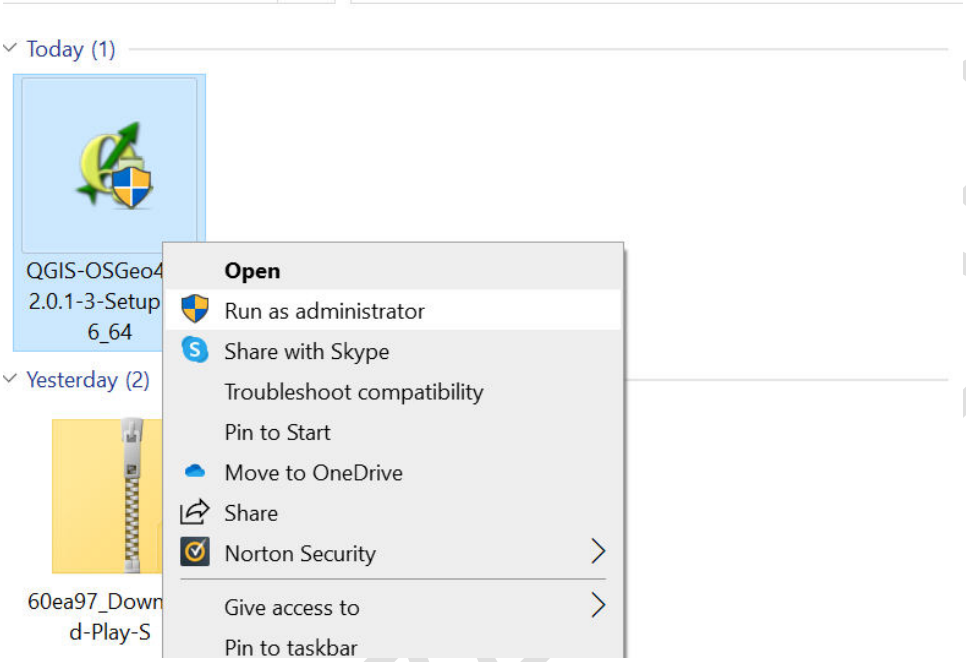
Practical - 0

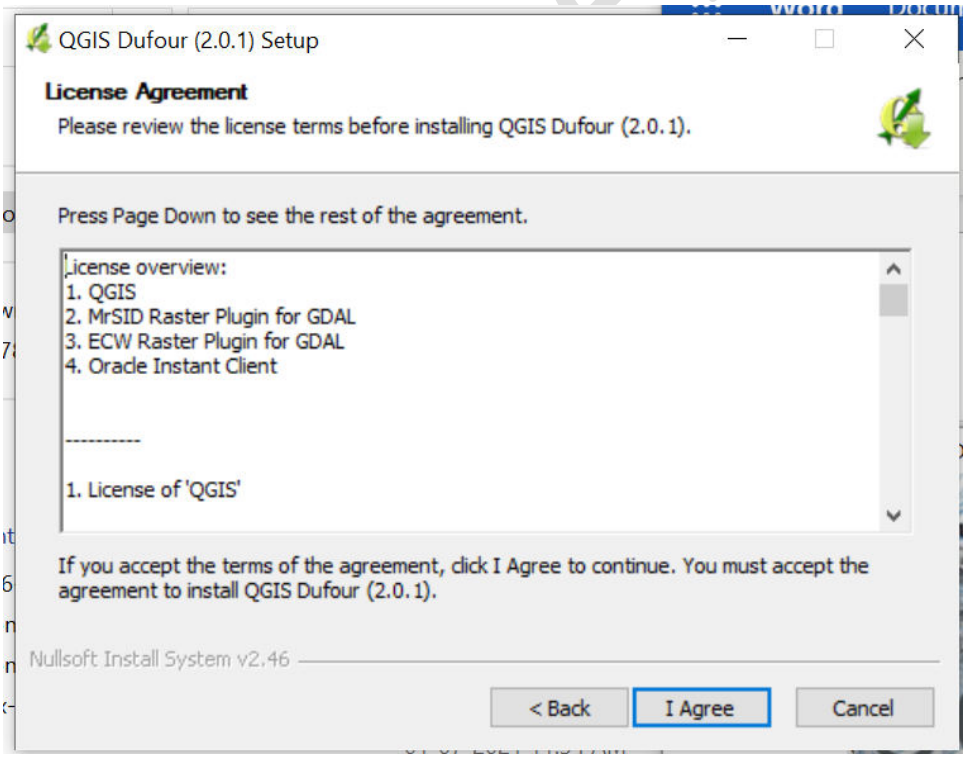
Aim: Installation of QGIS software

Step 1: Right click on the .exe file and select Run as Administer.

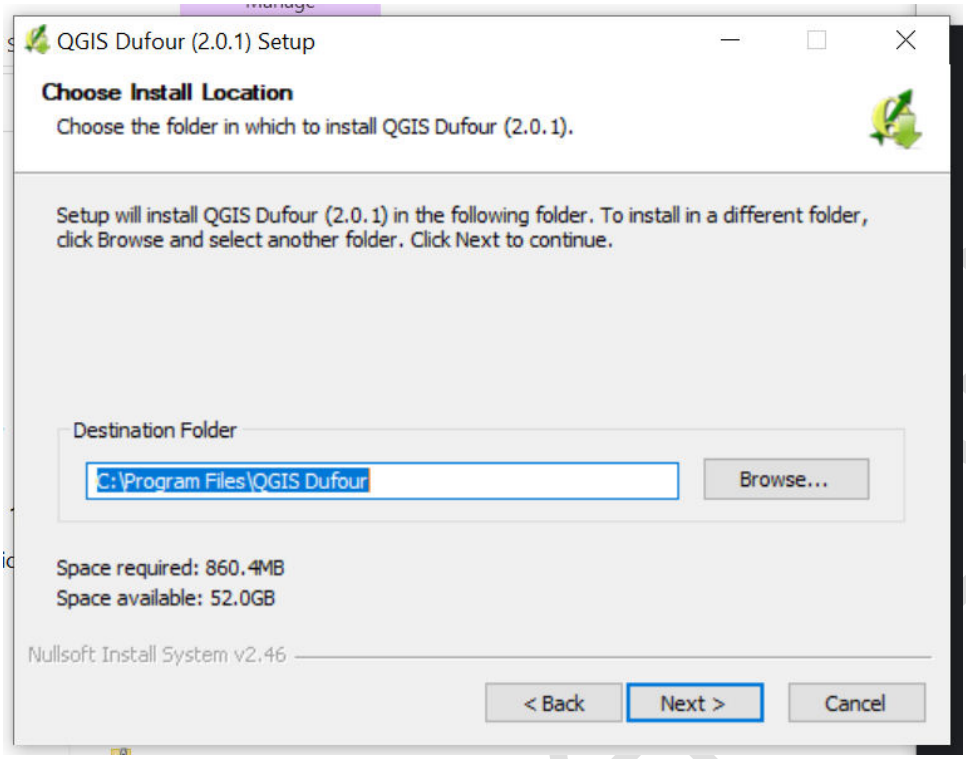


Step 2: Click Next

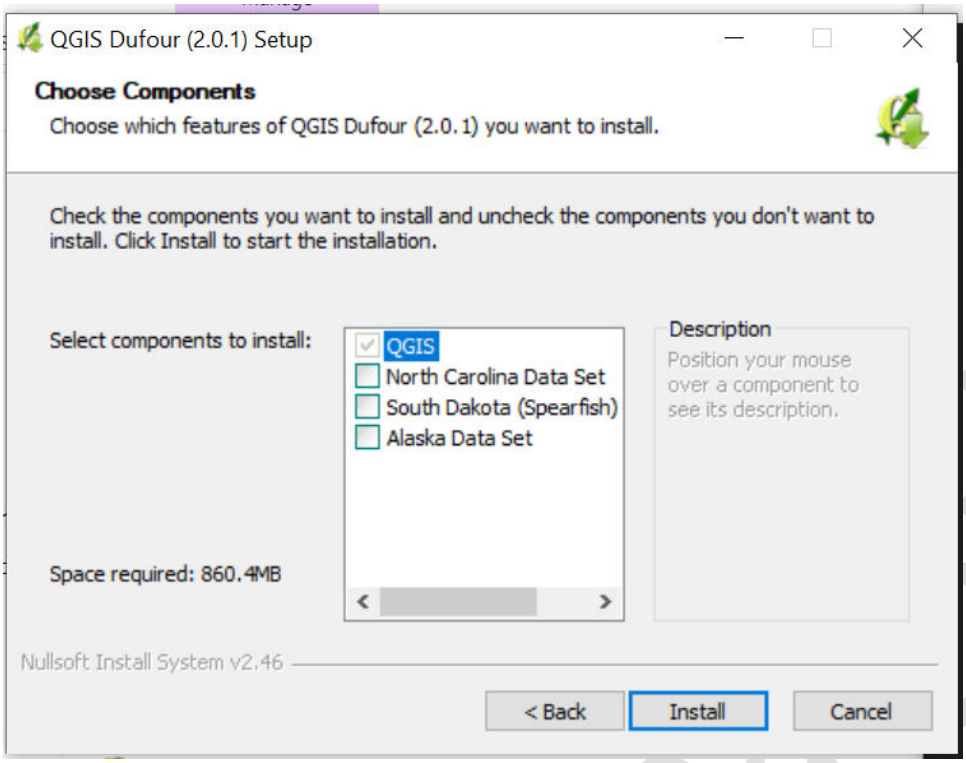
Step 3: Click on “I Agree”



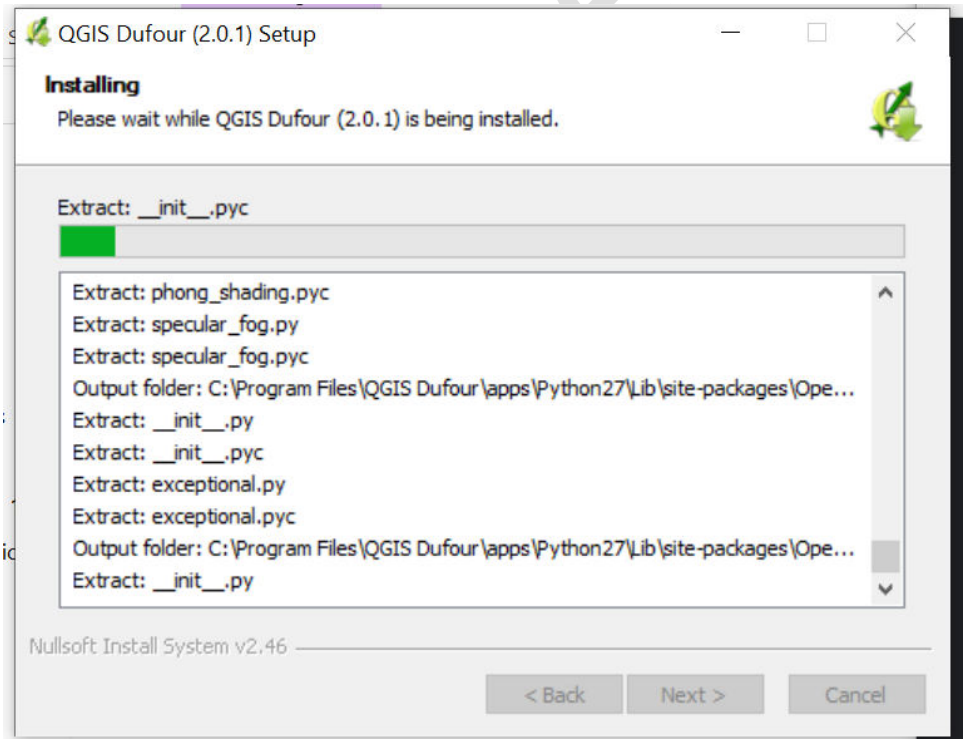
Step 4: Keep as it is or change the path according to your choice and select Next



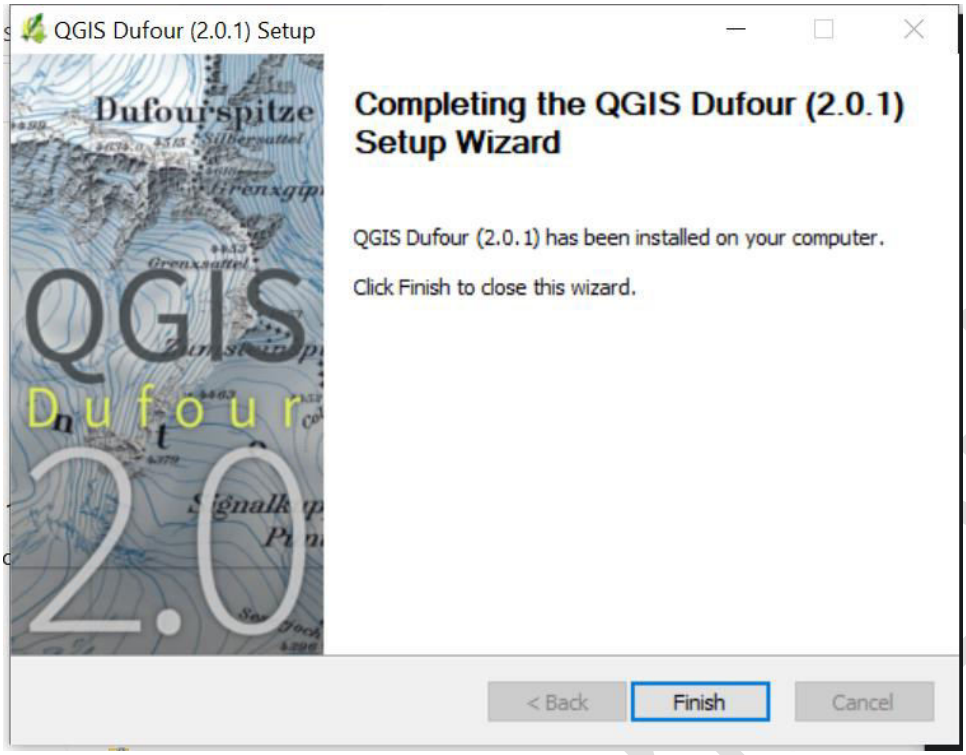
Step 5: Select as it is (default QGIS) and click Install



