

PRACTICAL 1

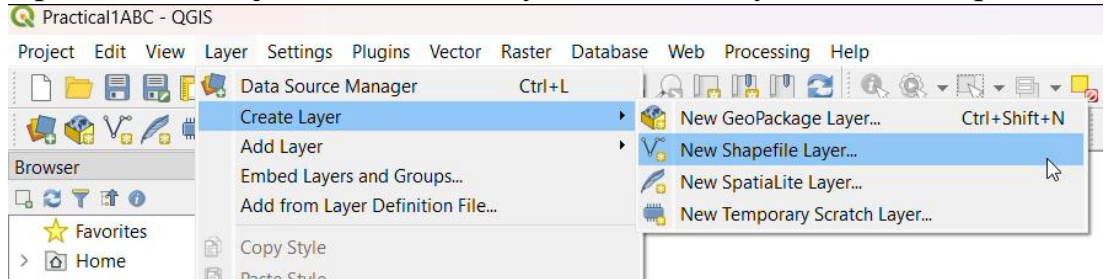
Aim: To Create and Manage Vector data

a) Adding Vector Layer

Procedure:

➤ Creating Polygon vector Layer

- Open a New Project and Select Layer→Create Layer→New Shapefile Layer

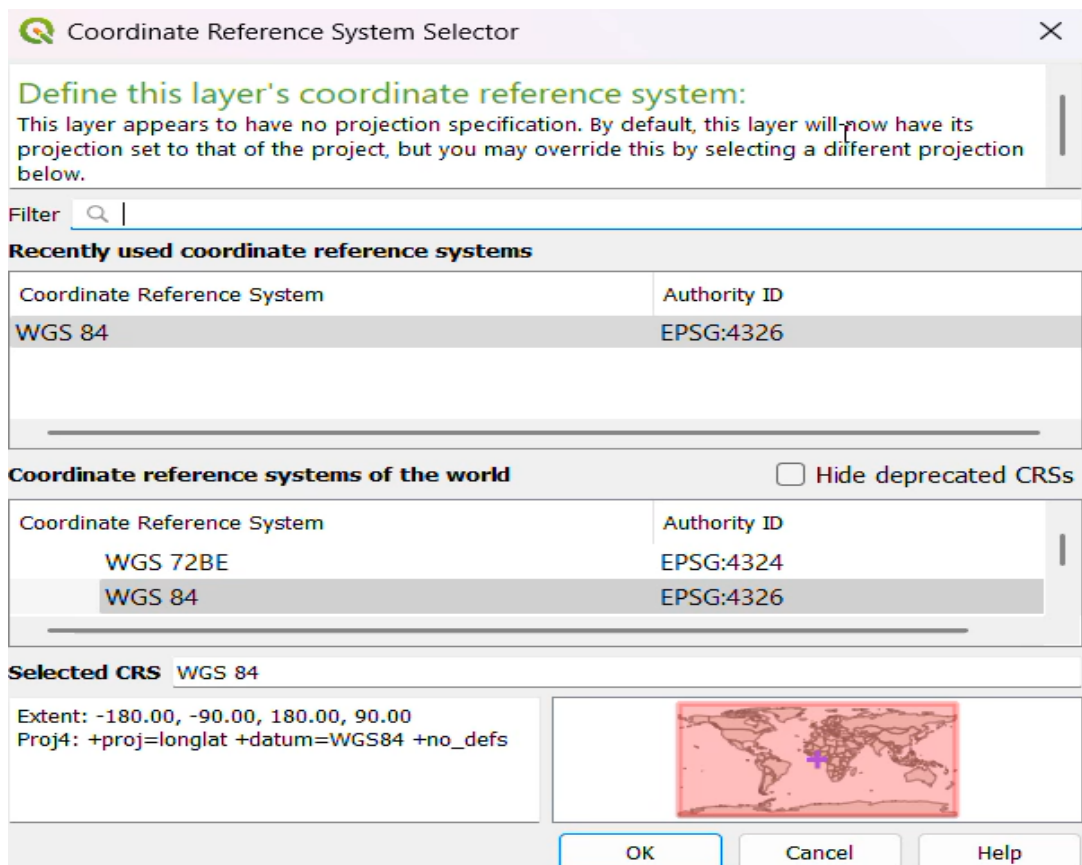


- Following dialog box will appear on the screen. Select Polygon option from Geometry type.
- Fill the appropriate information in each text box such as File name : By default the file will be saved in bin folder. To avoid it click on following button to change the location of file.
- Field Panel : Add the Attribute you want to show. (Column Name for Table). Specify Type (DataType:Text Data/Decimal Data/Whole Number/Date) of Attribute. Specify the Length of the Attribute. Specify Precision (If Data Type is Decimal)
- Click on Add to Field List Button

A screenshot of the 'New Shapefile Layer' dialog box in QGIS. The dialog has several sections: 'File name' with a text box containing 'D:\Practical1ABC\Garden.shp' and a browse button; 'File encoding' with a dropdown set to 'System'; 'Geometry type' with a dropdown set to 'Polygon'; checkboxes for 'Include Z dimension' and 'Include M values'; a coordinate system dropdown set to 'EPSG:4326 - WGS 84'; a 'New Field' section with fields for 'Name' (containing 'Name'), 'Type' (dropdown set to 'abc Text data'), 'Length' (text box with '80'), and 'Precision' (text box); an 'Add to Fields List' button; a 'Fields List' table; and 'OK', 'Cancel', and 'Help' buttons at the bottom right.

Name	Type	Length	Precision
id	Integer	10	

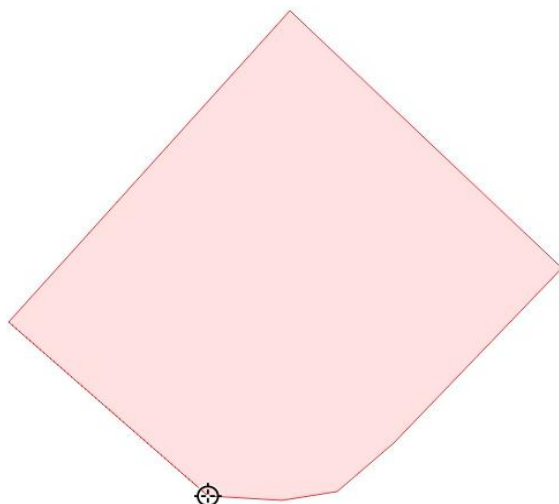
- Select Geometry Type as follows: Click on the following button. The CRS dialog box will appear on the screen. Click on the WGS84 option and it will be selected as follows. click on OK



- Select the Polygon Feature from layer panel. Click Toggle Editing Button → Click on Add Polygon



- Now place the cursor at the location where you want to place the polygon. for polygon layer minimum 3 points should be selected



- Save the newly added polygon as follows.

Garden - Feature Attributes

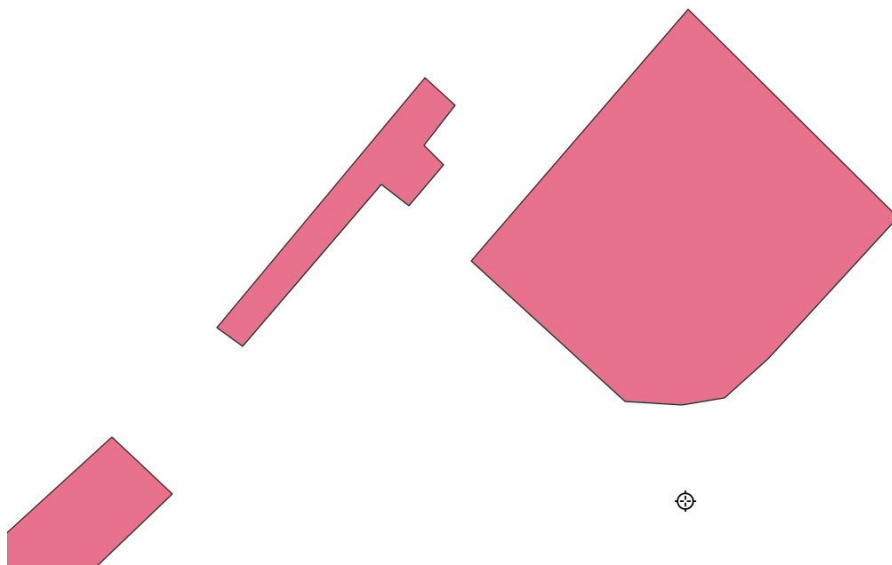
Actions

id 1

Name Shivaji Park

OK Cancel

- Same way we can add one more polygon layer for Gardens.



