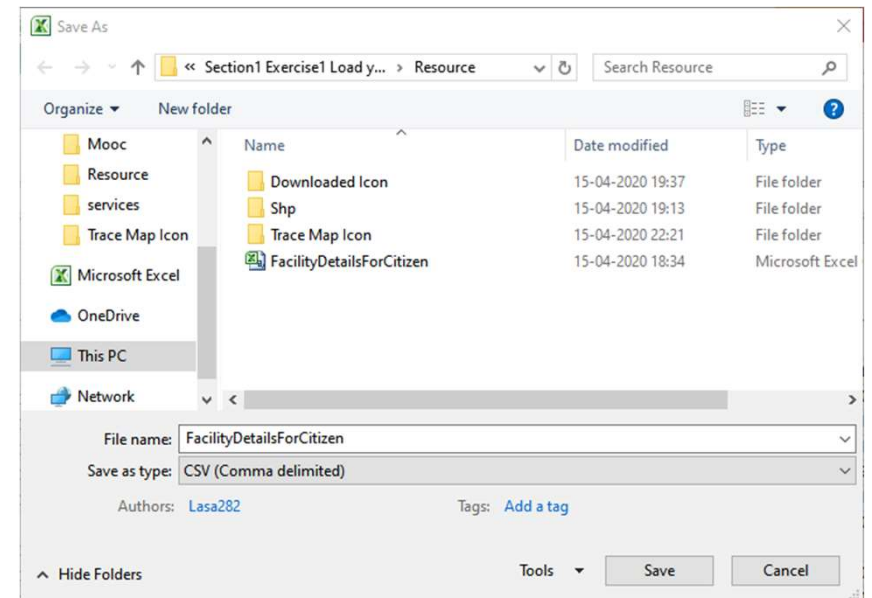
1. Observe the Data:

Open the 'FacilityDetailsForCitizen' file and examine it. Take note of headers of column, each row of data contains facility data. The latitude and longitude column contains the coordinates of the facility/photo location of the facilities.

	Facility Details							
7	Blocks							
9	**Habitation Name**	**Facility Name**	**Address**	**File Upload Date**	**Facility Category**	**Facility Subcategory**	**Lattitude**	**Longitude**
10	Devarkovil	devarkovil village town	devarkovil	17 September 2019	Agro	GRaM (Notified)	11.66990333	75.76498667
11	Kadakkal	MARKET	KADAKKAL TOWN	07 October 2019	Agro	Mandi (Notified)	8.825068333	76.92105
12	Kadakkal	VHSSCHINGELI	Chingeli	31 October 2019	Education	Higher Secondary School	8.827165	76.93047167
13	Kadakkal	GOVT HSS KADAKKAL	KADAKKAL	28 August 2019	Education	Higher Secondary School	8.826708058	76.92960318
14	Kadakkal	TALUK HOSPITAL	KADAKKAL	07 October 2019	Medical	Bedded Hospital	8.825386667	76.91712
15	kadappra	newman academy kadappara	newman academy kadappara	16 September 2019	Education	High School - General	10.19888344	76.50399491