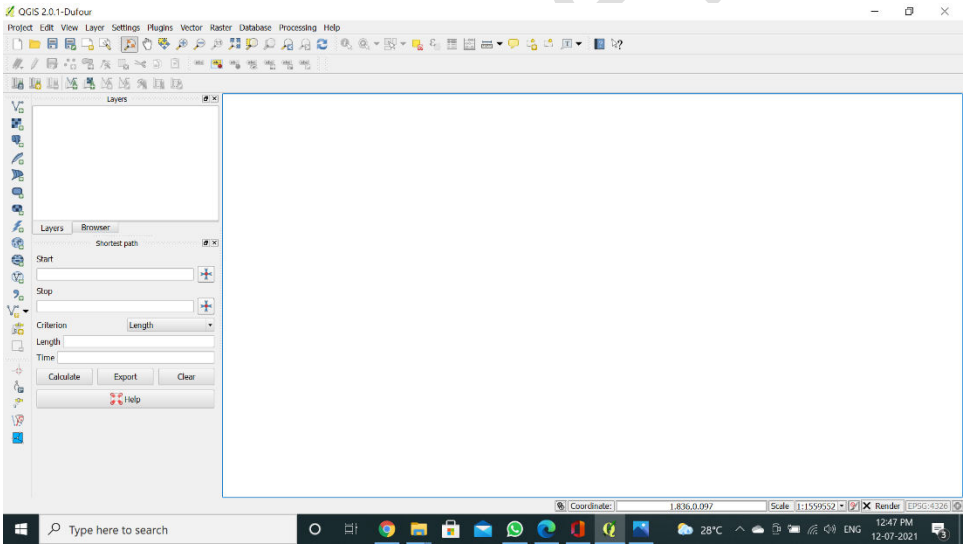
Step 6: Wait for the installation



Step 7: Click Finish



Step 8: On the desktop screen Click QGIS Desktop 2.0.1 icon

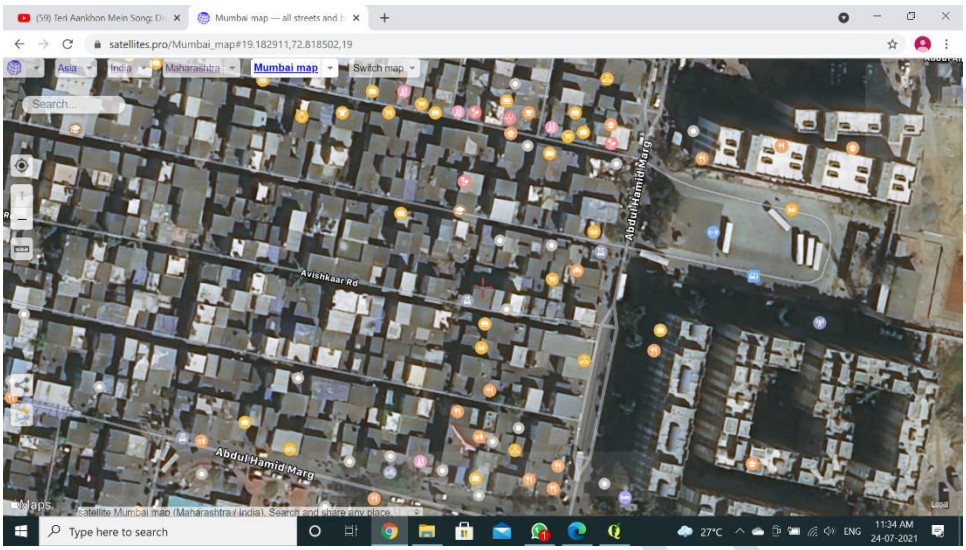


Practical 1

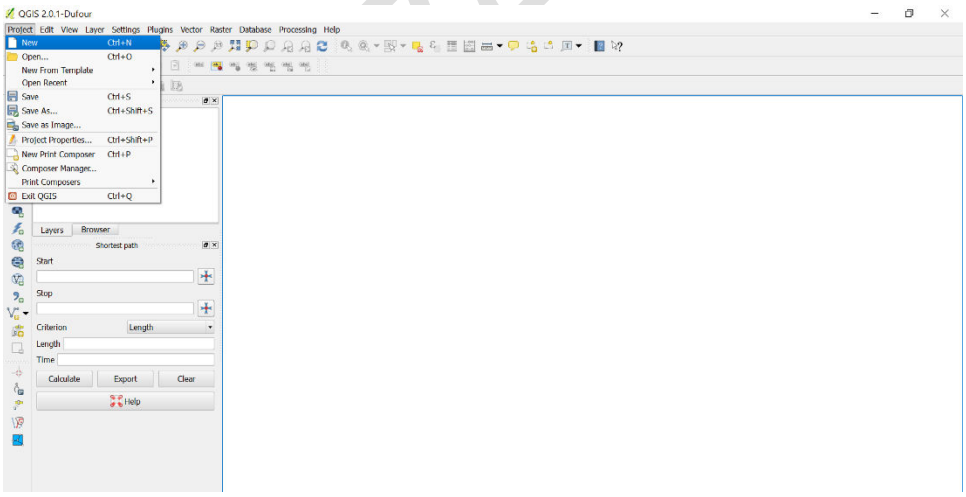
Aim: Creating and Managing Vector

Step 1: Go to www.satellites.pro

Step 2: Search for respective area in the map, take a screenshot and save it as an image in a folder named “practical1”



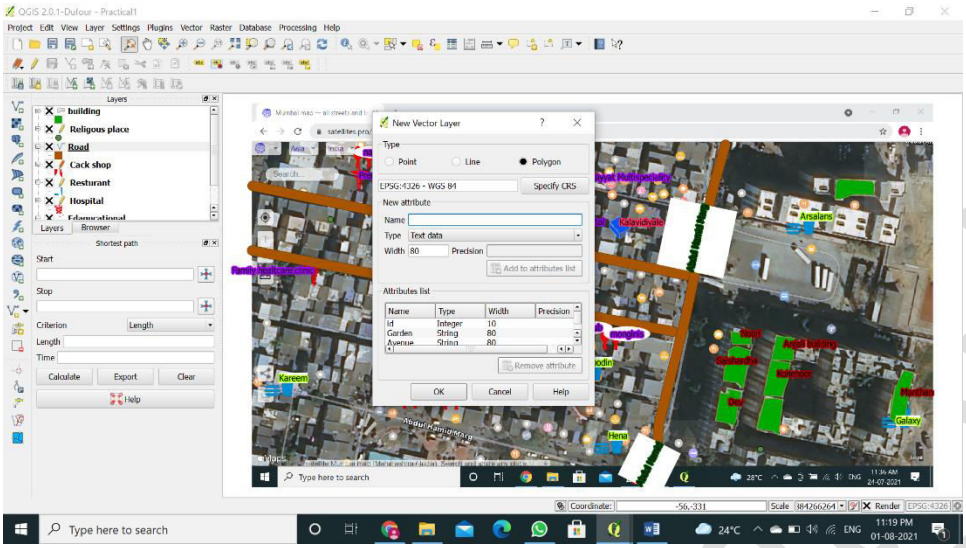
Step 3: Open QGIS Desktop, create a new project, save it with proper name

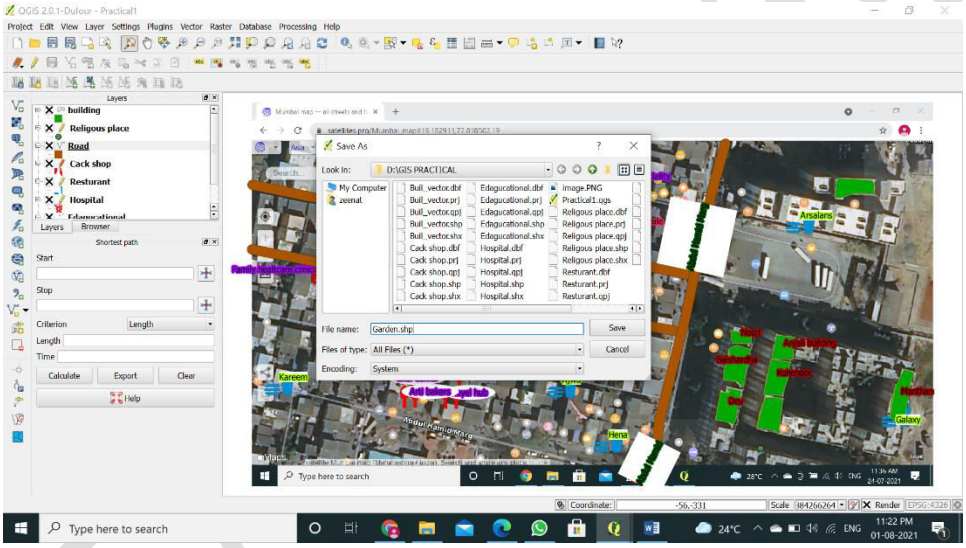


Step 4: Go to layers--> Add Raster Layer --> Browse to the image created in Step2 and select, and open that image.

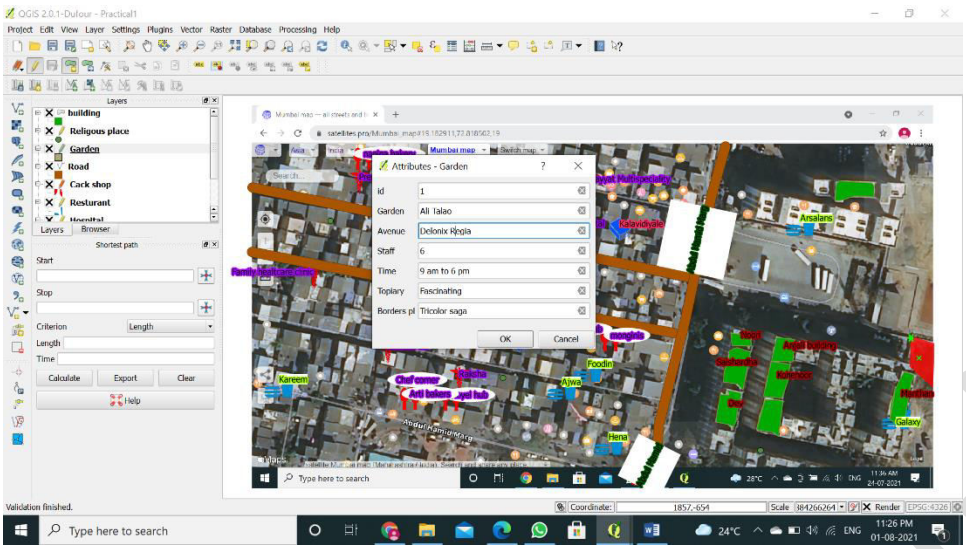
Step 5: Go to Layer--> New--> New shapefile layer

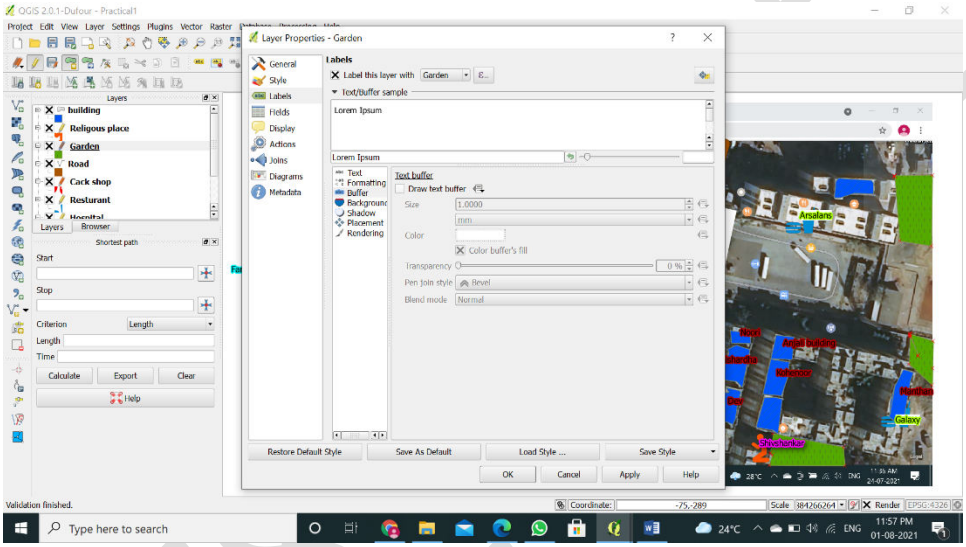
Step 6: Create a polygone layer with name “garden.shp” and give appropriate attributes and save in the respetive forlder.