➤ Creating Line vector Layer

- Repeat the same steps as we have done for polygon layer.
- Select geometry type Line.

New Shapefile Layer

File name D:\Practical1ABC\Road.shp

File encoding System

Geometry type Line

☐ Include Z dimension ☐ Include M values

EPSG:4326 - WGS 84

New Field

Name Name

Type abc Text data

Length 80 Precision

Add to Fields List

Fields List

Name	Type	Length	Precision
id	Integer	10	

Remove Field

OK Cancel Help

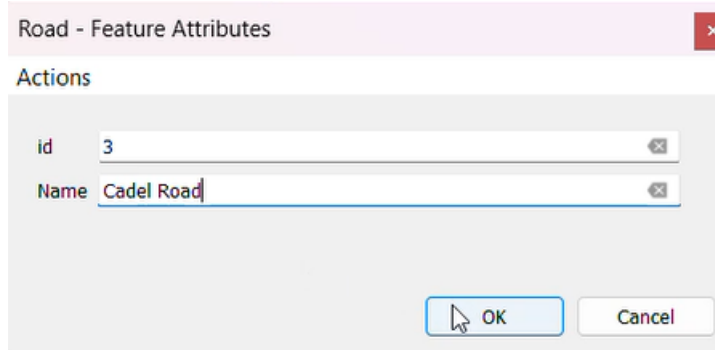
- To plot road click on Add Line Feature.



- Click on the map where you want to draw line. Once you are done then right click on map (Dotted line turn into solid line)



- Save the newly added Line as follows



- Same way we can add one more Line layer for Roads



➤ Creating Point vector Layer

- Repeat the same steps as we have done for polygon and line layer.
- Select geometry type Point.

New Shapefile Layer

File name: D:\Practical1ABC\FoodPlaces.shp

File encoding: System

Geometry type: Point

☐ Include Z dimension ☐ Include M values

EPSG:4326 - WGS 84

New Field

Name: Name

Type: abc Text data

Length: 80 Precision:

Add to Fields List

Fields List

Name	Type	Length	Precision
id	Integer	10	

Remove Field

OK Cancel Help

- To plot points click on Add Line Feature.



- Place the cursor on the map where you want to draw Points.



- Save the newly added Line as follows

FoodPlaces - Feature Attributes

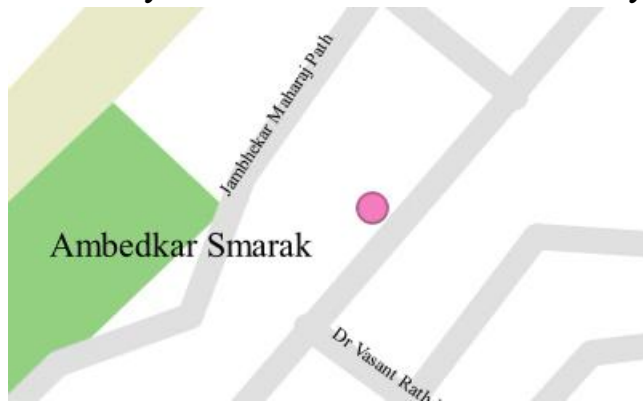
Actions

id: 4

Name: The Belgian Waffle

OK Cancel

- Same way we can add one more Points layer for Places

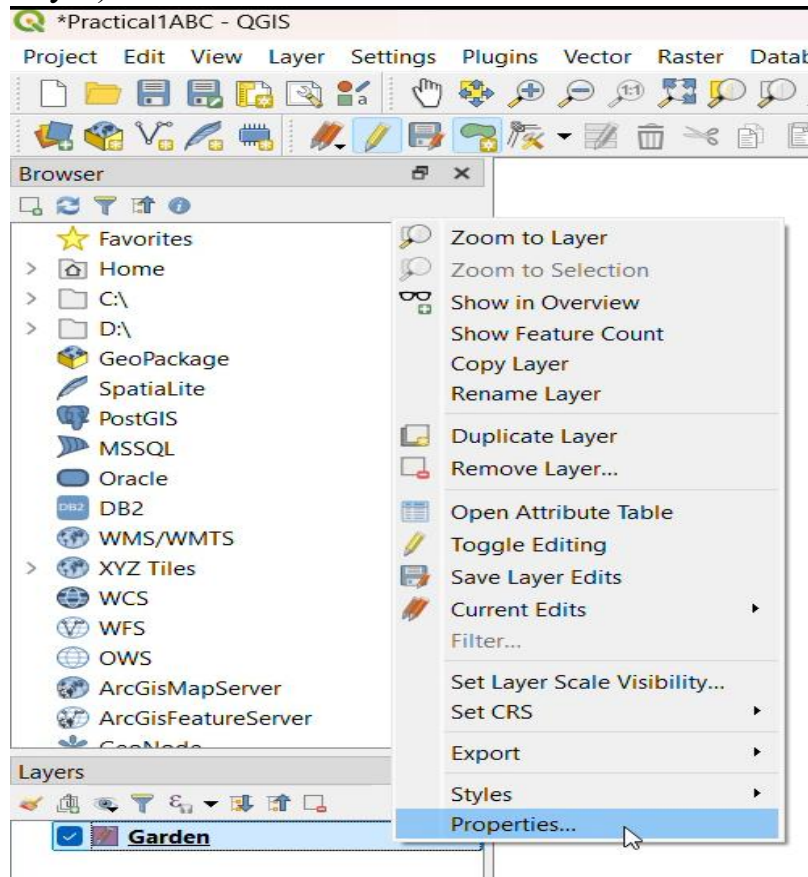


b) Setting properties

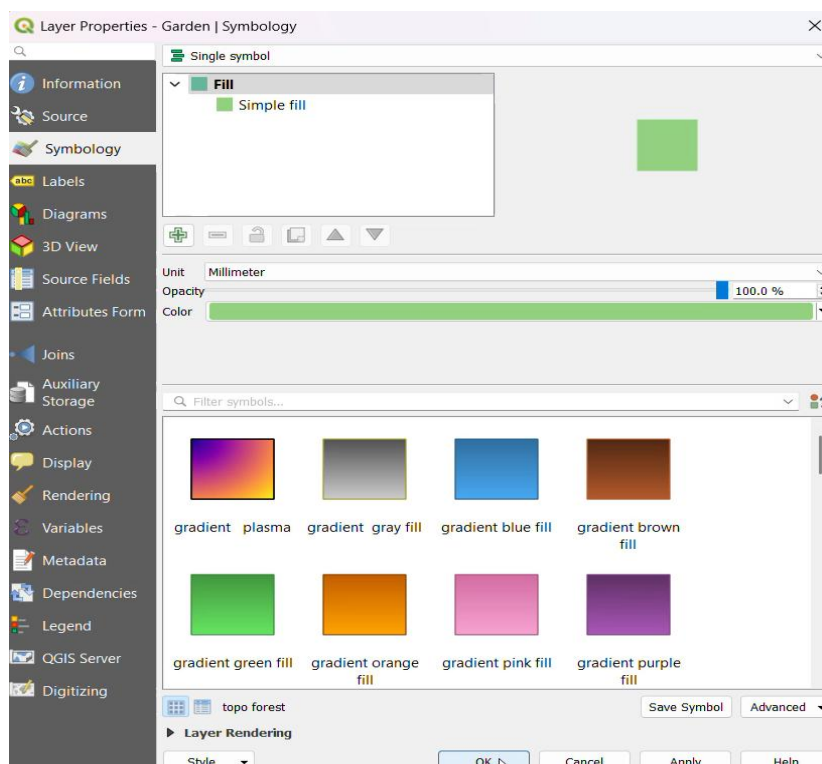
Procedure:

➤ Setting properties for polygons

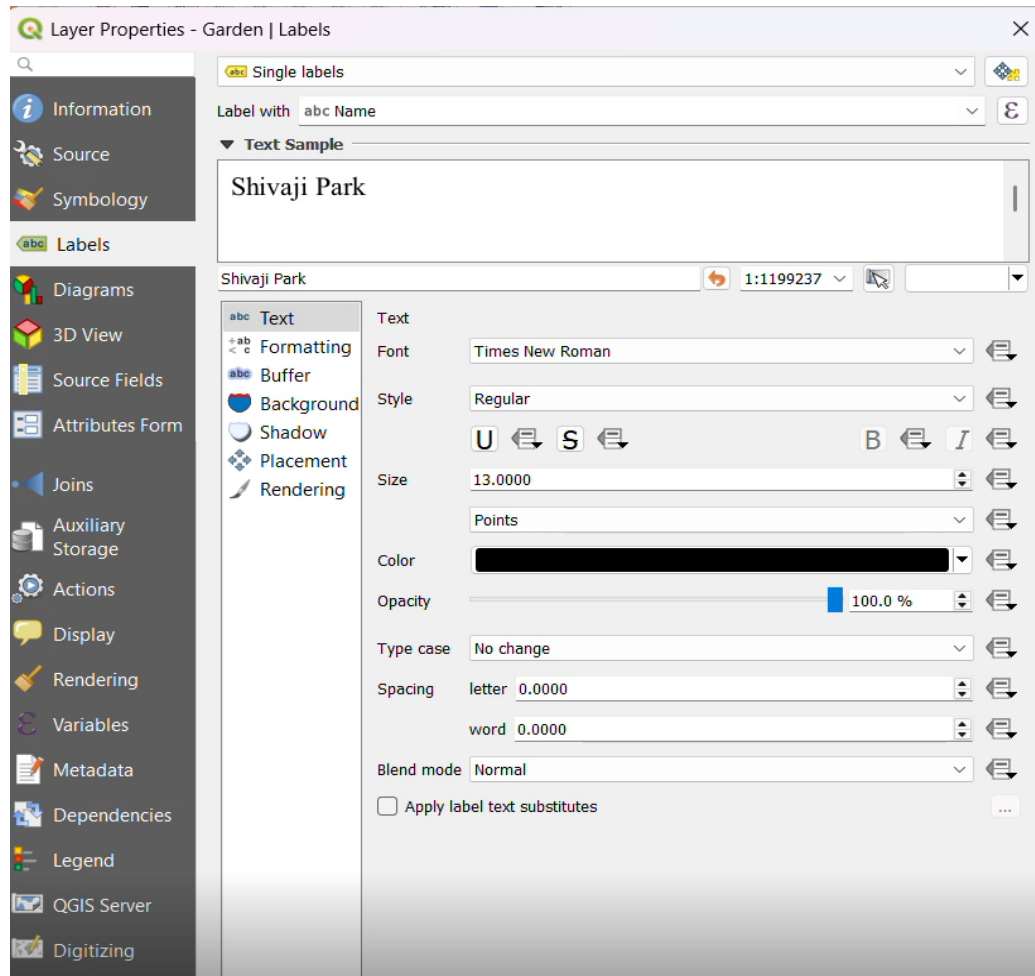
- Set style for polygon by using property window(Right click on Garden Layer)



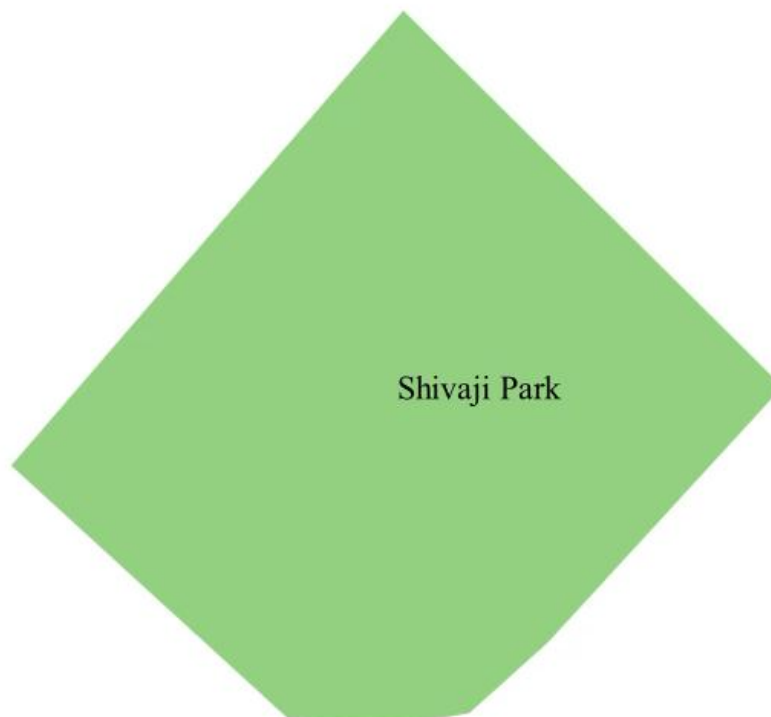
- Following screen will appear on the screen. Select pattern as you want and click on OK.