2. From the resource directory, double click on 'Exercise 1 blank Canvas'. It will open up like the screen on the right.

3. Click on the 'Open data Source Manager' button, as displayed in the image.
This allows the user to import an external CSV file which is to be showcased on GIS map.
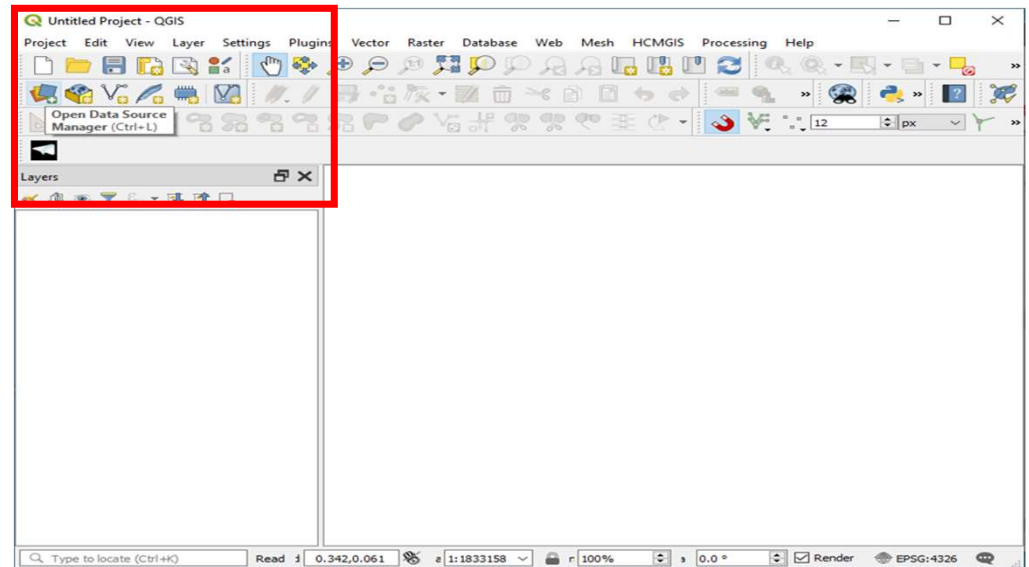
3. Click on the 'Delimited Text' option from the left pane.
a. In the file Name, Browse to the 'FacilityDetailsForCitizen.csv ' file **OR** the file which you have just saved as CSV and open it.
b. Choose options as shown in the image on the right.
c. As we want to import this file as points, select *Point coordinates*.
d. Choose longitude as *X Field* and latitude as *Y Field*. Click *Add*.
e. Examine the Heading row in the sample data. 1st row should contain heading.

Data Source Manager | Browser | Delimited Text

Browser
Vector
Raster
Mesh
Delimited Text
GeoPackage
SpatiaLite
PostgreSQL
MSSQL
Oracle
DB2
Virtual Layer
WMS/WMTS
WCS
WFS
ArcGIS Map Server

File name 2\Desktop\GIS Curriculum for PMGSY\Section1 Exercise1 Load your CSV Data in Qgis\Resource\FacilityDetailsForCitizen.csv

Layer name FacilityDetailsForCitizen   Encoding UTF-8

◉ CSV (comma separated values)
○ Regular expression delimiter
○ Custom delimiters

▼ Record and Fields Options

Number of header lines to discard 10   ☐ Decimal separator is comma
☑ First record has field names   ☐ Trim fields
☑ Detect field types   ☑ Discard empty fields

▼ Geometry Definition

◉ Point coordinates   X field Longitude   Z field
○ Well known text (WKT)   Y field Lattitude   M field
○ No geometry (attribute only table)   ☐ DMS coordinates
   Geometry CRS EPSG:4326 - WGS 84

▶ Layer Settings

Sample Data

	Sr.No.	State	District	Block	Habitation Name	Facility Name
1	1	Kerala	Kozhikode	Kunnummel	Devarkovil	devarkovil village town

Close   Add   Help

4. You will see the tabular data now loaded in canvas as a temporary data layer. To check the attribute data, you can use the *Identify* button and click on any point on the map. The attribute data attached to each point will be displayed in a popup window.