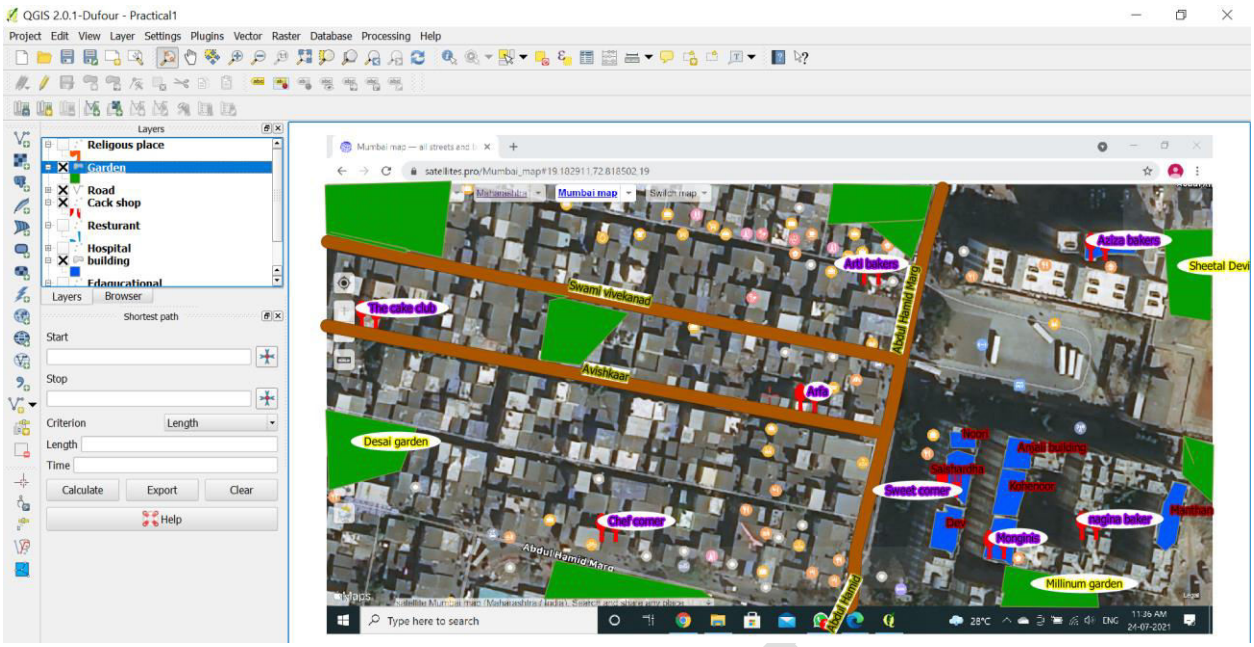




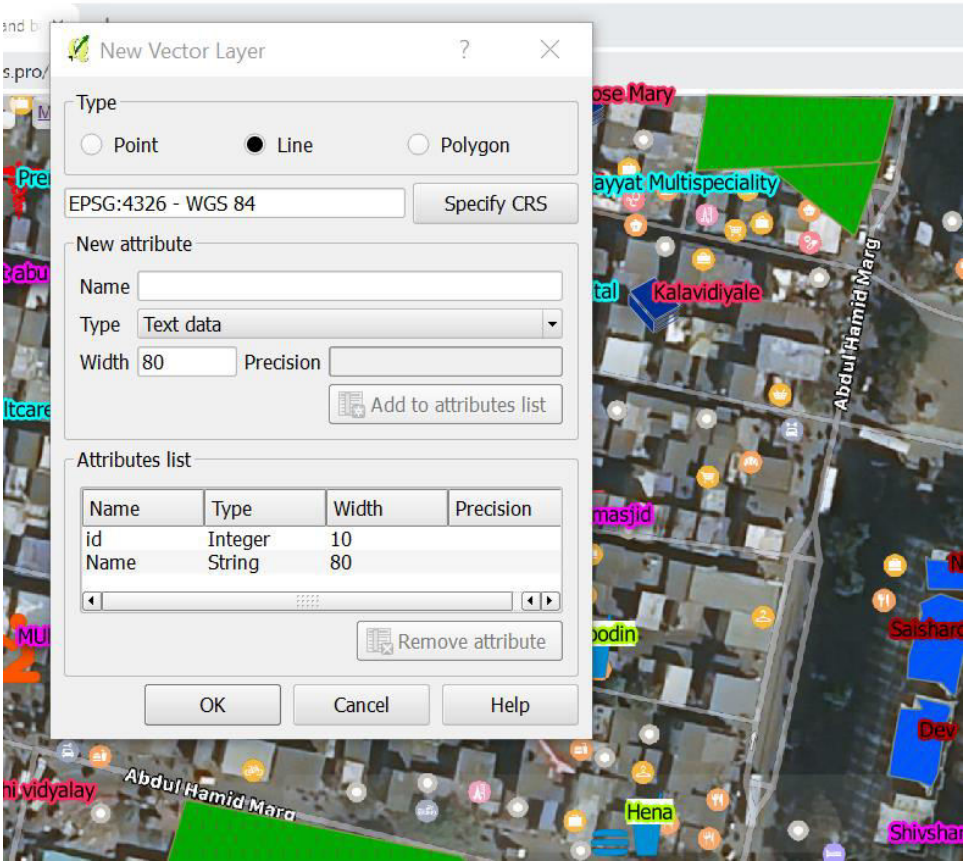
Step 7 Click on the garden layers created click on the TOGGLE EDITING BUTTON click on ADD FEATURES and start with DIGITIZATION process of each garden (Using the left button we start with the process we plot the sample points and using right button we stop the process)

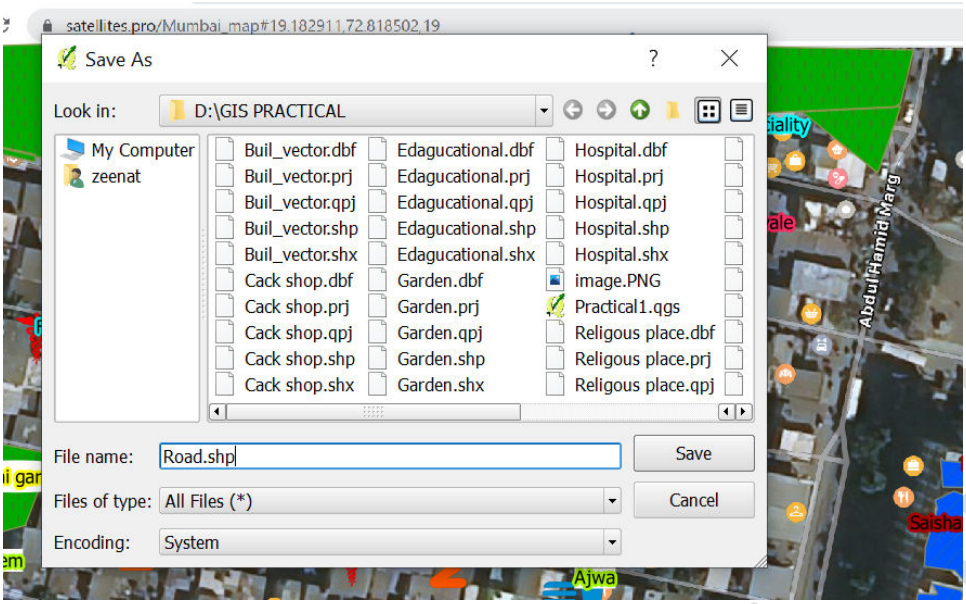

QGIS 2.0.1-Dufour - Practical1
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
building
Religious place
Garden
Road
Cack shop
Resturant
Hospital
Shortest path
Start
Stop
Criterion
Length
Time
Calculate
Export
Clear
Help
Attributes - Garden
id 1
Garden Ali Talao
Avenue Delonix Regia
Staff 6
Time 9 am to 6 pm
Topiary Fascinating
Borders pl Tricolor saga
OK
Cancel
Validation finished.
Coordinate:
Scale
Render
Type here to search
24°C
ENG
11:26 PM
01-08-2021


QGIS 2.0.1-Dufour - Practical1
Layer Properties - Garden
General
Style
Labels
Fields
Display
Actions
Joins
Diagrams
Metadata
Label this layer with Garden
Text/buffer sample
Lorem Ipsum
Text buffer
Draw text buffer
Color buffer's fill
Restore Default Style
Save As Default
Load Style ...
Save Style
OK
Cancel
Apply
Help
Validation finished.
Type here to search
24°C
ENG
11:57 PM
01-08-2021

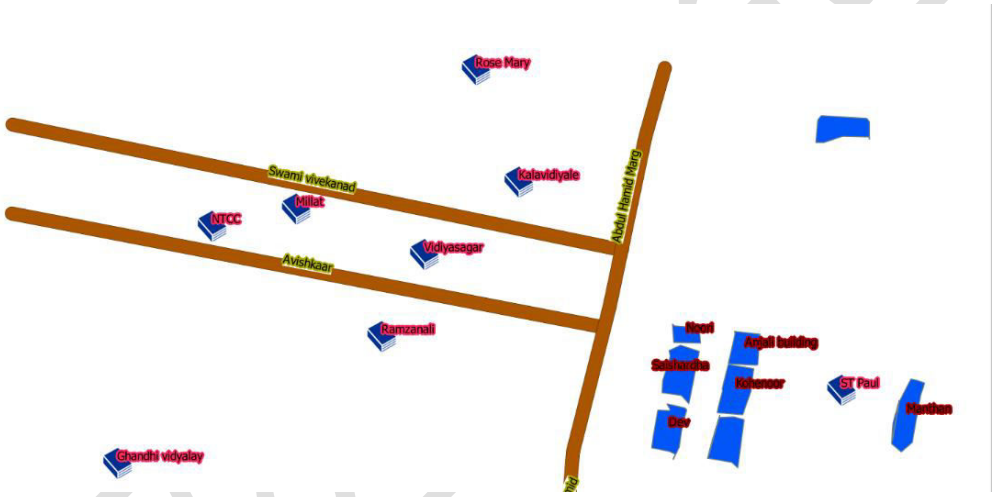


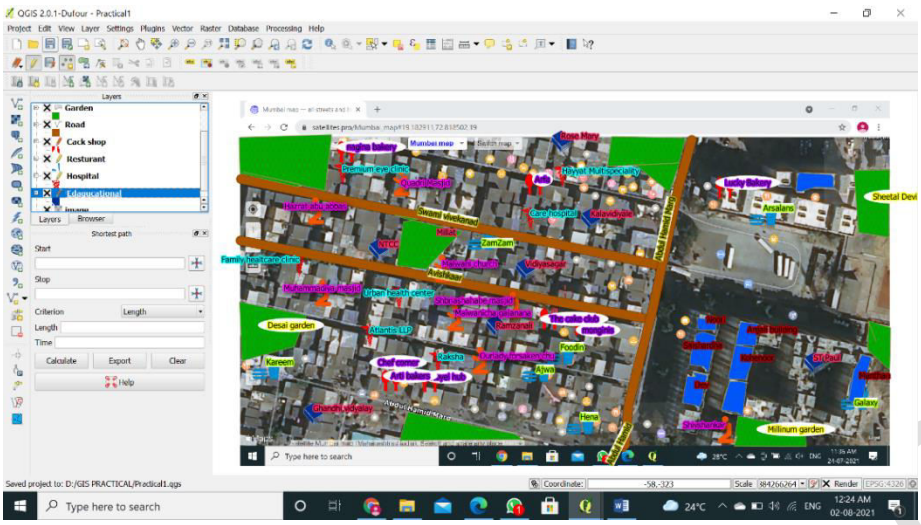
Step 8: Create a Line layer with name “road.shp”and give appropriate attributes and save in respective folder.



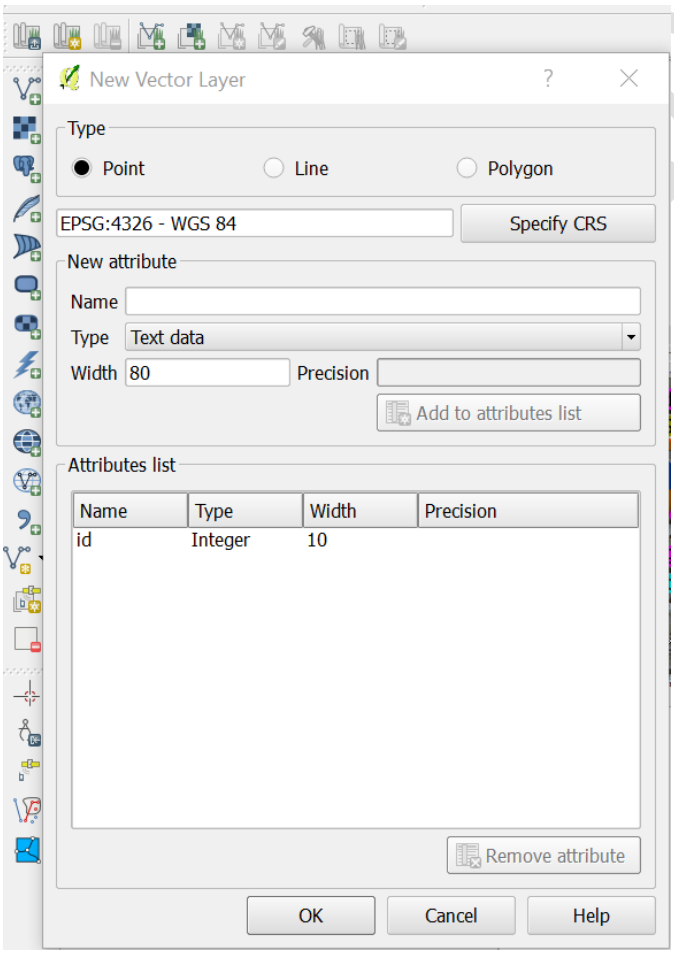


Step 9 Choose the layer and right click selecting properties go to the styles and select the simple line.