- To Label the Polygons Select Single labels→Select the field to Label with
→OK

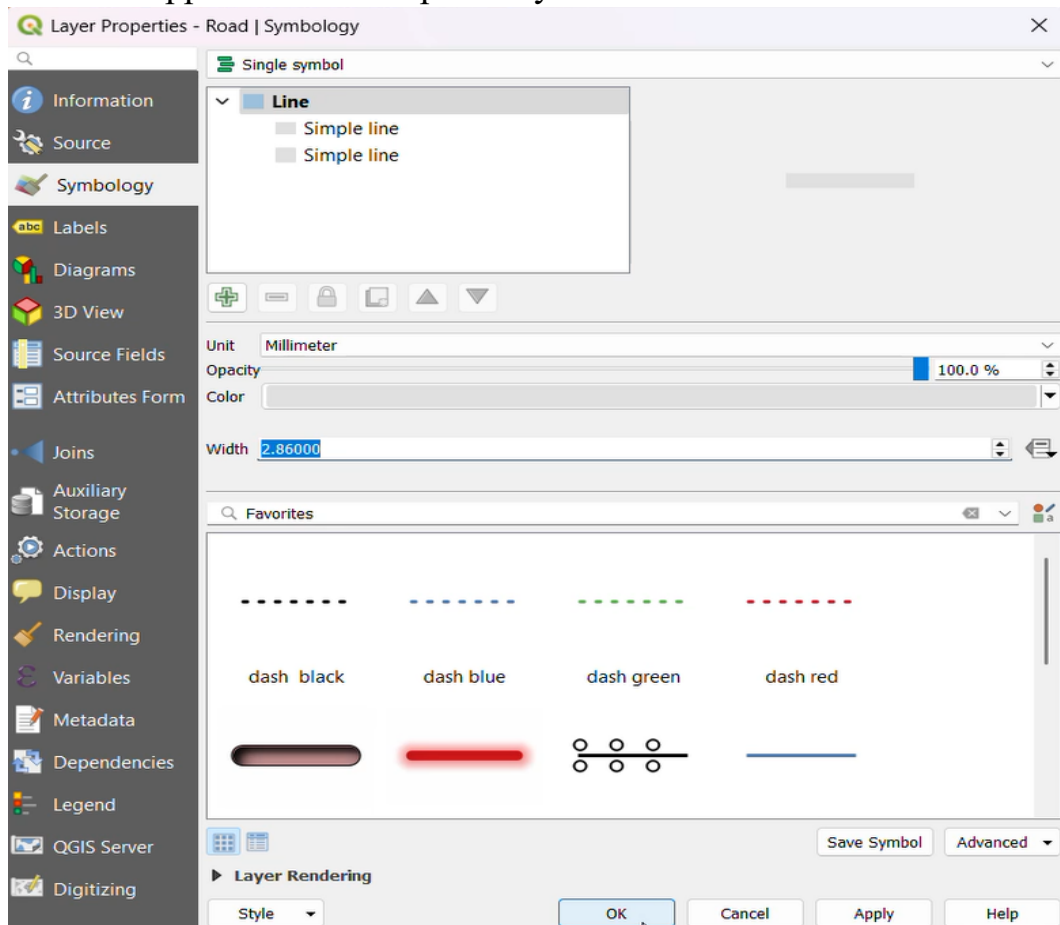


- The Layer will be set with the properties applied

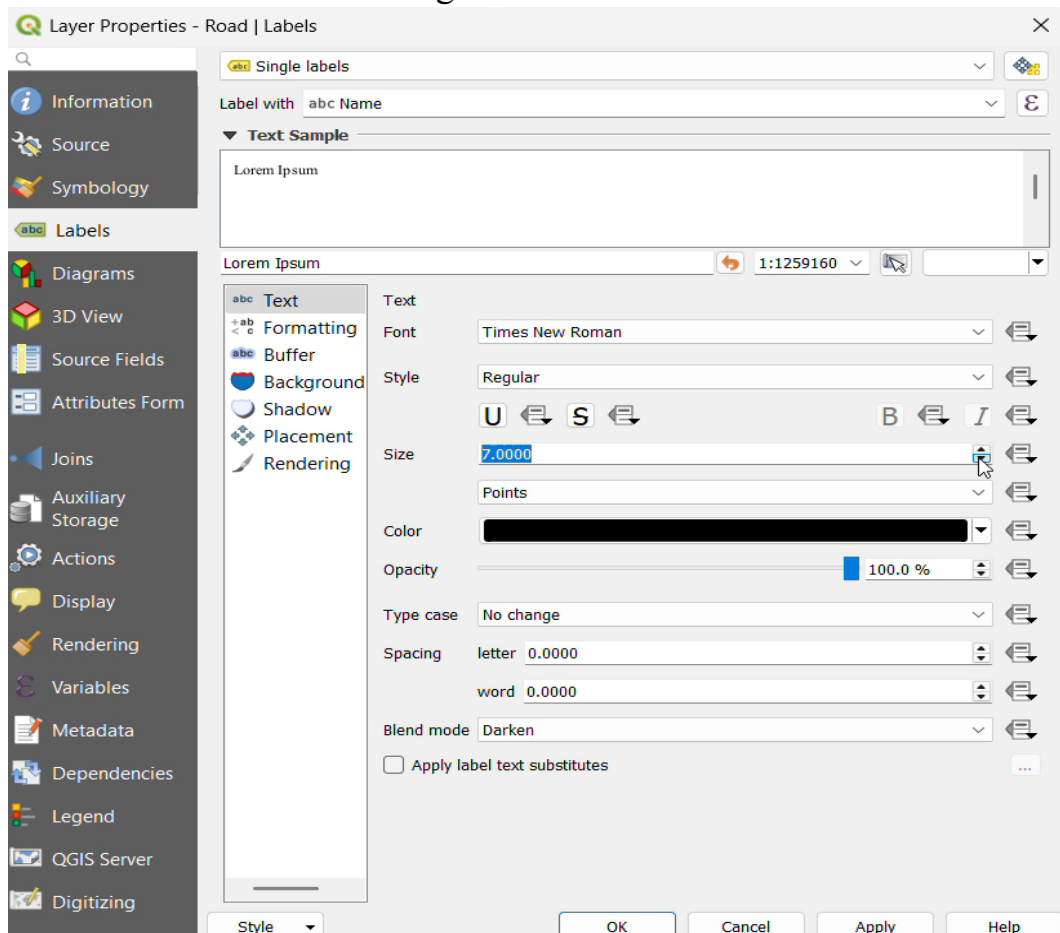


➤ Setting properties for lines

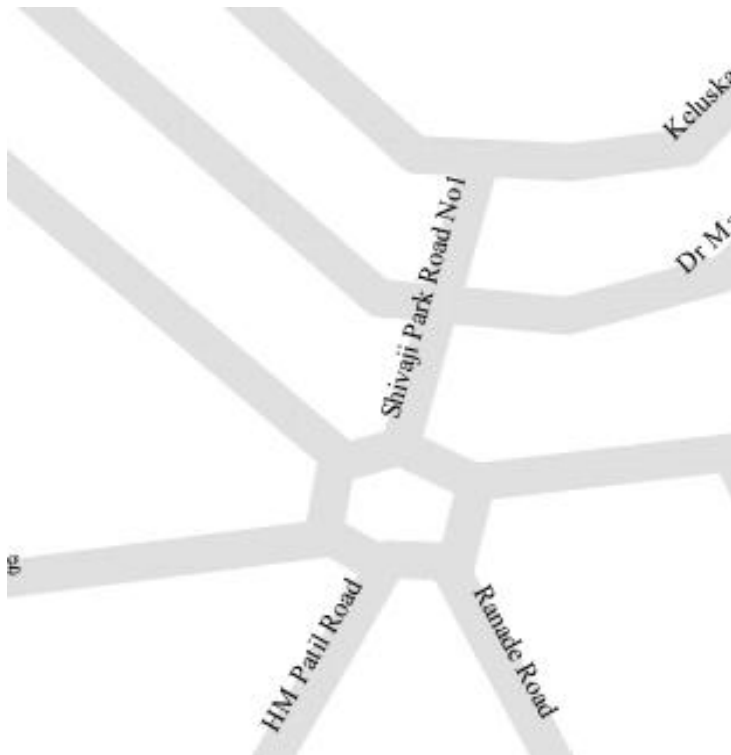
- Set the style for the line using the property window. The following screen will then appear. Select the pattern you want and click on OK.