5. We have verified the data and we can now save data as ESRI shape file format by right clicking on the layer → Export → Save Feature As → Choose file format as ESRI shapefile and browse to a location, you will see the saved data now loaded in canvas.
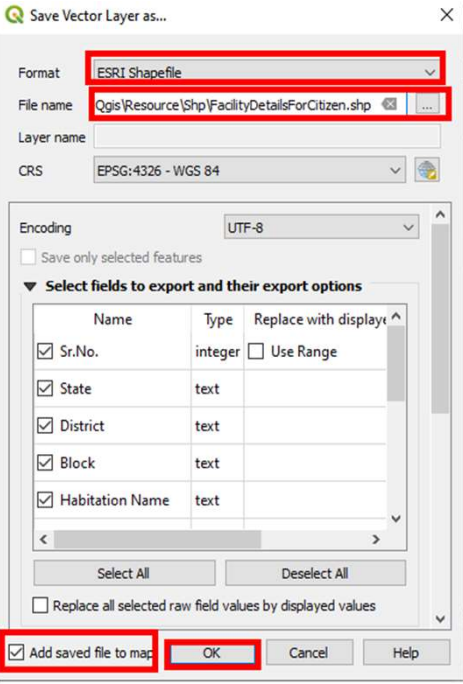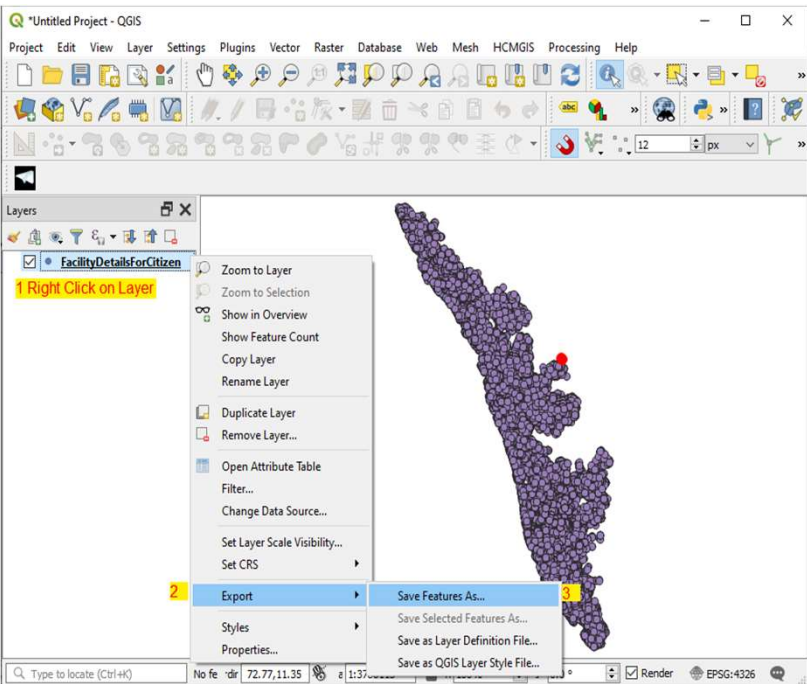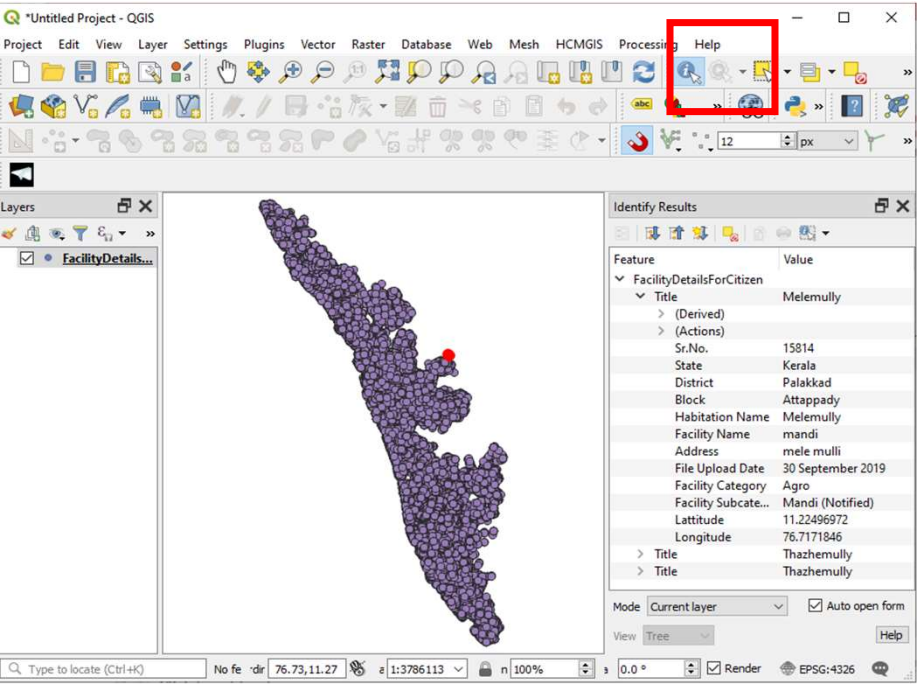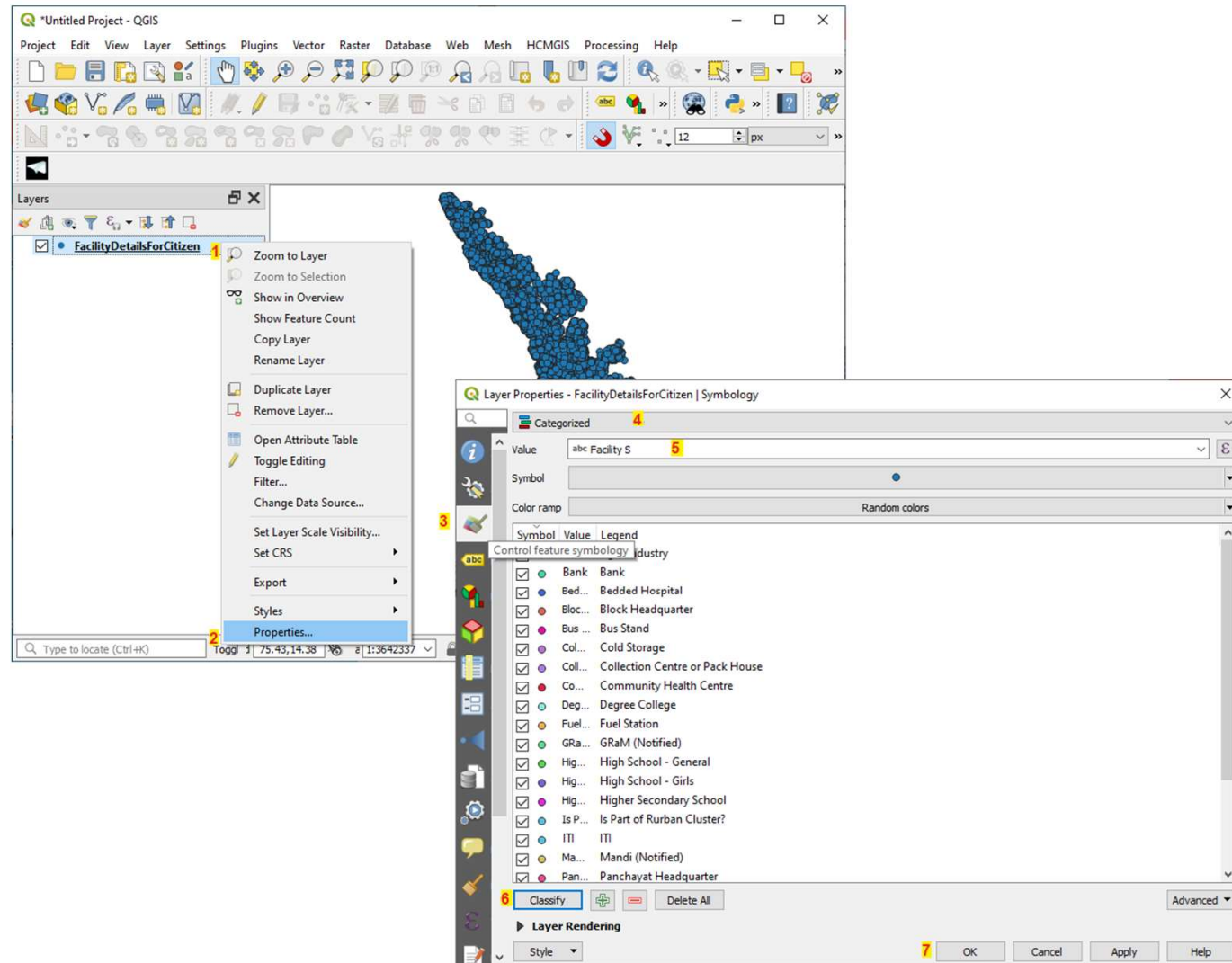
6. Symbolizing Each Point:

All the facilities are currently appearing in the same color on the map. We need to distinguish between different facilities by color coding each facility separately.

To symbolized each point according to the "Facility S" value:

Right Click on the 'FacilityDetailsForCitizen'
Click on the Properties
Click on control feature symbology
Choose Categorized instead of Single symbol from the top most dropdown menu
Choose Facility S from the Value drop down menu
Click on Classify tab. Click OK

Notice in the canvas, the map visualization will change accordingly. The layer legend will also show the legend labels.

7. The map looks something like below now. These default circle symbols are also difficult to understand to the end user , hence we will now look at symbolising each point with easy to understand icons.

8. For symbols, we can use default SVG icons provided by the software or we can download icons from the internet .

8a. Steps to use default SVG icons::

1. Double click on each symbol in the layer tree
2. Symbol Selector window will open. Click on the Simple Marker
3. Choose SVG marker from Symbol layer type. Scroll down for SVG image.
4. You can choose any SVG Image from the SVG Group.
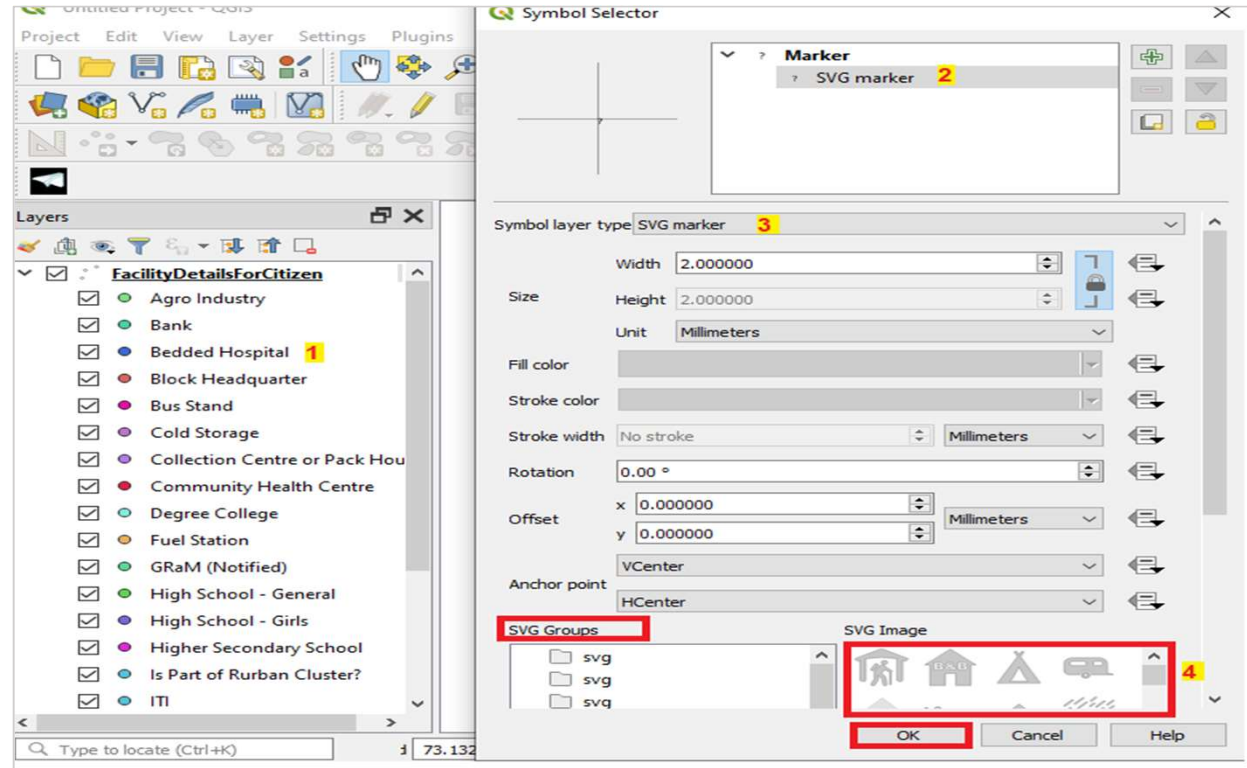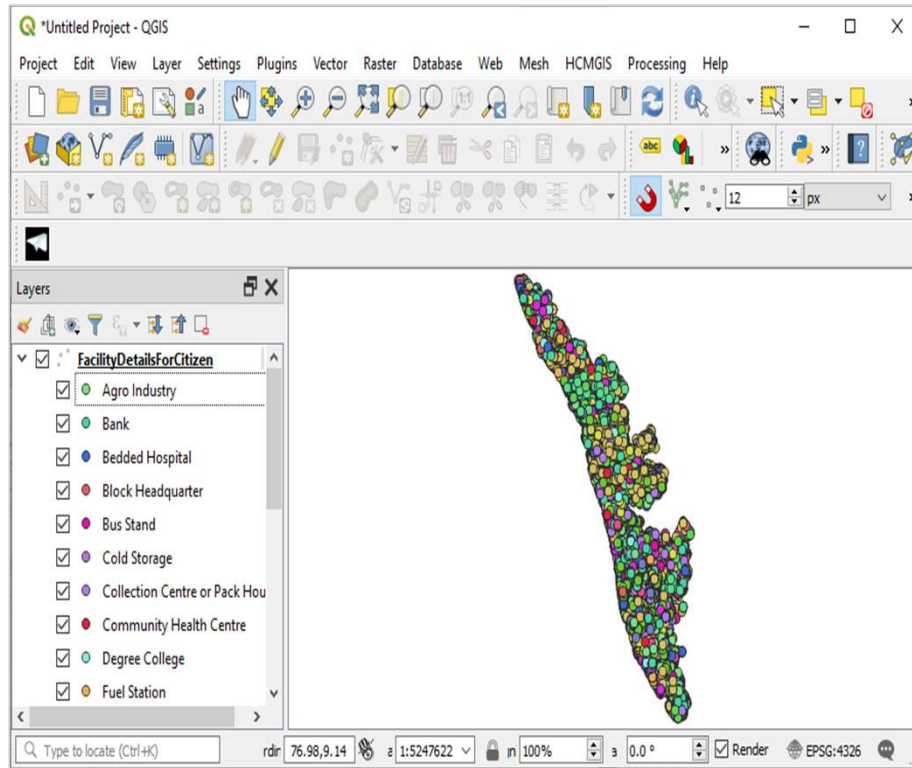