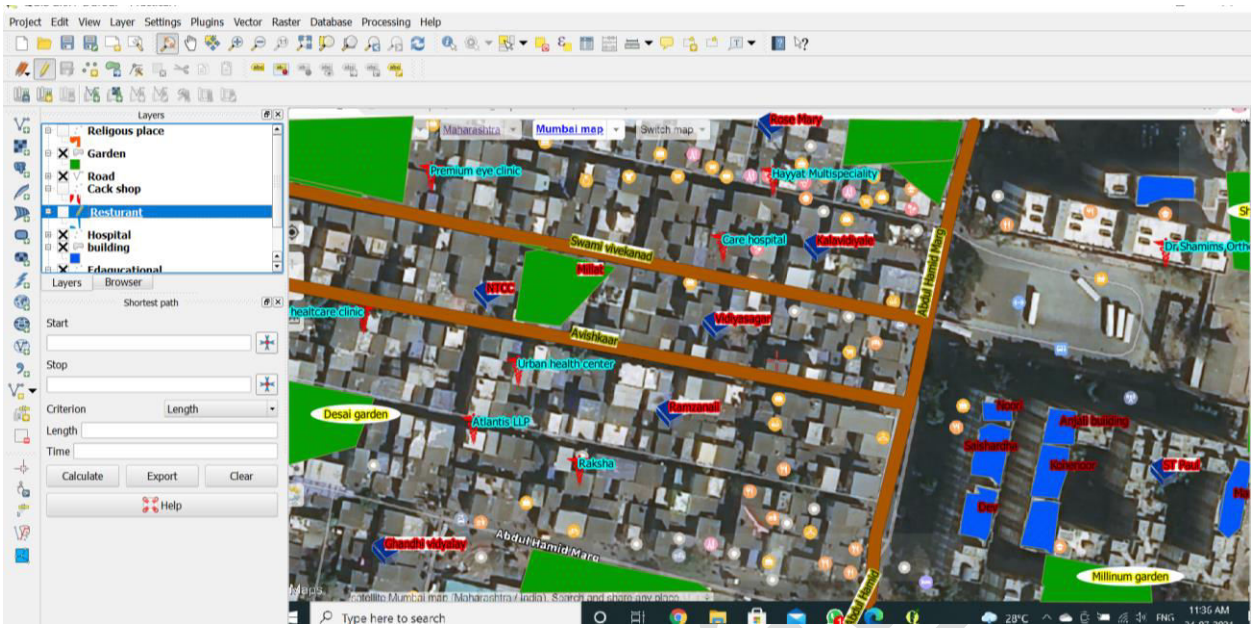




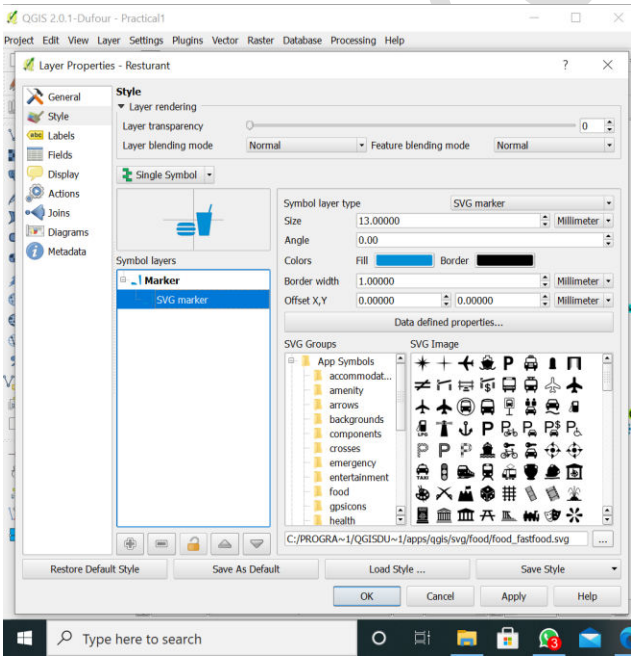
Step 10: Now we will create POINT FEATURE for restaurant, go to layers ◊ New ◊ New shapefile layer, create a Point layer with name “restaurants.shp” and give appropriate attributes and save in the respective folder.



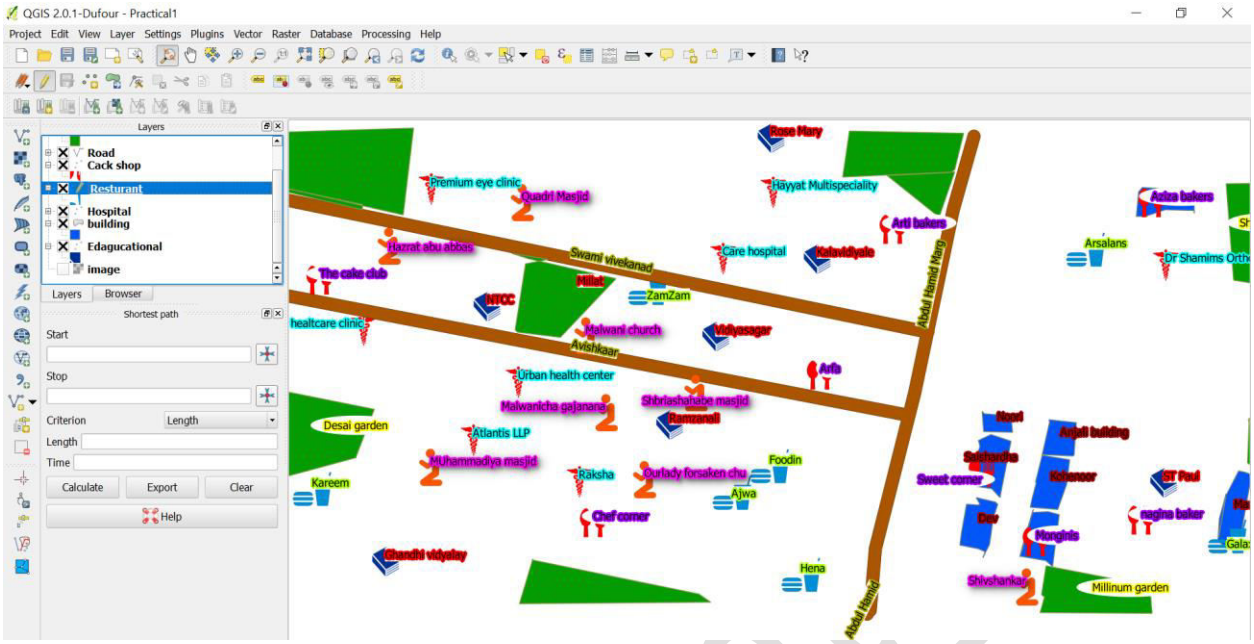
Step 11: Click on the restaurants layer created, click on TOGGLE EDITTING button, click on ADD FEATURES, and start with Digitization process of EACH restaurant.



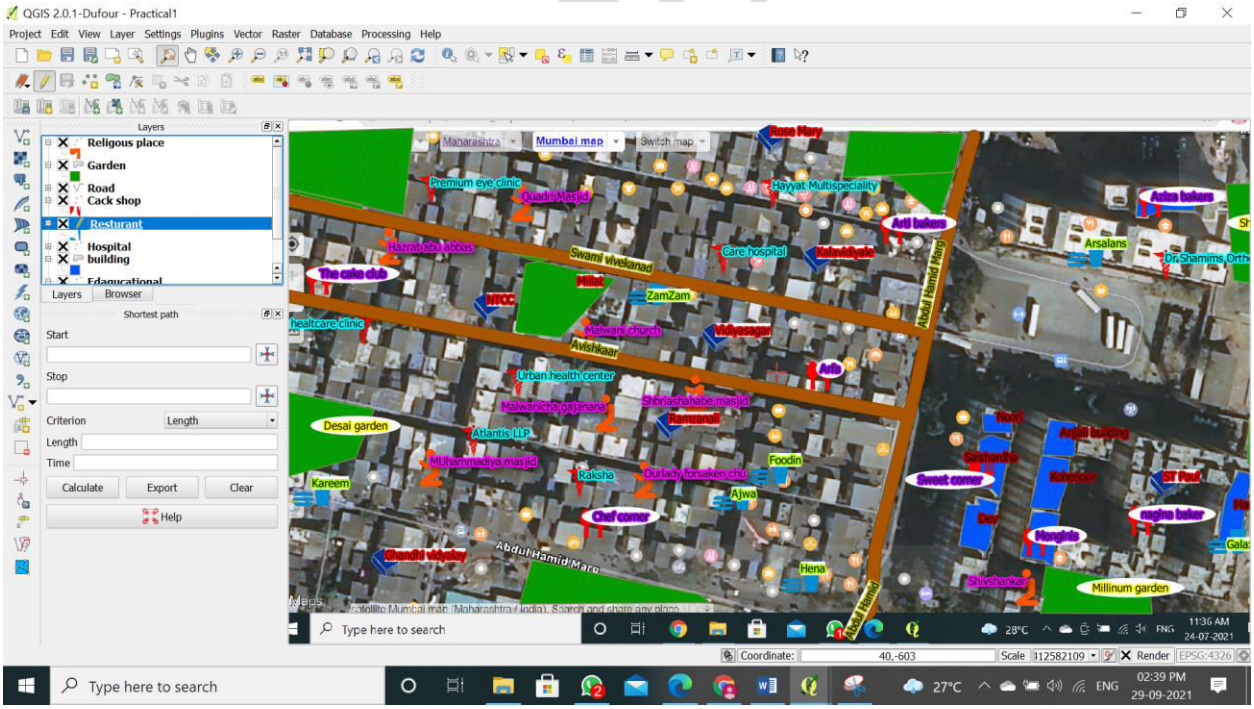
Step 12: Right click on restaurant layer, go to properties, style, click on simple marker ◊ in dropdown, select SVG marker, select appropriate symbol and its size, click on Apply and OK Similarly, we will digitize all the restaurants present in our map. (Note: Use another POINT LAYER for other point features, such as hospitals, etc., MINIMUM 6-point layer must be created, each POINT layer must consist of minimum 7 features)



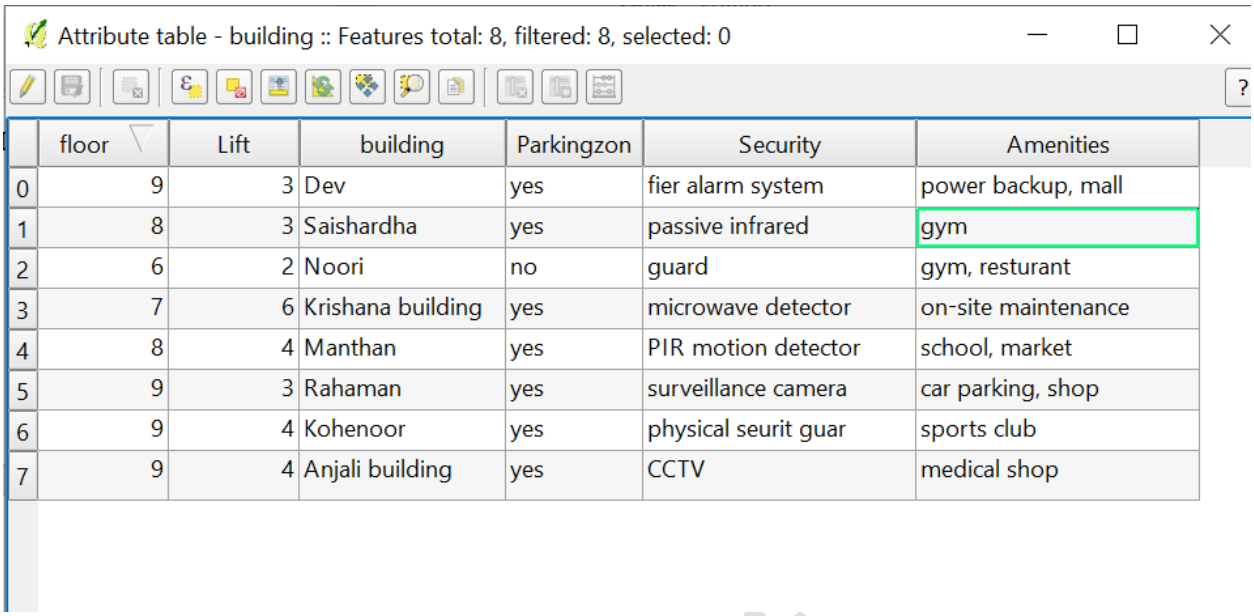
Step 13: Display LABEL for EACH AREA



Step 14: Final Map



Step 15: Display attribute tables: Layer Name and its table



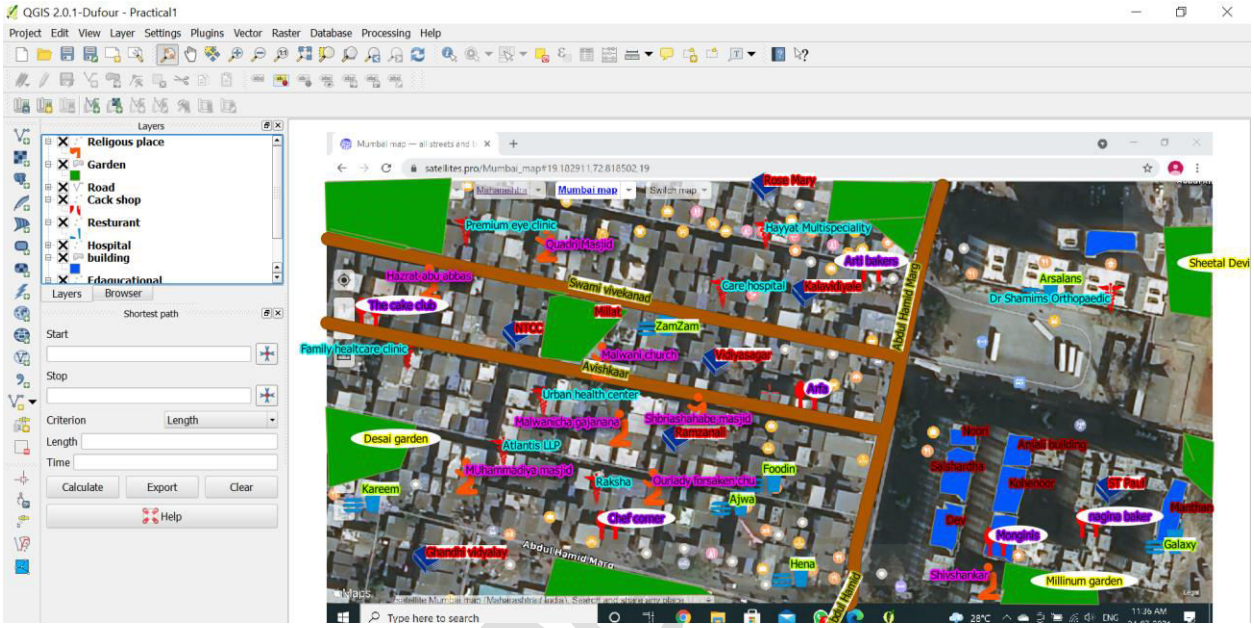
	floor	Lift	building	Parkingzon	Security	Amenities
0	9	3	Dev	yes	fier alarm system	power backup, mall
1	8	3	Saishardha	yes	passive infrared	gym
2	6	2	Noori	no	guard	gym, resturant
3	7	6	Krishana building	yes	microwave detector	on-site maintenance
4	8	4	Manthan	yes	PIR motion detector	school, market
5	9	3	Rahaman	yes	surveillance camera	car parking, shop
6	9	4	Kohenoor	yes	physical seurit guar	sports club
7	9	4	Anjali building	yes	CCTV	medical shop