- To Label the lines Select Single labels→Select the field to Label with →OK

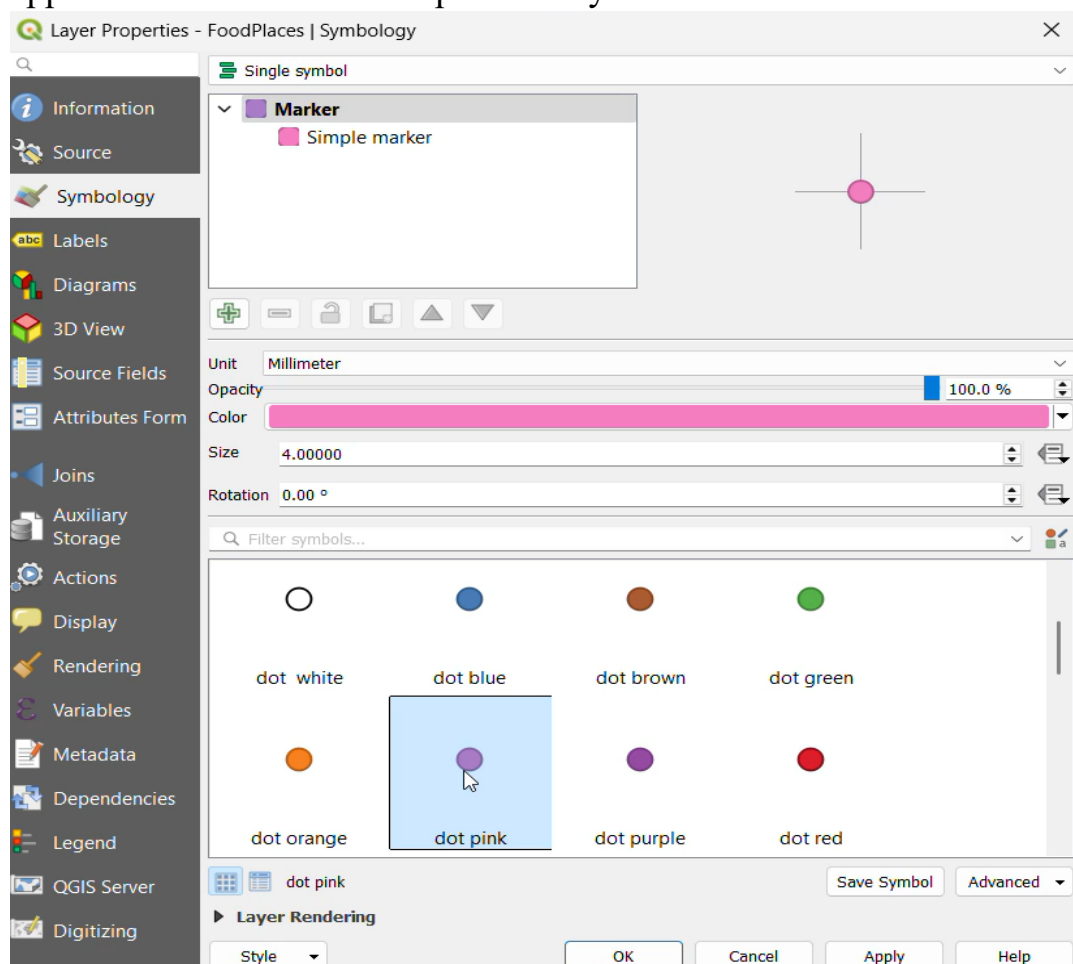


- The Layer will be set with the properties applied

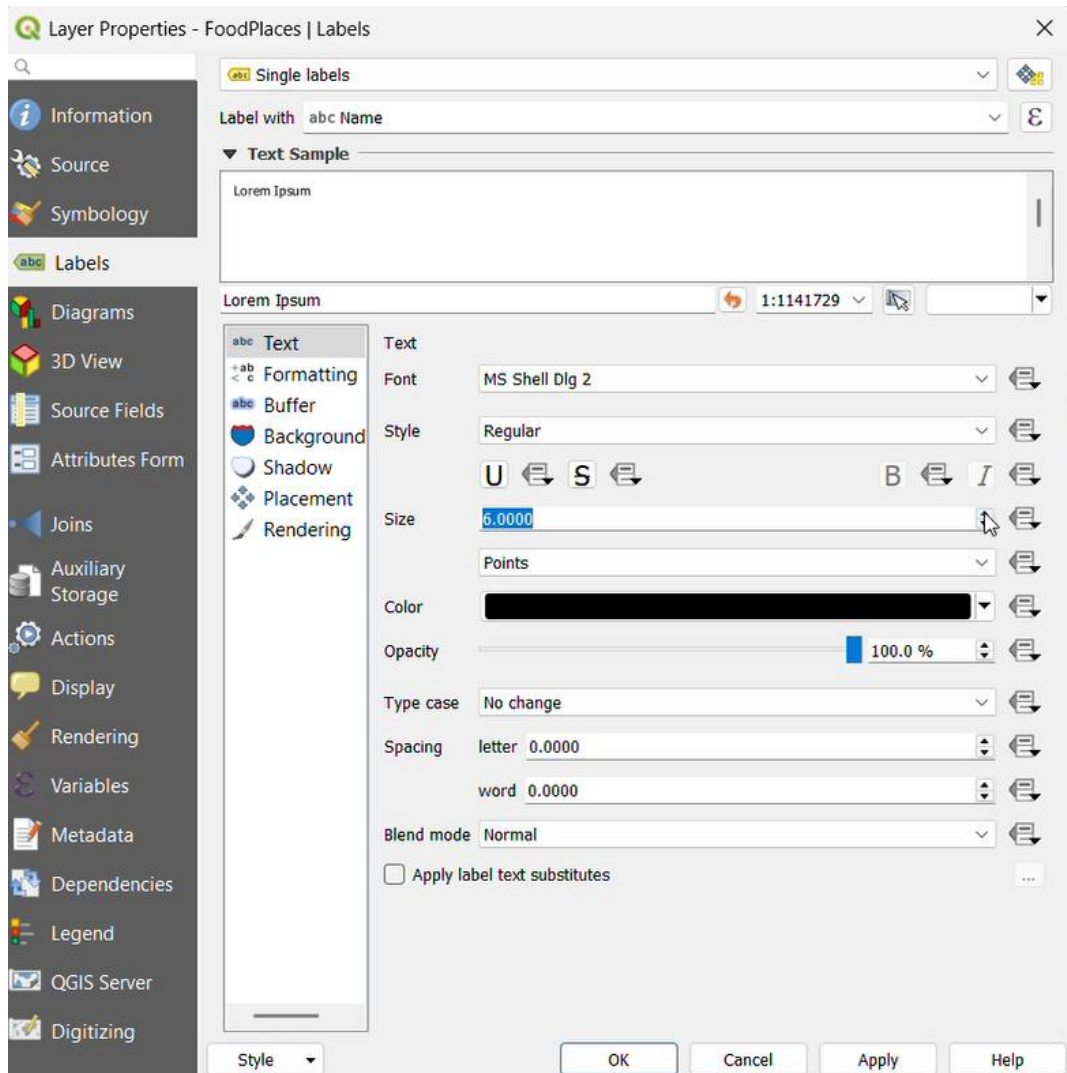


➤ Setting properties for points

- Set style for points by using property window then Following screen will appear on the screen. Select pattern as you want and click on