8b. You can also choose your downloaded image by browsing it.
For this exercise we have downloaded **svg_hospital-image-1** from the internet (https://www.svgpngicons.com/download-svg) for using this image as a symbol for Bedded Hospital. This Image is available in the resource directory.
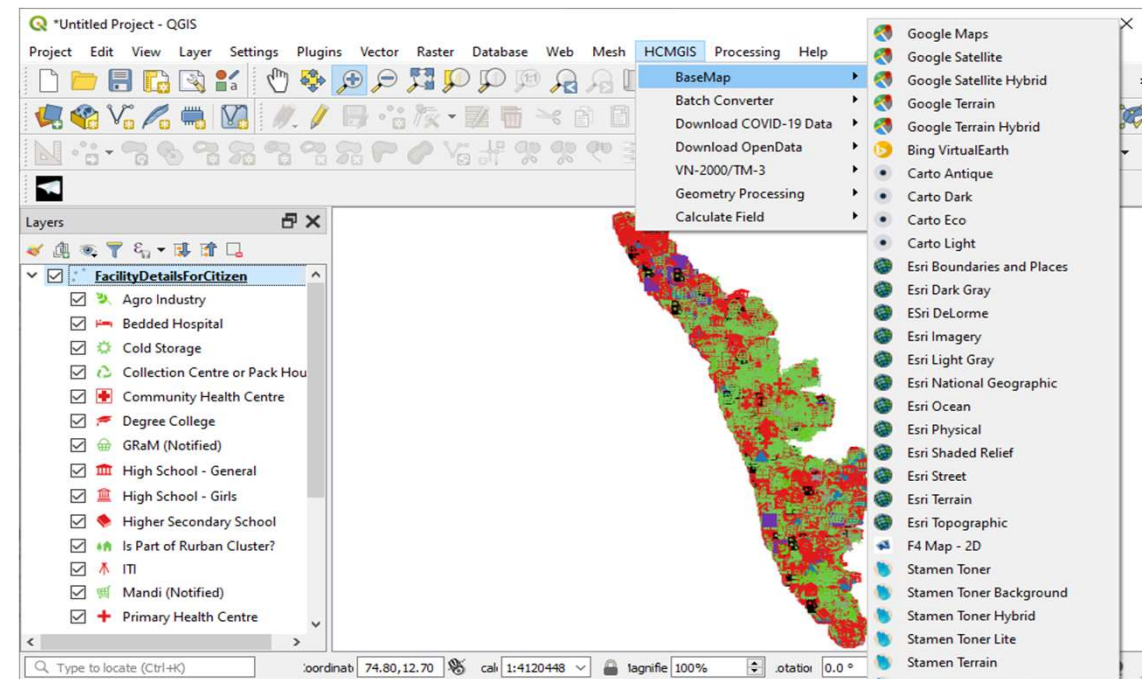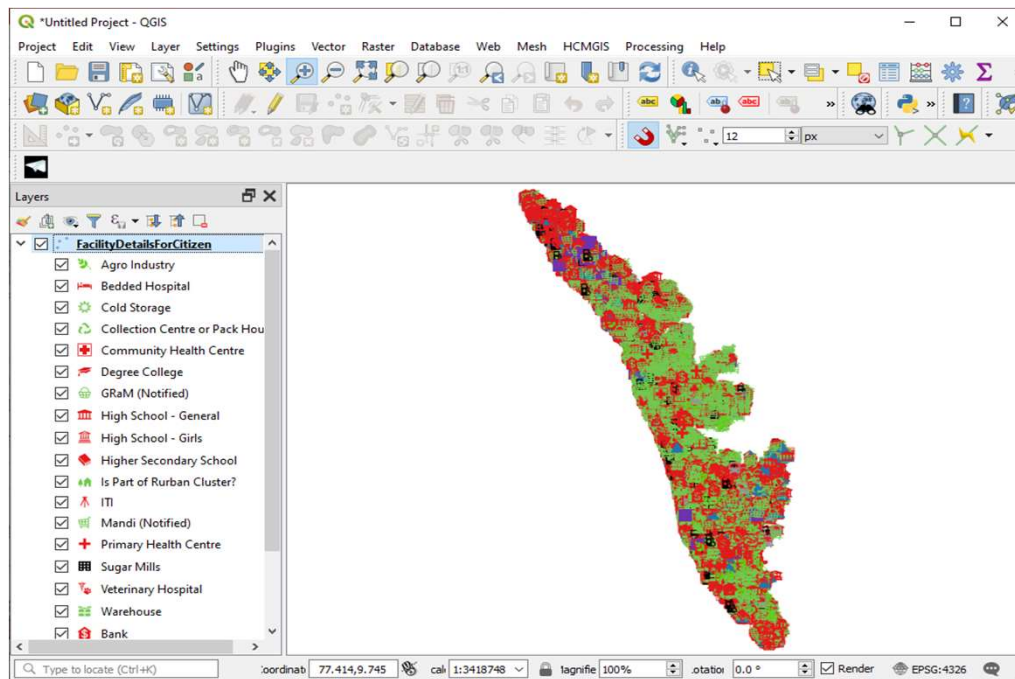
8c. We can use already available style too.
For this exercise, we are using Trace Map symbology.
Trace Map symbology is provided in the resource directory.
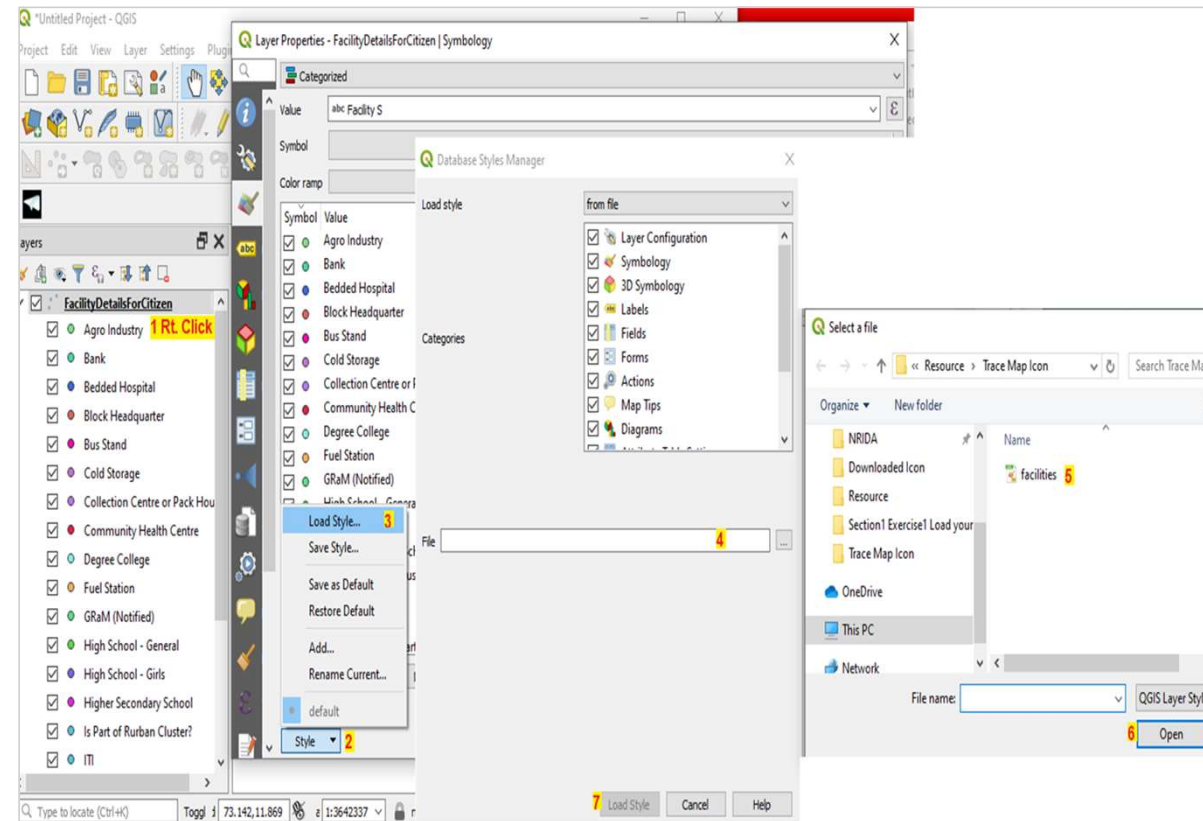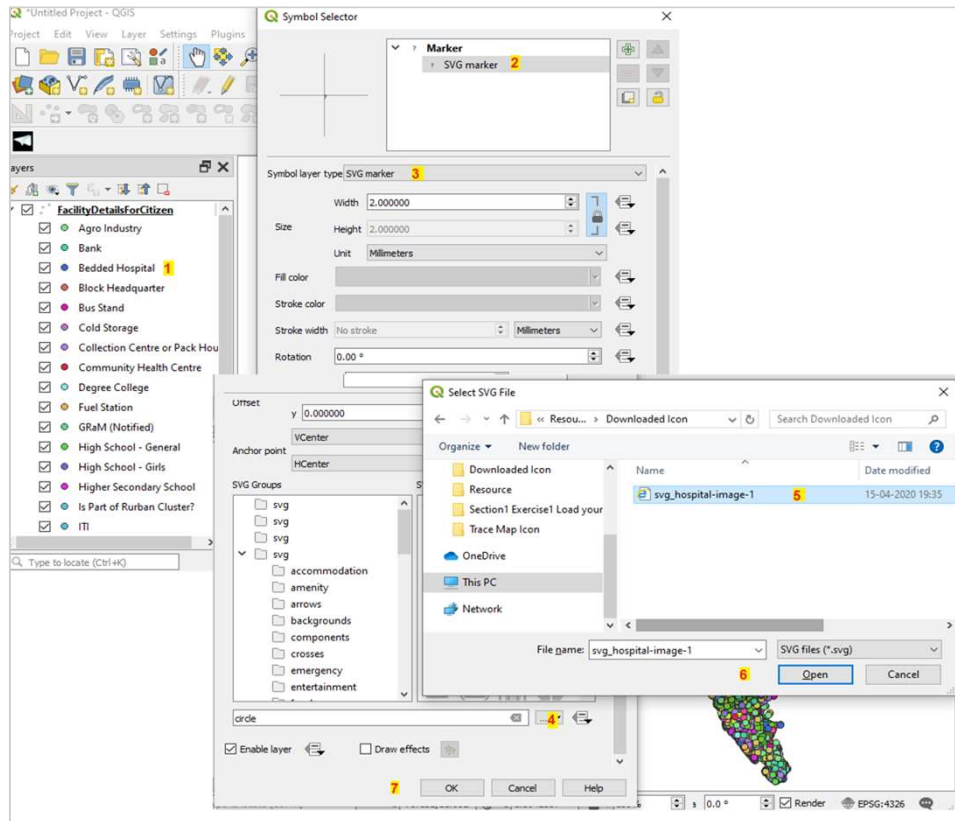
9. As we have changed the symbols, the map visualization will change accordingly. The layer legend will also show the legend labels now.

10. We now display a base-map layer that will help user to understand this data better.
The **HCMGIS** plugin is used to provide access to many different types of base-maps. Go to **plugin -> search hcmgis -> Install**
Now check main menu bar for new HCMGIS menu.
Go to **HCMGIS-> BaseMap-> Google Map** layer.

This is the final representation of your data. You can save it by clicking on the save button towards top left. Save this project file in the same directory to make it a portable file, so it will open on any computer system.

Congratulations!

You have now completed this Module.