Practical 2A

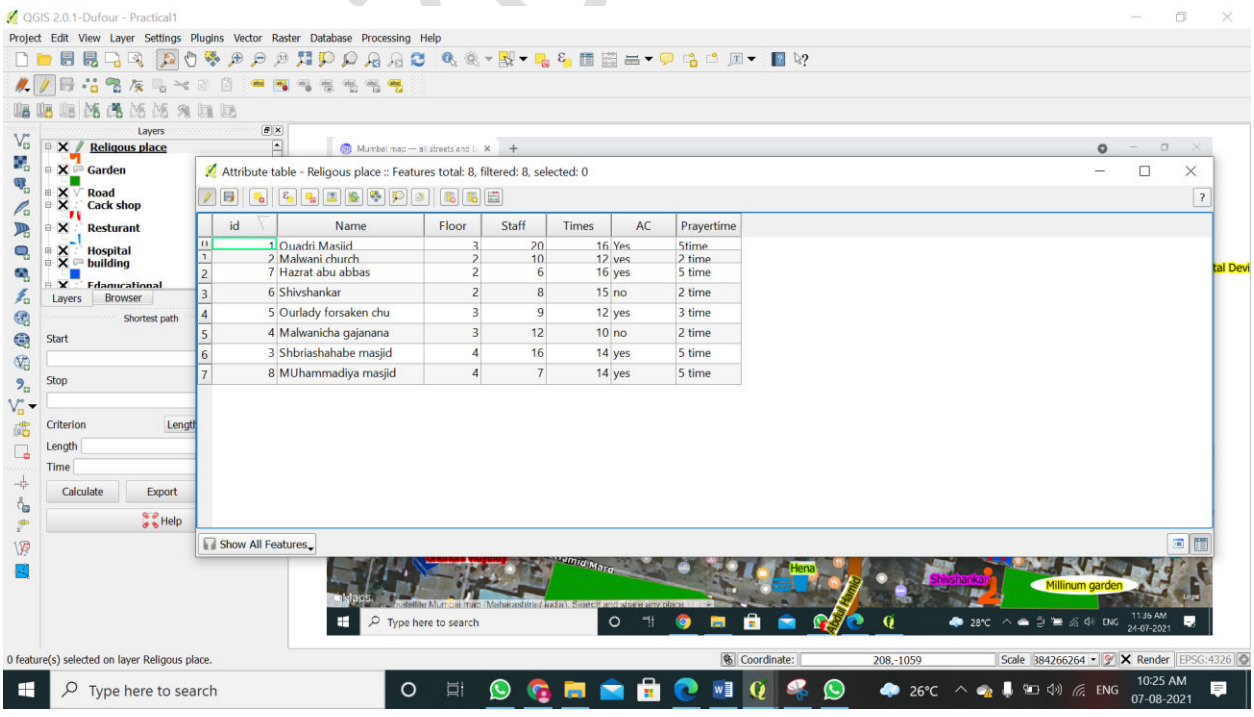
Aim: Working with Attributes, Attribute Data Query on the map created in Practical 1 and existing data.

FIRING QUERIES ON MAP CREATED IN PRACTICAL 1

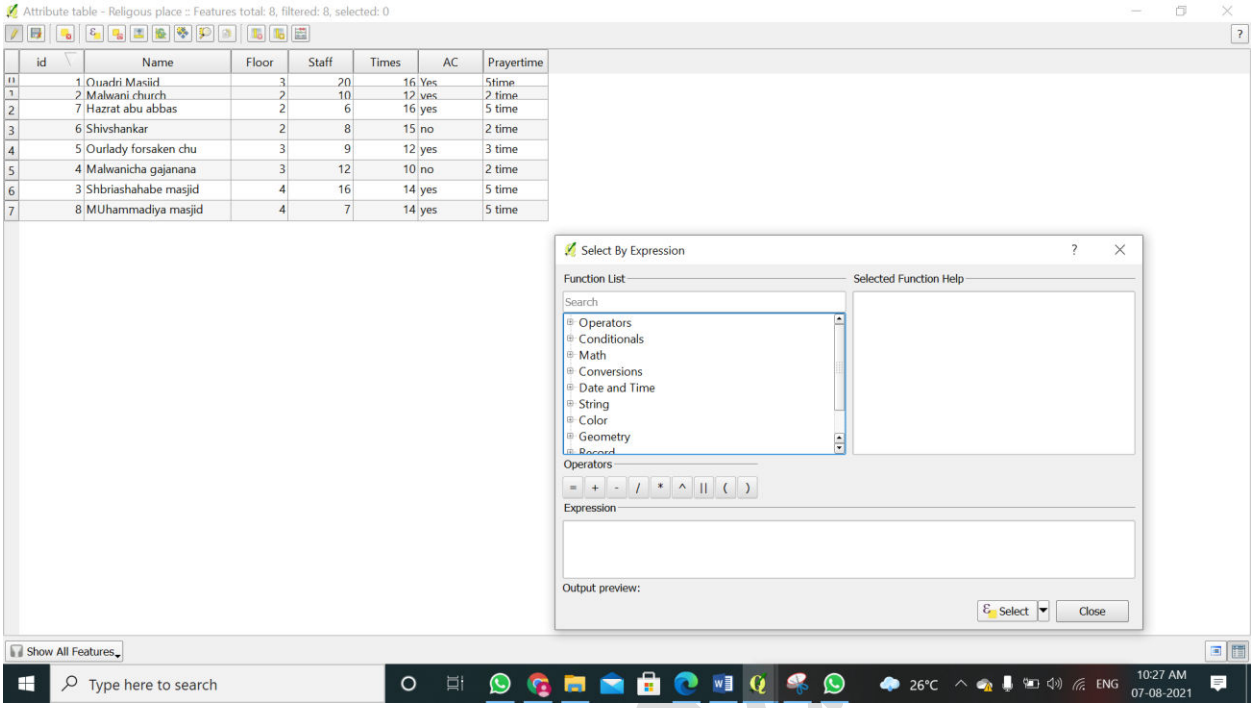
Step 1: Open the map created



Step 2: Go to Attribute Table of any layer.

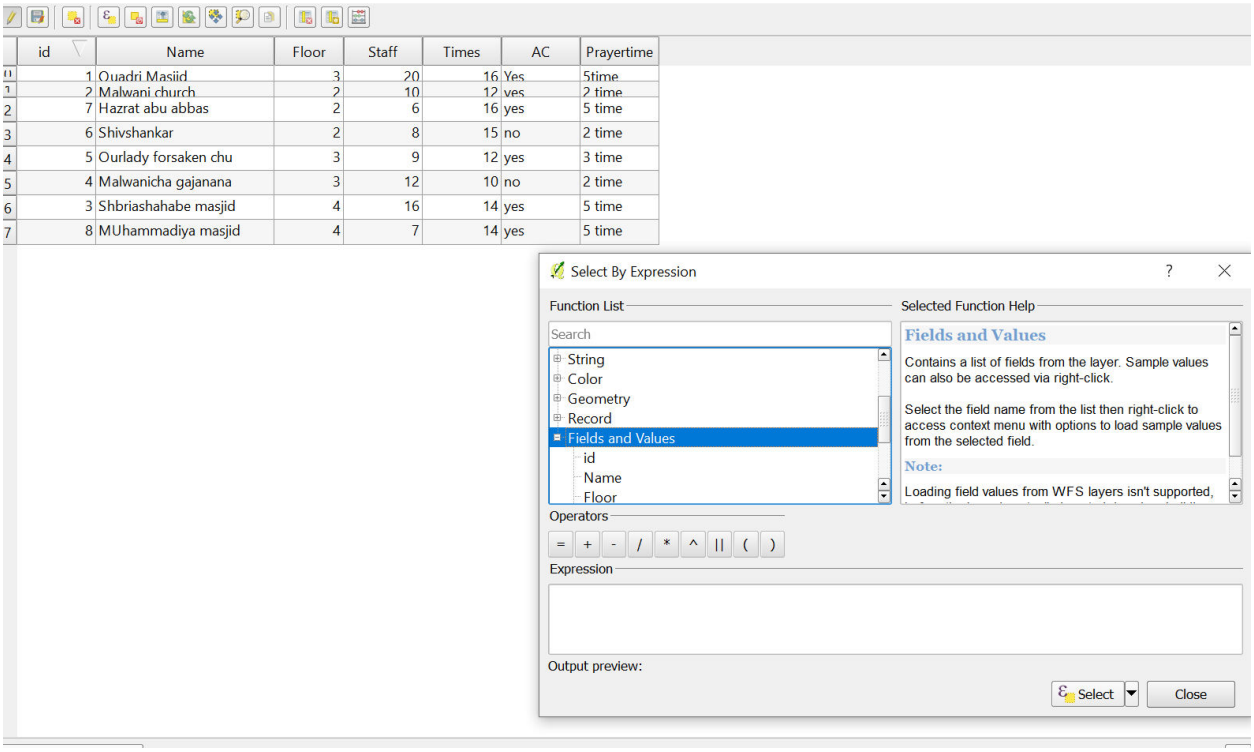


Step 3: Turn on Toggle Editing and Click on Select feature using expressive button.



id	Name	Floor	Staff	Times	AC	Prayertime
1	Quadri Masiid	3	20	16	Yes	5time
2	Malwani church	2	10	12	yes	2 time
7	Hazrat abu abbas	2	6	16	yes	5 time
6	Shivshankar	2	8	15	no	2 time
5	Ourlady forsaken chu	3	9	12	yes	3 time
4	Malwanicha gajanana	3	12	10	no	2 time
3	Shbriashahabe masjid	4	16	14	yes	5 time
8	MUhammadiya masjid	4	7	14	yes	5 time

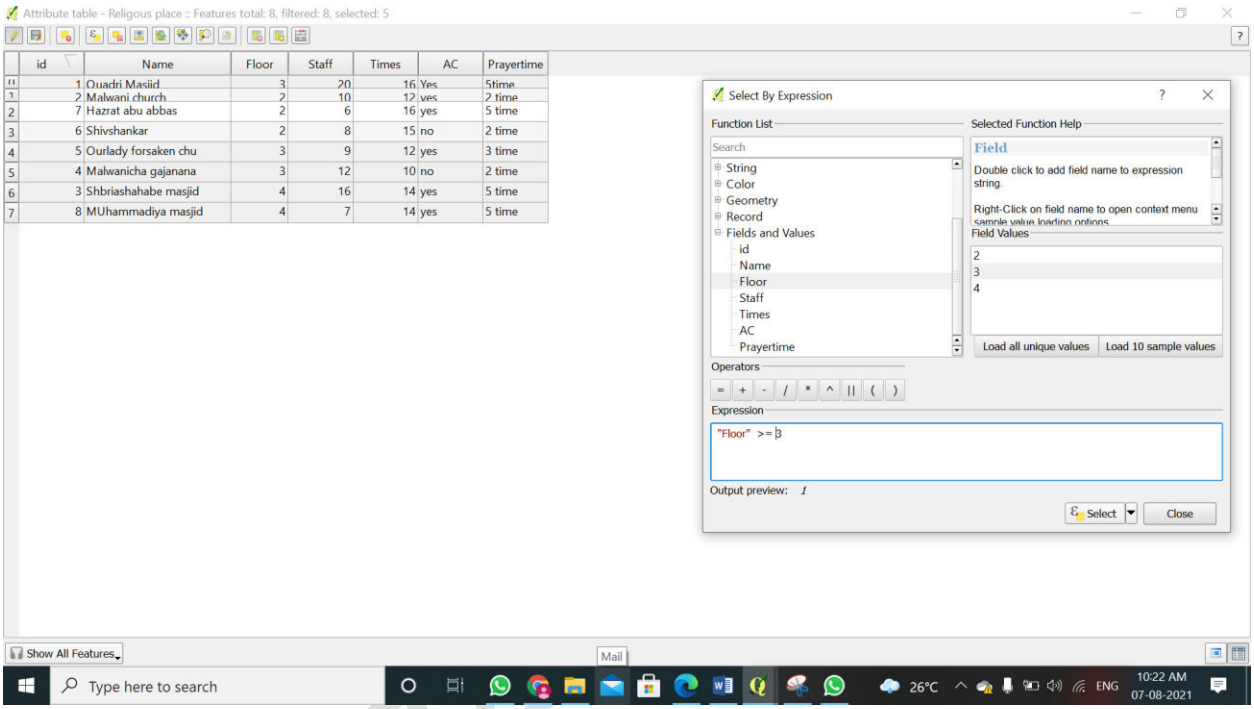
Step 4: Expand the Fields and Value option in dialogue box that appears and double click on the Field name on which query needs to be fired.



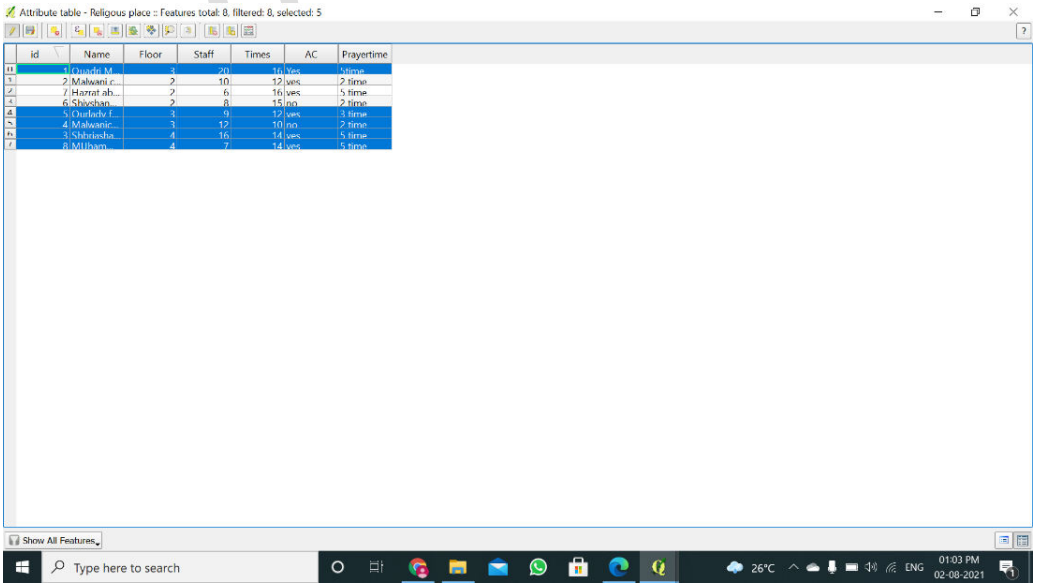
id	Name	Floor	Staff	Times	AC	Prayertime
1	Quadri Masiid	3	20	16	Yes	5time
2	Malwani church	2	10	12	yes	2 time
7	Hazrat abu abbas	2	6	16	yes	5 time
6	Shivshankar	2	8	15	no	2 time
5	Ourlady forsaken chu	3	9	12	yes	3 time
4	Malwanicha gajanana	3	12	10	no	2 time
3	Shbriashahabe masjid	4	16	14	yes	5 time
8	MUhammadiya masjid	4	7	14	yes	5 time

Step 5: After adding Field Name operator like=>,< and so on can be added depending on the query that needs to be fired.