- To Label the points Select Single labels→Select the field to Label with →OK

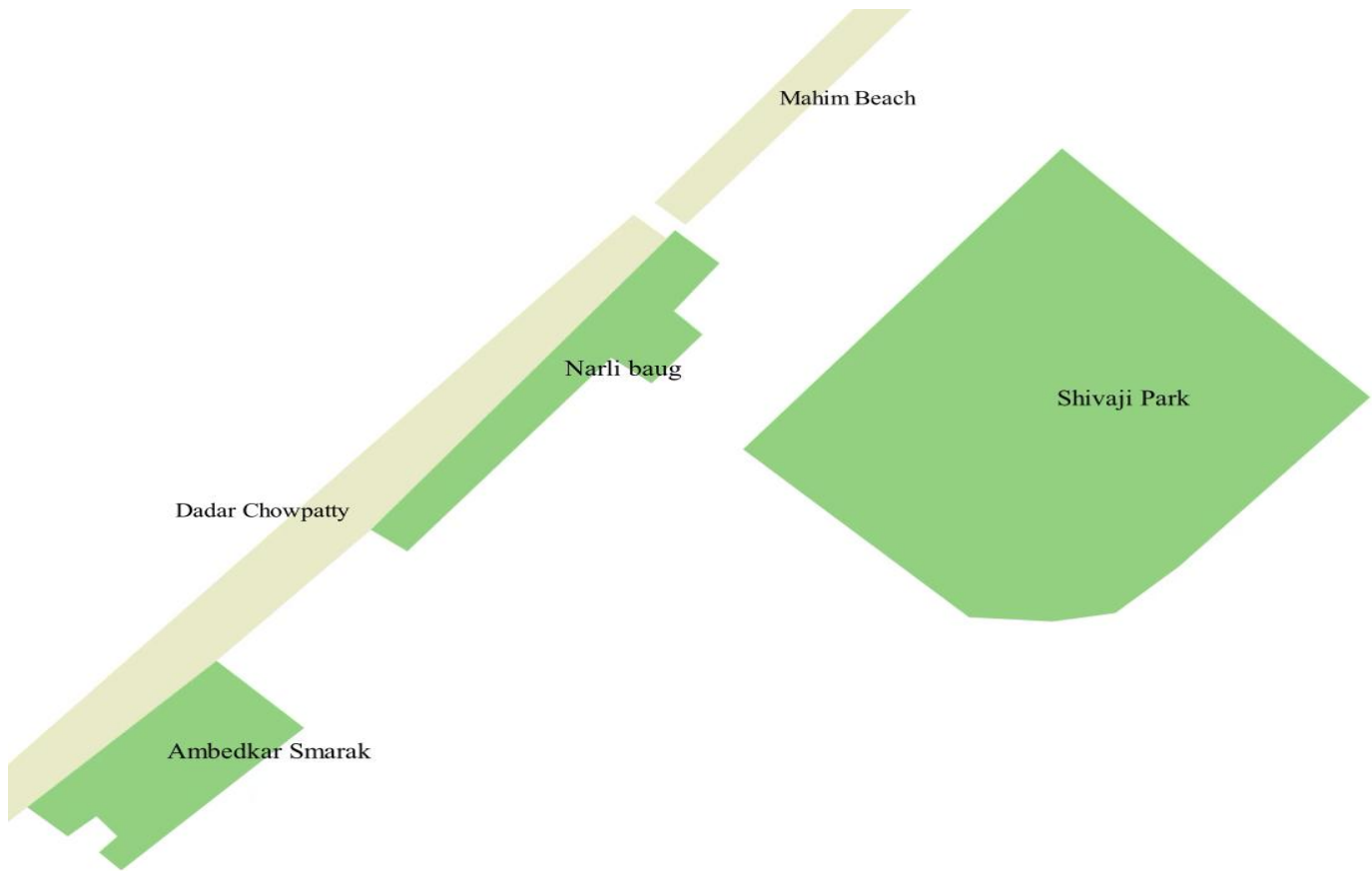


- The Layer will be set with the properties applied



c) Vector Layer Formatting

➤ Creating Polygon Layers



➤ Creating Line Layers



➤ Creating Point Layers



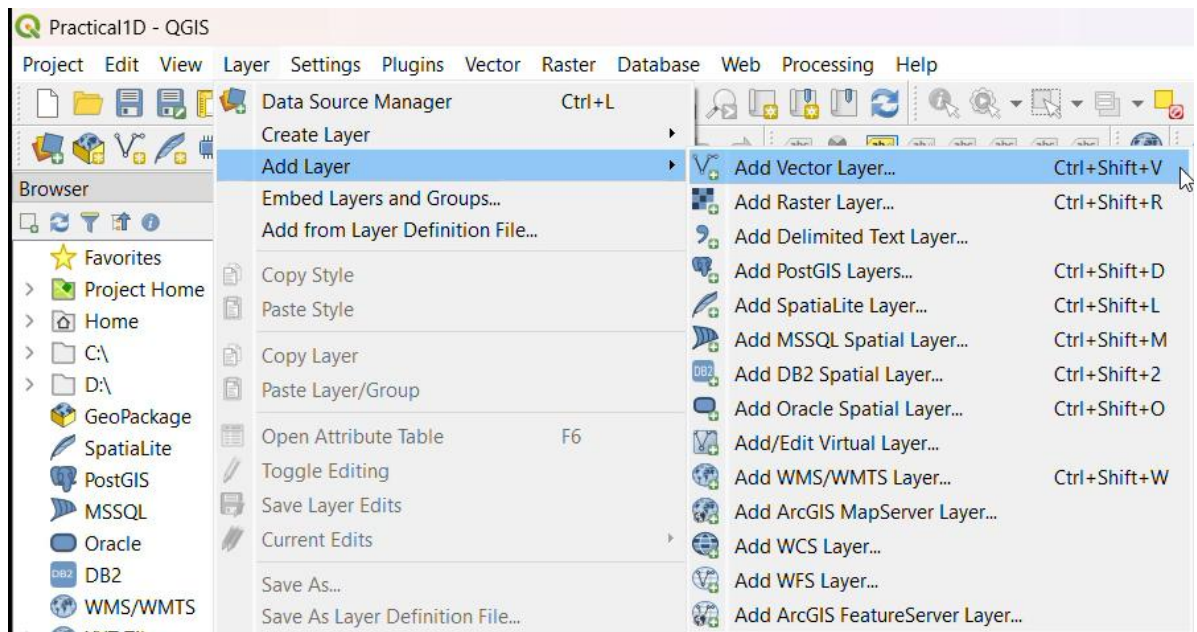
➤ Final Output:



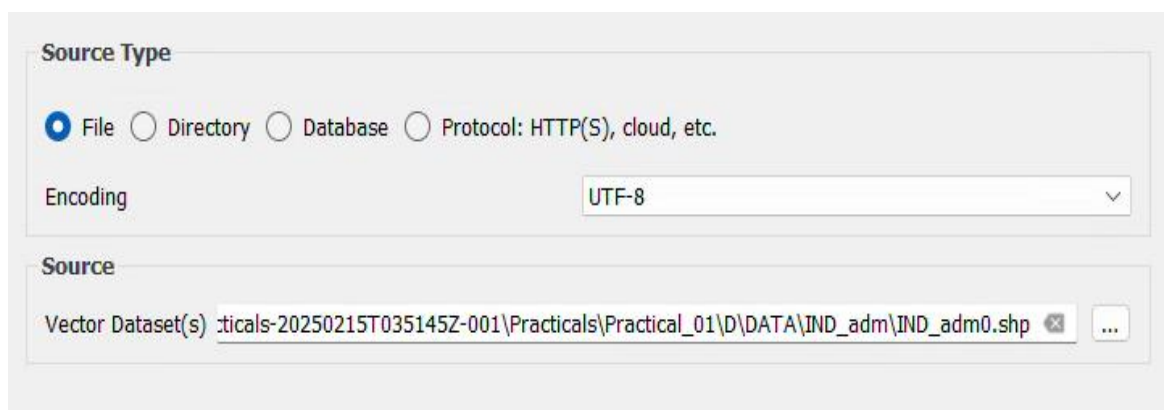
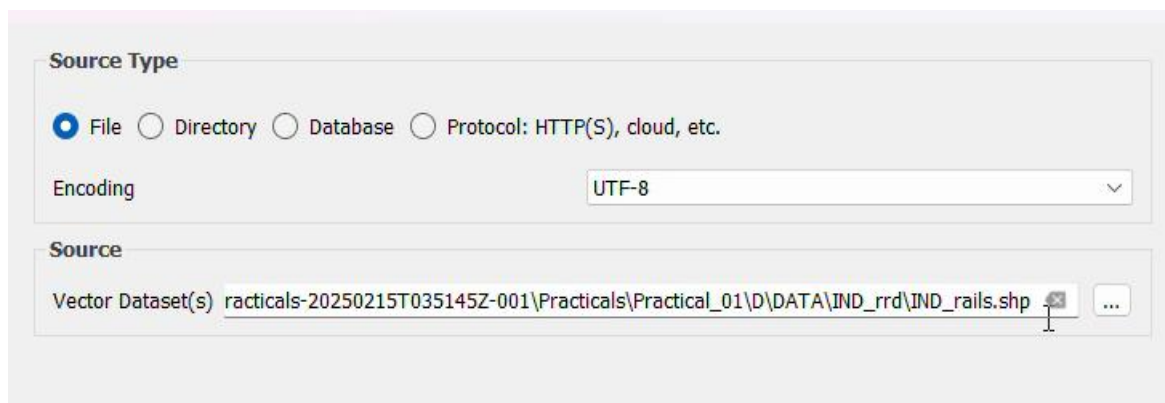
d) Calculating line lengths and statistics

Procedure:

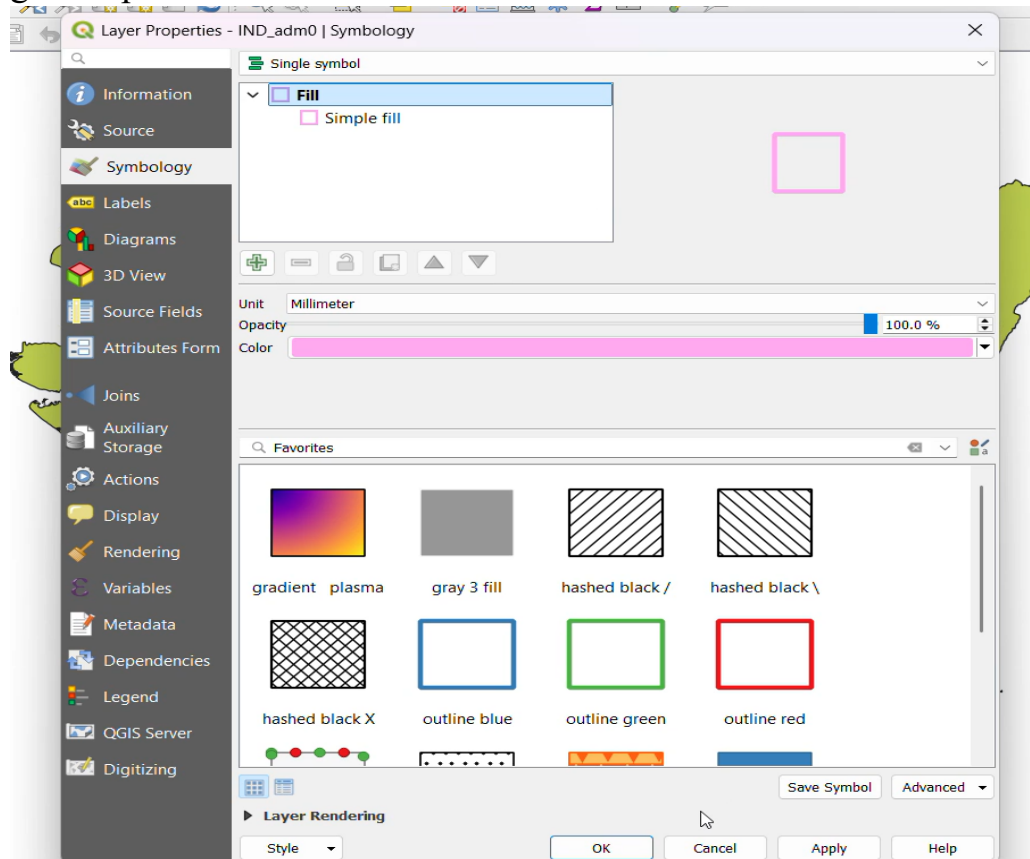
- Go to Layer → Add Layer → Add Vector Layer



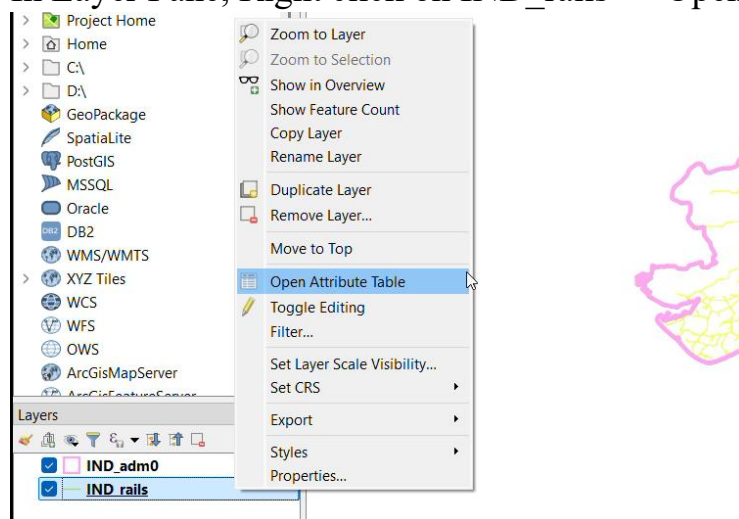
- Add the following file to project
"GIS_Workshop\Practicals\Practical_01\D\DATA\IND_rrd\IND_rails.shp"
Press "ADD"
- Also add India Administrative Map
"GIS_Workshop\Practicals\Practical_01\D\DATA\IND_adm\IND_adm0.sh"



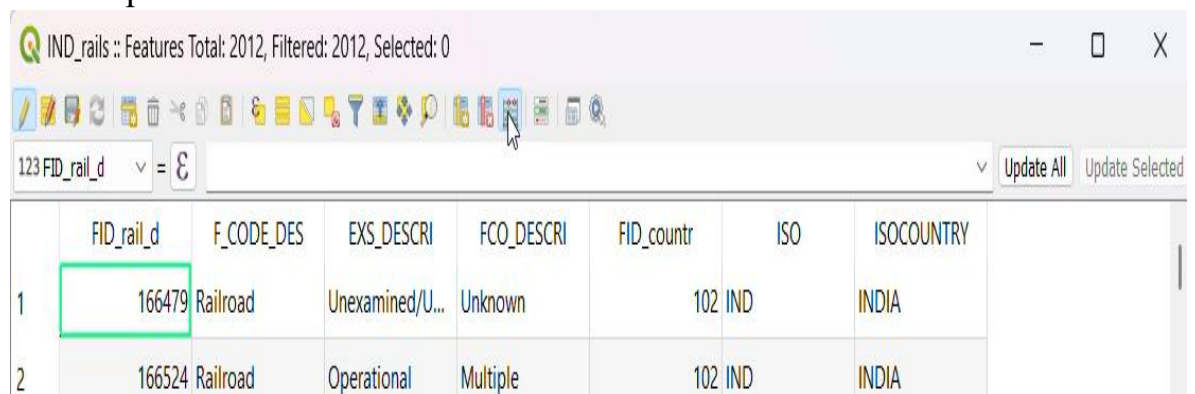
- Double Click on IND_adm0 Select → Select any outline style from below given options. Press OK.



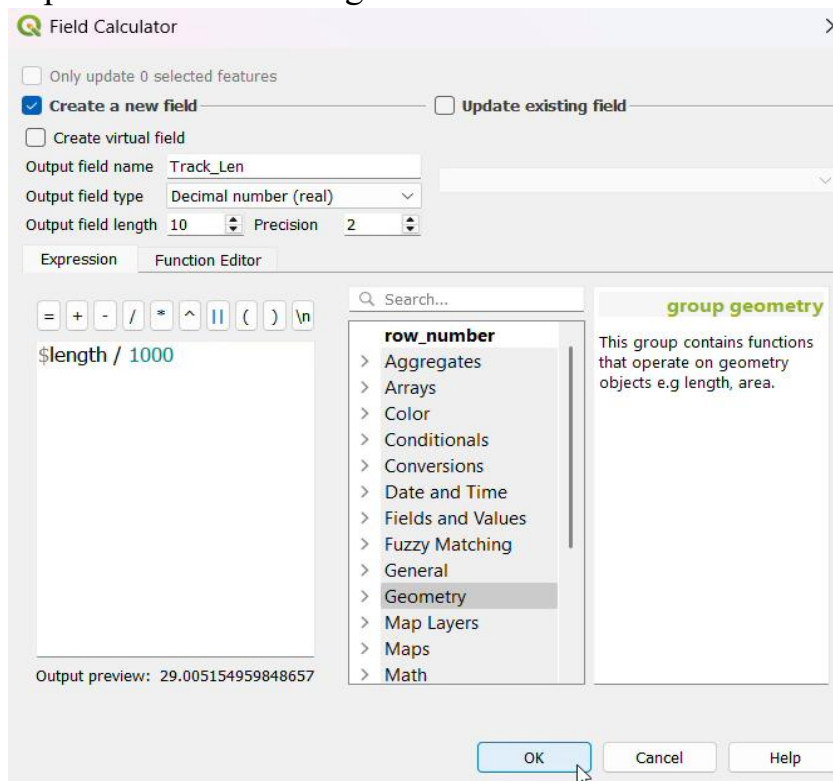
- In Layer Pane, Right click on IND_rails → Open Attribute Table



- Press Toggle Editing button, then on Attribute table window toolbar. Press Open Field Calculator.



- Set the output field as “Track_Len”, field type to “Decimal Number”.
- From Function List search \$length or go to Geometry → Select \$length Set expression as following and Press “OK”

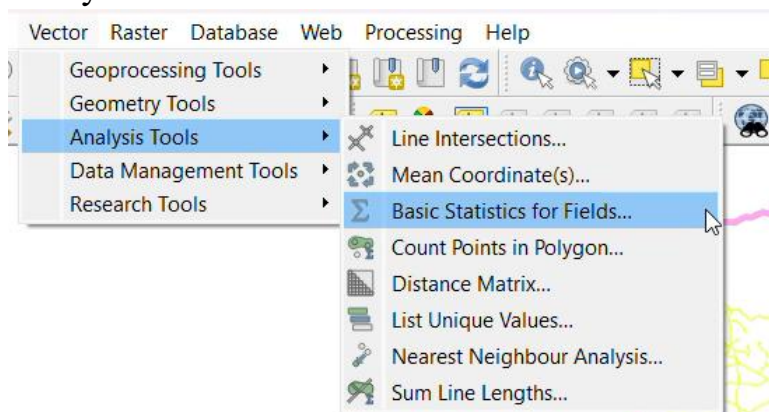


- A new column is added to the attribute table with value representing the length of track in KM. Press CTRL+S or click on Save Edits option on tool bar ➤ Close the attribute table window.

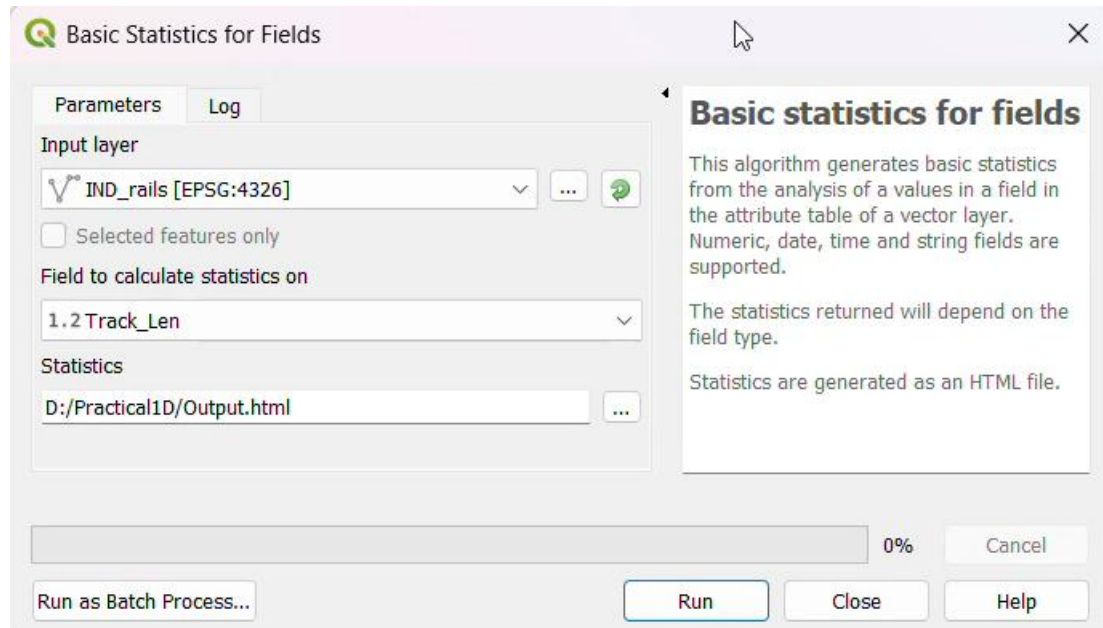
IND_rails :: Features Total: 2012, Filtered: 2012, Selected: 0