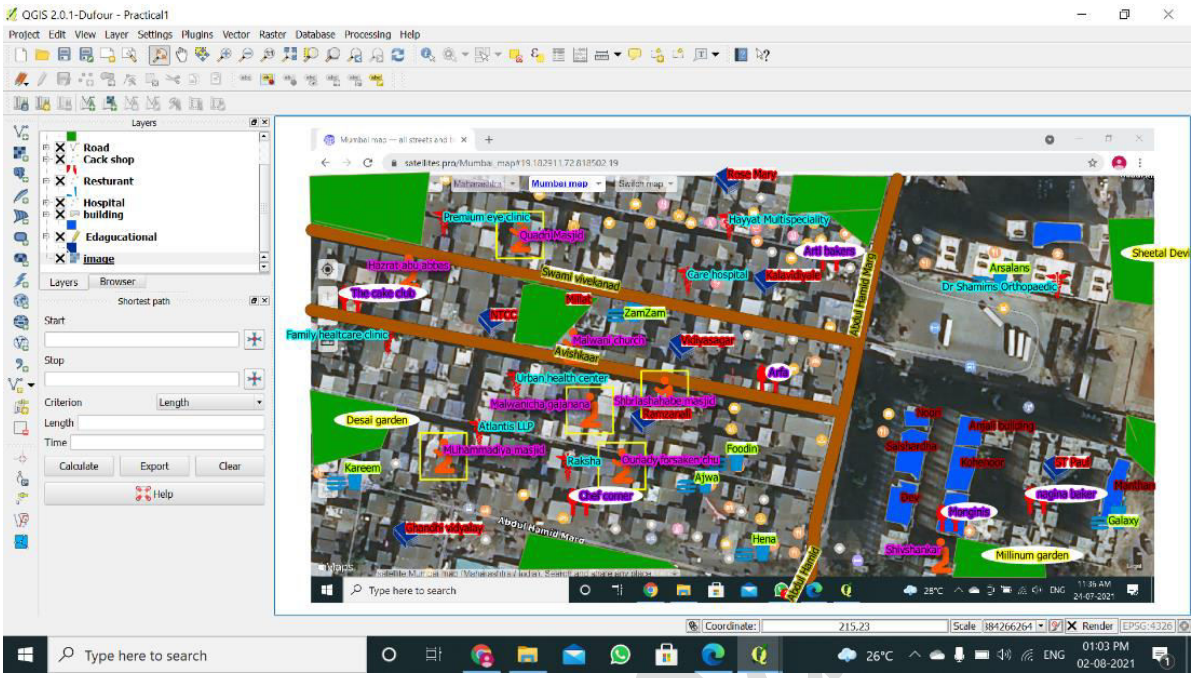
Step 6: After that click on LOAD ALL UNIQUE VALUES Button and select the conditional values.



Step 7: Click on SELECT Button.



Areas selected (output of query must be highlighted squre box by yellow colour in map)



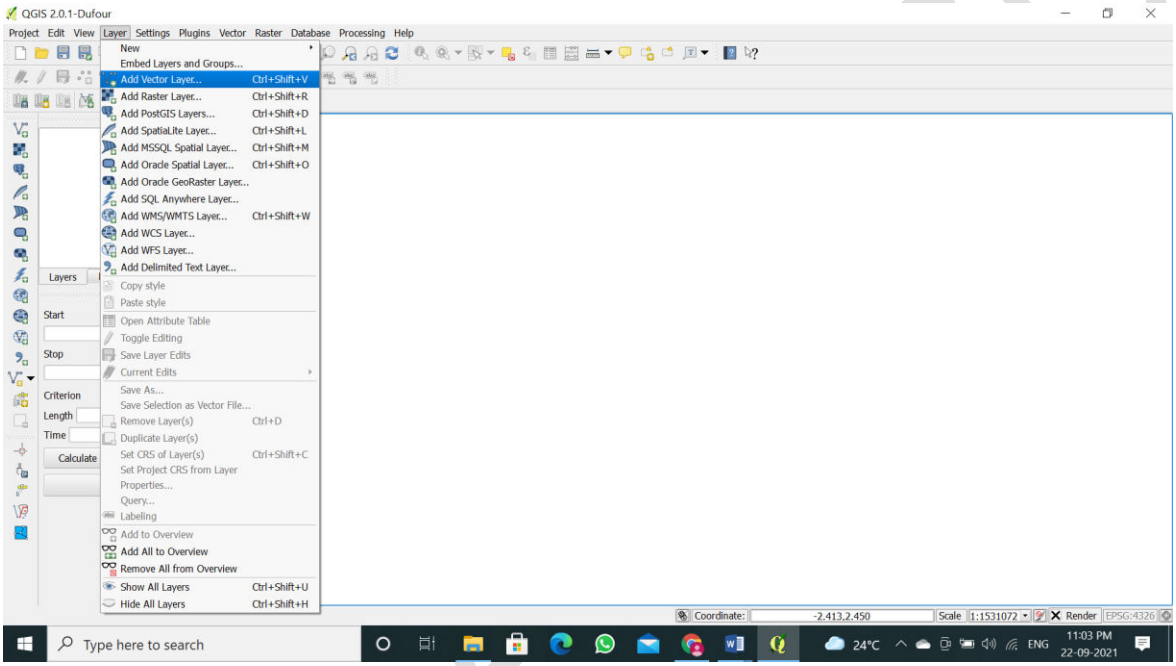
Practical 2B

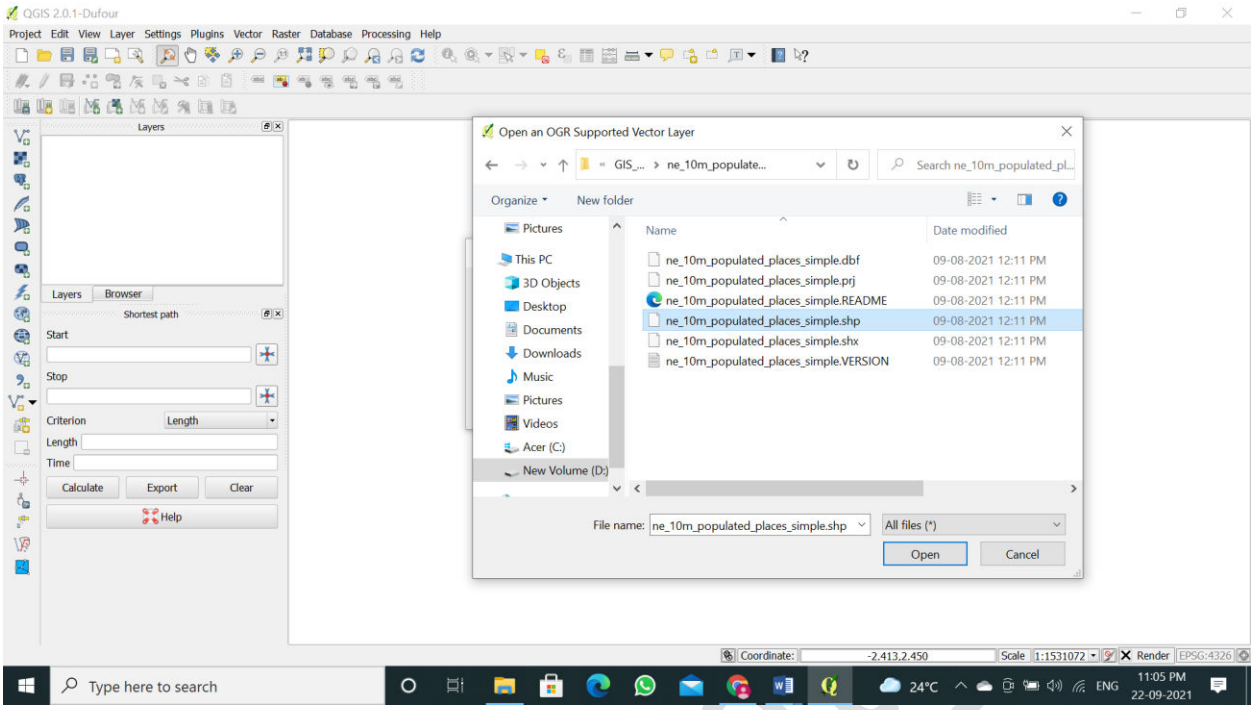
FIRING QUERIES ON PRE-EXISTING DATA

Step: 1: Start a new project

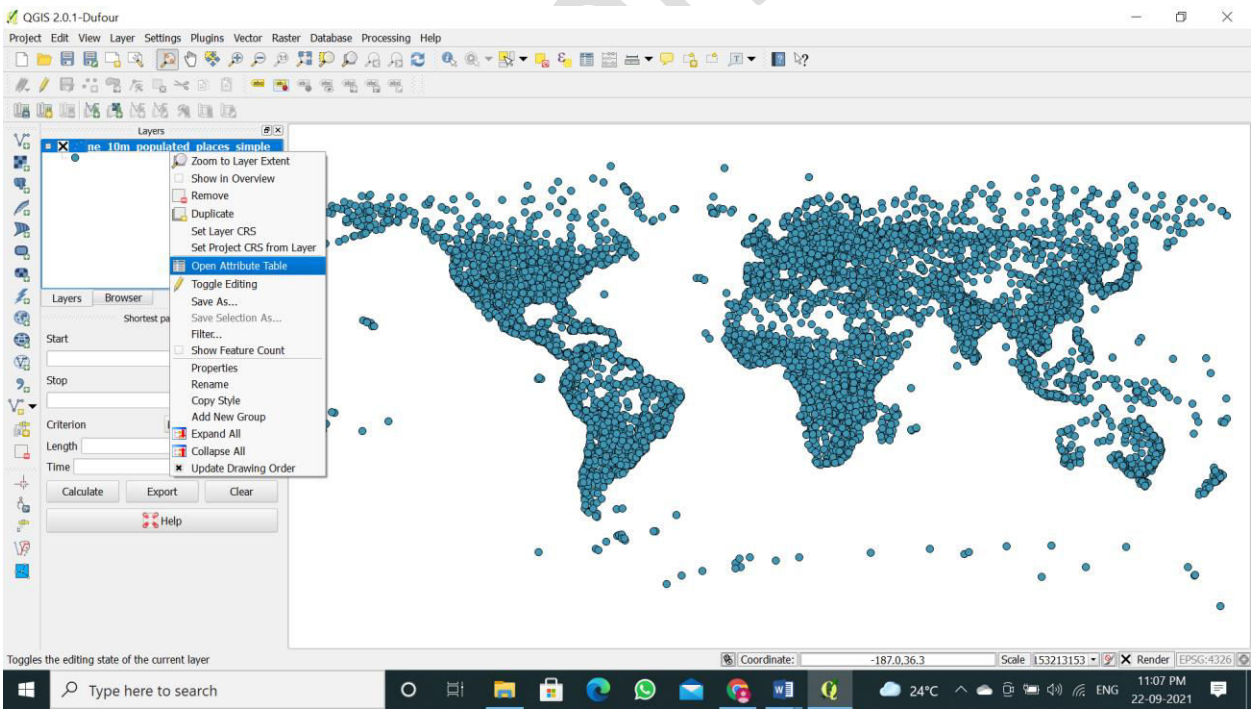
Go to Layer -> Add Layer -> Add Vector Layer -> Select