	FID_rail_d	F_CODE_DES	EXS_DESCR	FCO_DESCR	FID_countr	ISO	ISOCOUNTRY	Track_Len
1	144645	Railroad	Operational	Single	102	IND	INDIA	29.01
2	145991	Railroad	Operational	Single	102	IND	INDIA	66.13
3	146001	Railroad	Operational	Single	102	IND	INDIA	2.33
4	146008	Railroad	Operational	Single	102	IND	INDIA	63.81
5	146096	Railroad	Operational	Single	102	IND	INDIA	92.71
6	146394	Railroad	Operational	Single	102	IND	INDIA	22.24
7	146464	Railroad	Operational	Single	102	IND	INDIA	77.24
8	146593	Railroad	Operational	Single	102	IND	INDIA	0.55
9	146680	Railroad	Operational	Single	102	IND	INDIA	1.1

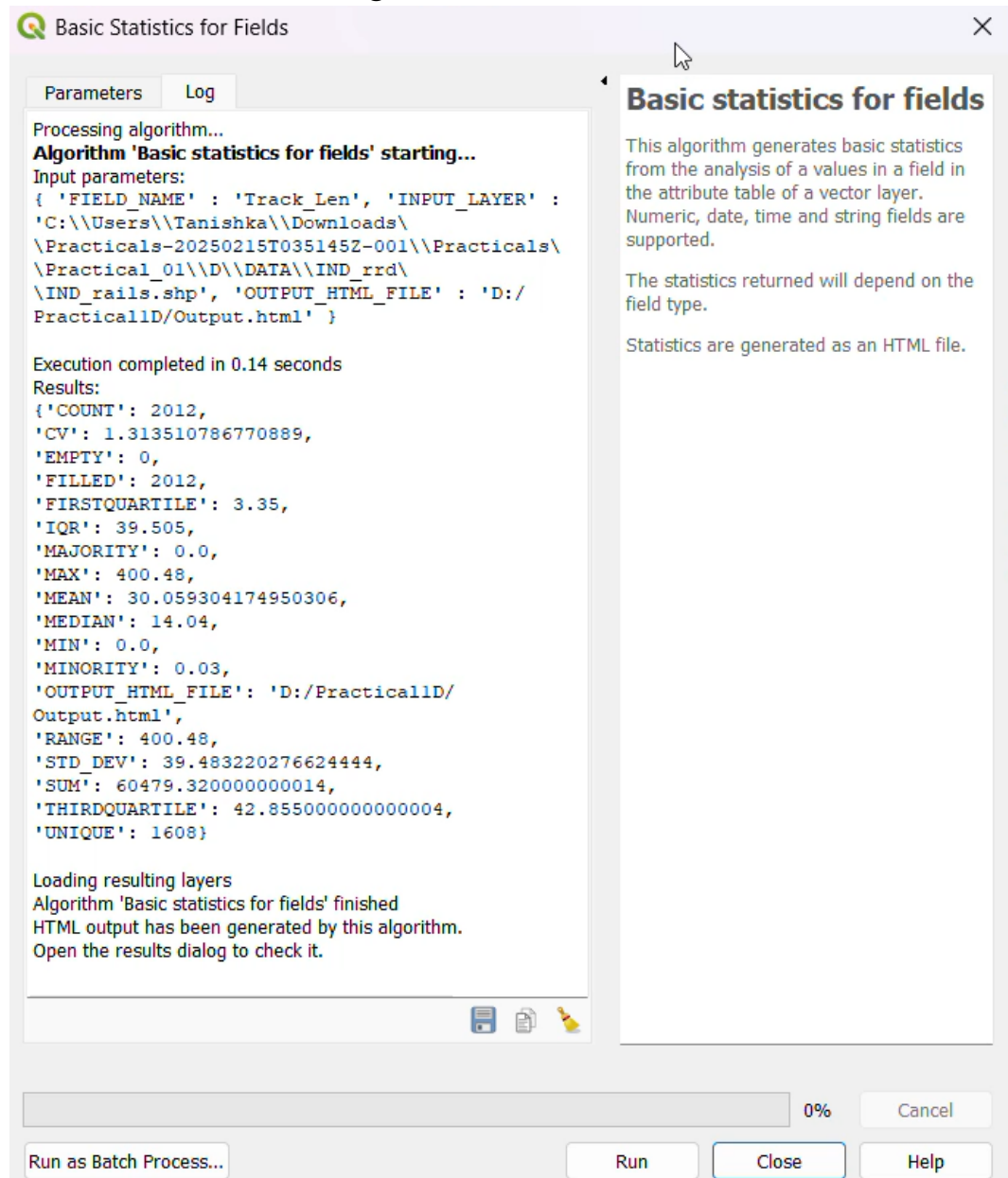
- For calculating the total length of Railway tracks in India. Select Vector→ Analysis Tools→ Basic Statics for Fields



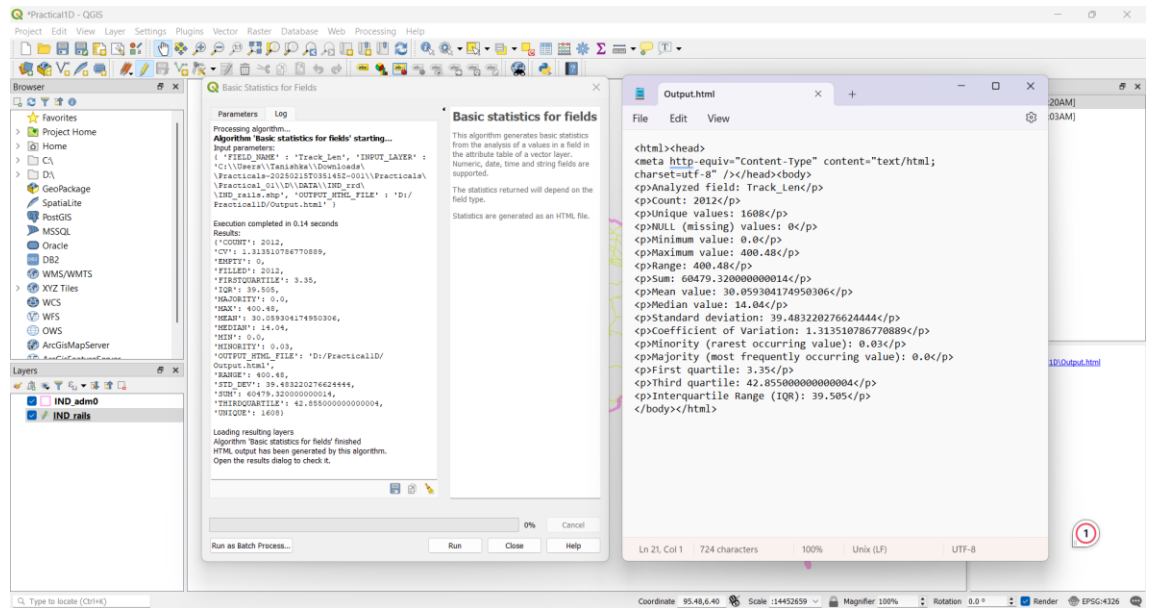
- Select IND_rails layer from input layer. And select Track_Len in “Field to Calculate statistics on”. Press RUN



- The Result is as following.



- Open the “output.html” file to get the field statistics.



Output: Vector data has been created and managed successfully.