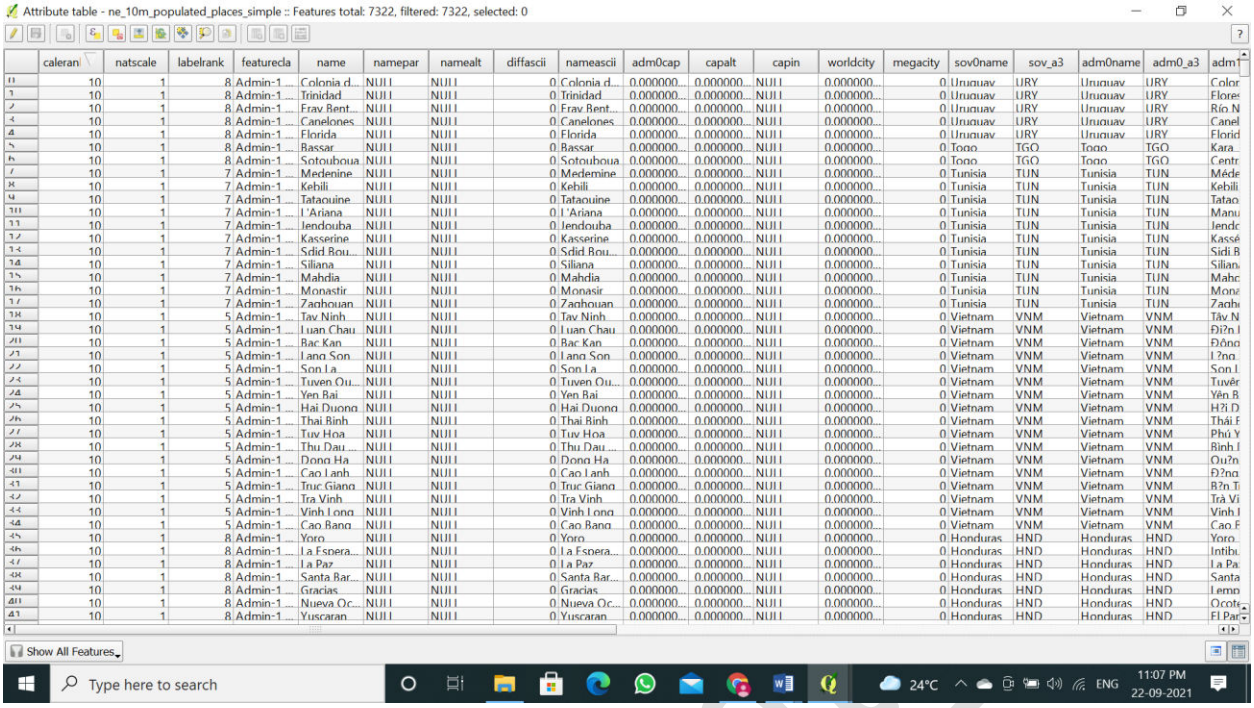
ne_10m_populated_places_simple.zip



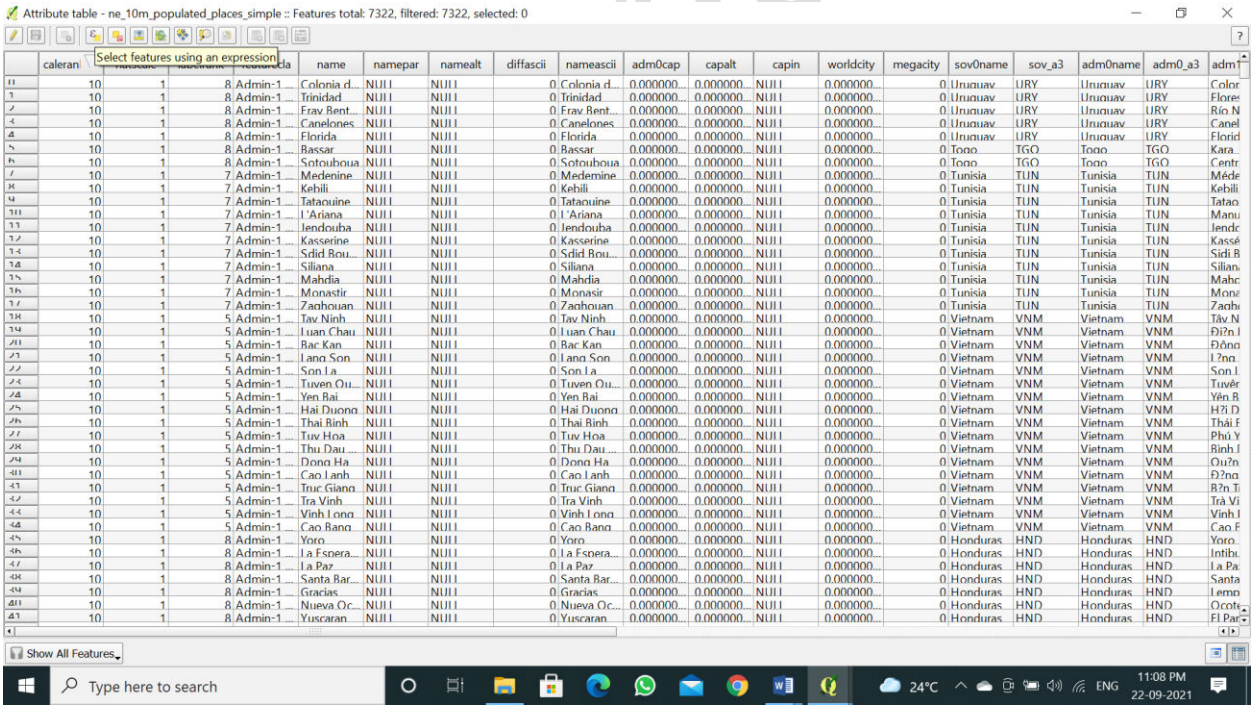


Step 2: Right click on Layer in Layer Panel -> Open Attribute Table.





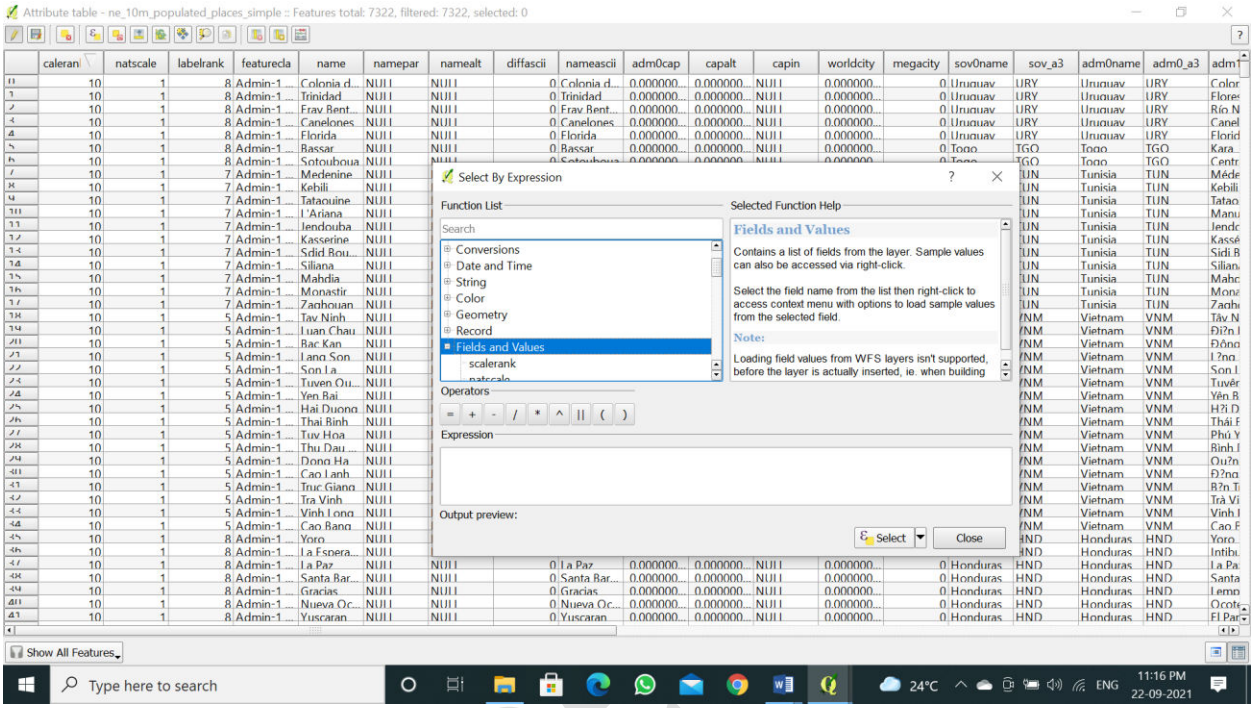
Step 3 : Click on Select feature expression button.

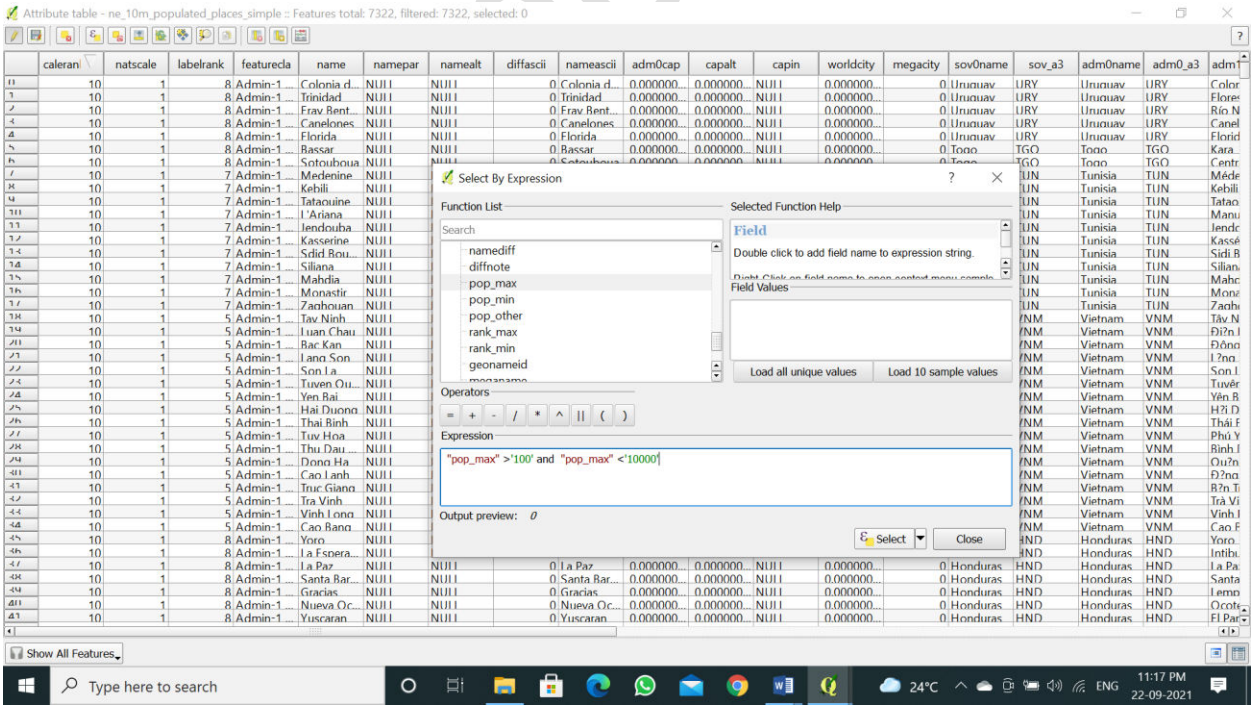


Step 4: To find the Place with maximum population click on “pop_max” file

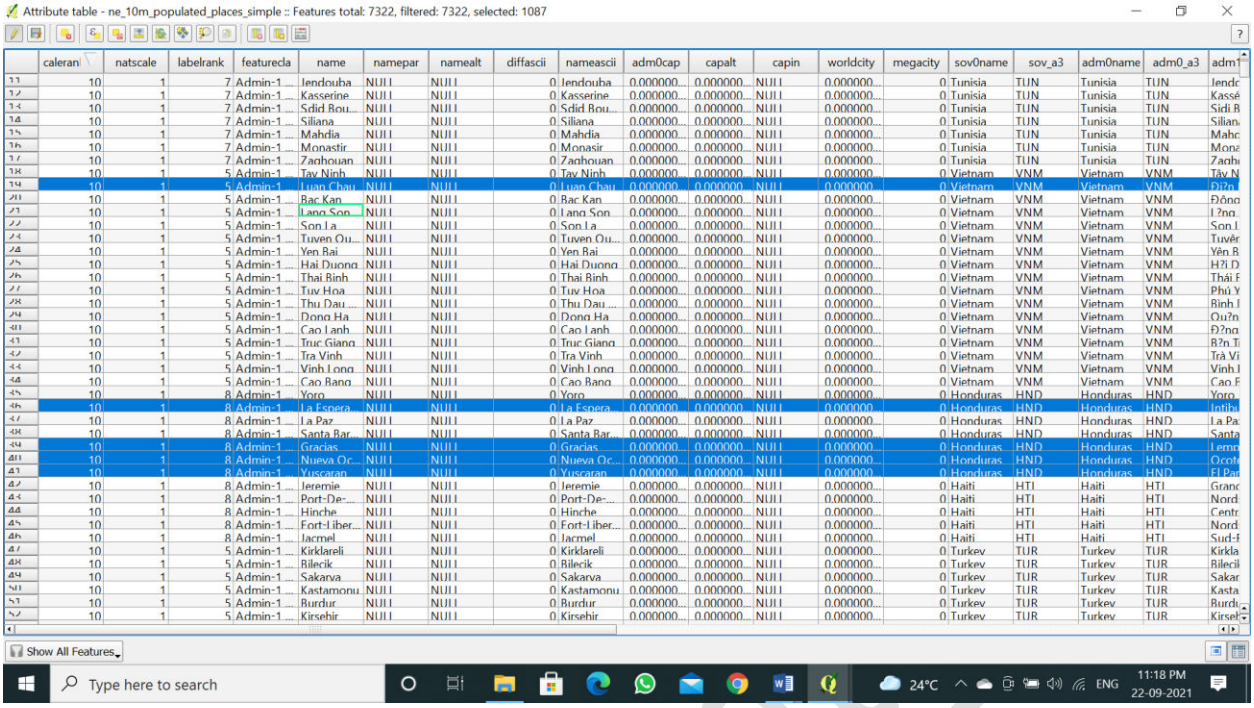
Step: 5

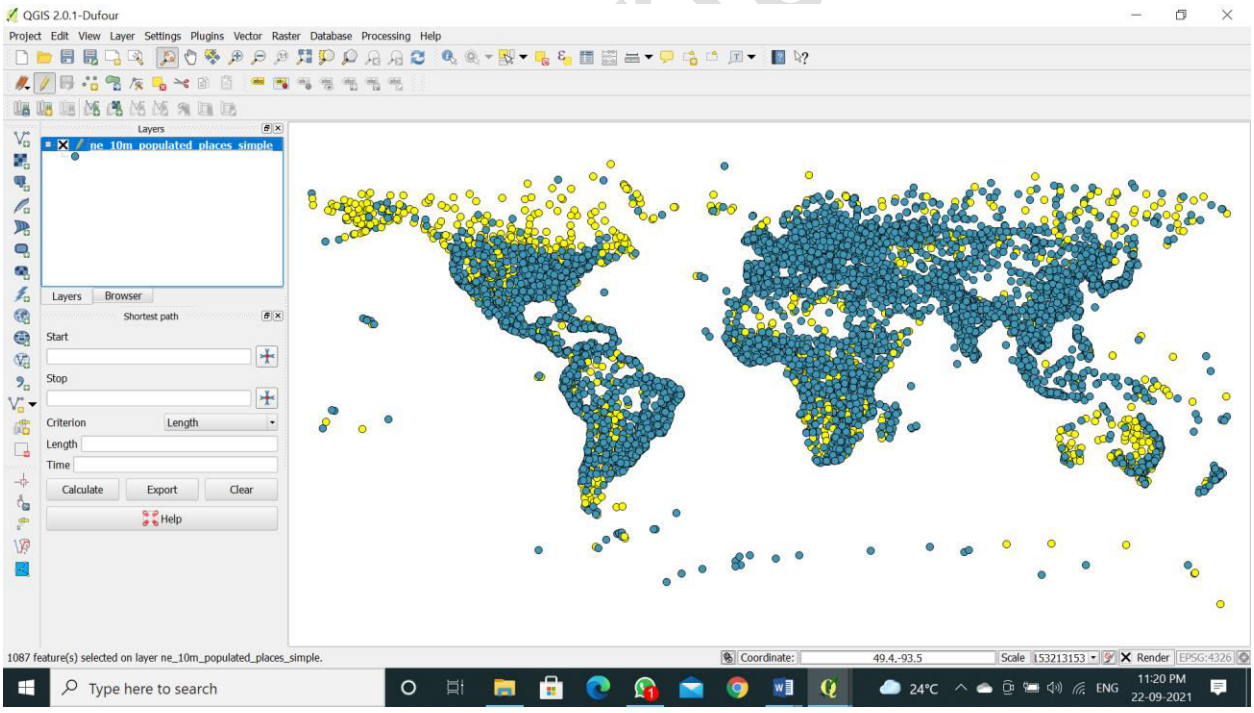
Query 1: Enter pop_max>100 and pop_max<10000 and click Select Features button to get all places with population between 100 and 10000(To deselect the result of previous query, use DESELECT FEATURE)



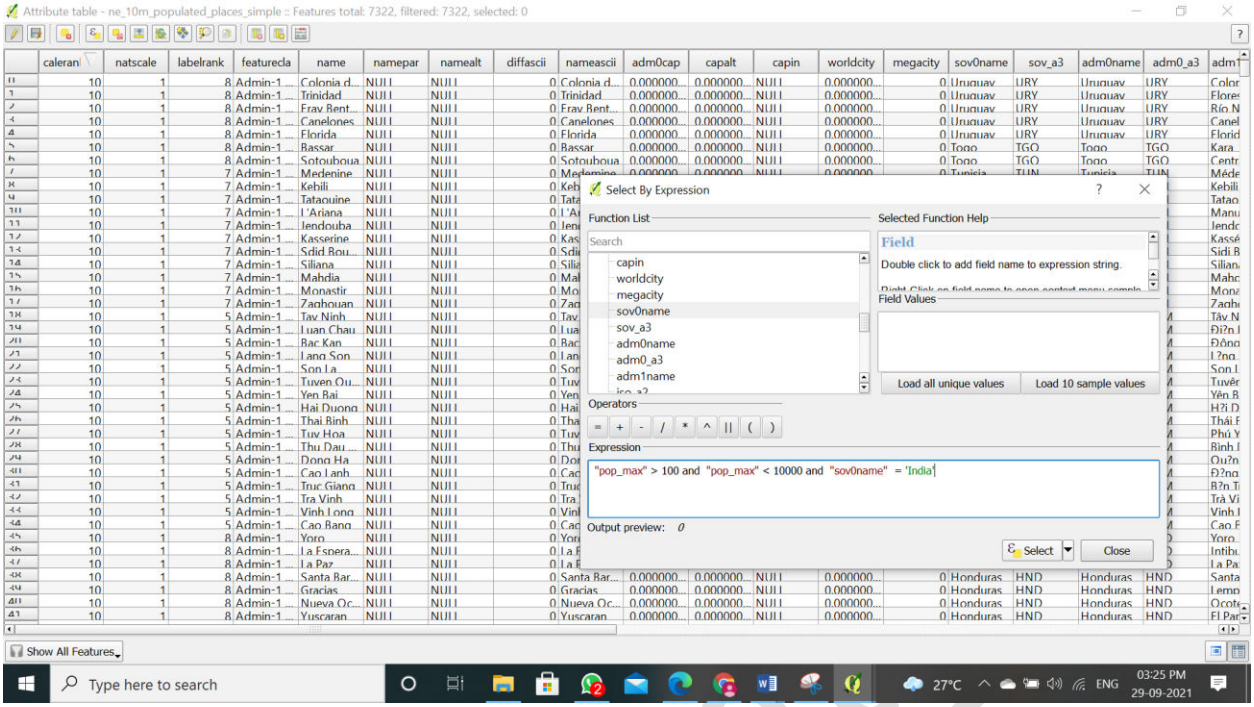


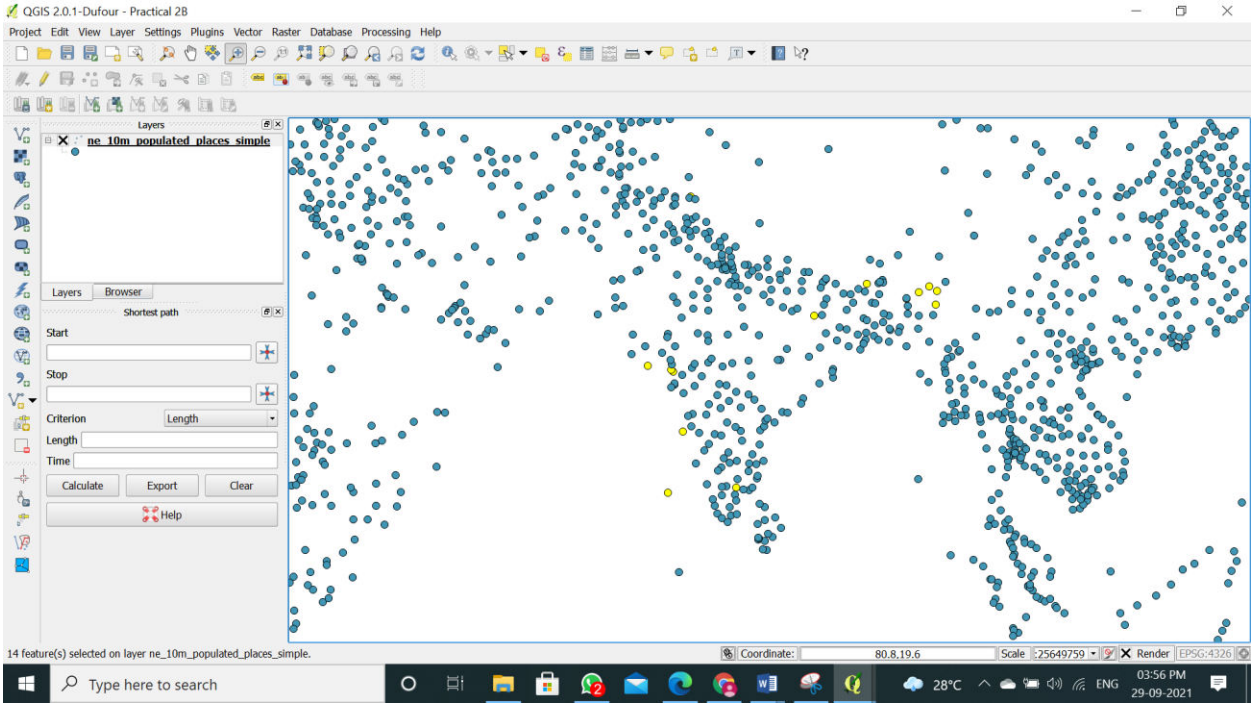
Output:

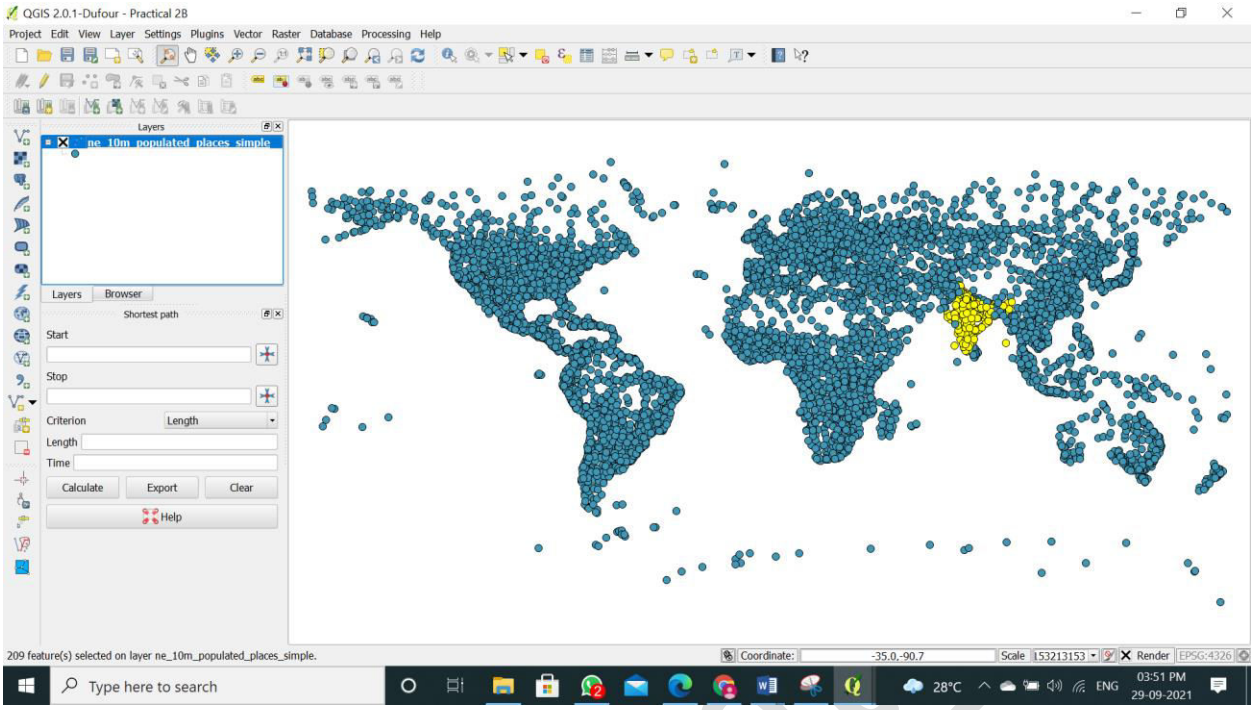




Query 2: pop_max>100 and pop_max<10000 and “sov0name”=”India”


Attribute table - ne_10m_populated_places_simple :: Features total: 7322, filtered: 7322, selected: 0
Select By Expression
Function List
Search
capin
worldcity
megacity
sov0name
sov_a3
adm0name
adm0_a3
adm1name
Selected Function Help
Field
Double click to add field name to expression string.
Field Values
Load all unique values
Load 10 sample values
Operators
Expression
"pop_max" > 100 and "pop_max" < 10000 and "sov0name" = 'India'
Output preview: 0
Select
Close
Show All Features
Type here to search
27°C
ENG
03:25 PM
29-09-2021


QGIS 2.0.1-Dufour - Practical 2B
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
ne_10m_populated_places_simple
Layers
Browser
Shortest path
Start
Stop
Criterion
Length
Length
Time
Calculate
Export
Clear
Help
14 feature(s) selected on layer ne_10m_populated_places_simple.
Coordinate:
80.8,19.6
Scale
25649759
Render
EPSG:4326
Type here to search
28°C
ENG
03:56 PM
29-09-2021

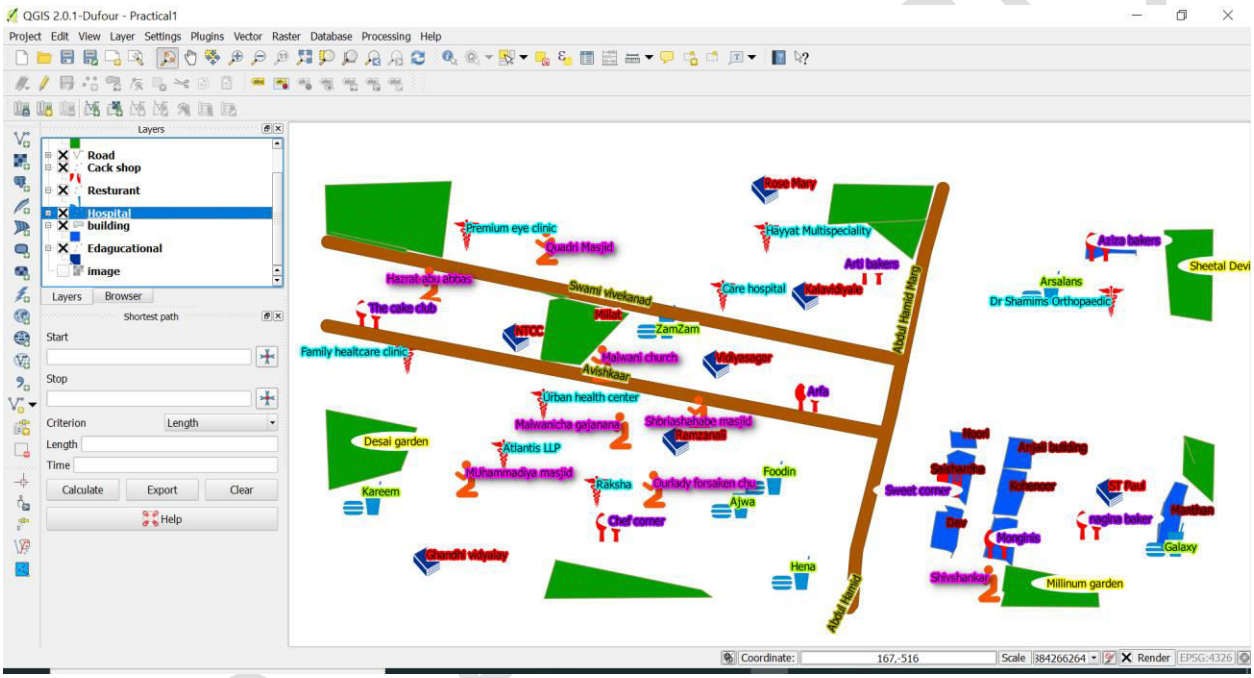

QGIS 2.0.1-Dufour - Practical 2B
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
ne_10m_populated_places_simple
Layers Browser
Shortest path
Start
Stop
Criterion Length
Length
Time
Calculate Export Clear
Help
209 feature(s) selected on layer ne_10m_populated_places_simple.
Coordinate: -35.0,-90.7
Scale 153213153
Render EPSG:4326
Type here to search
28°C
ENG
03:51 PM
29-09-2021

Practical 3

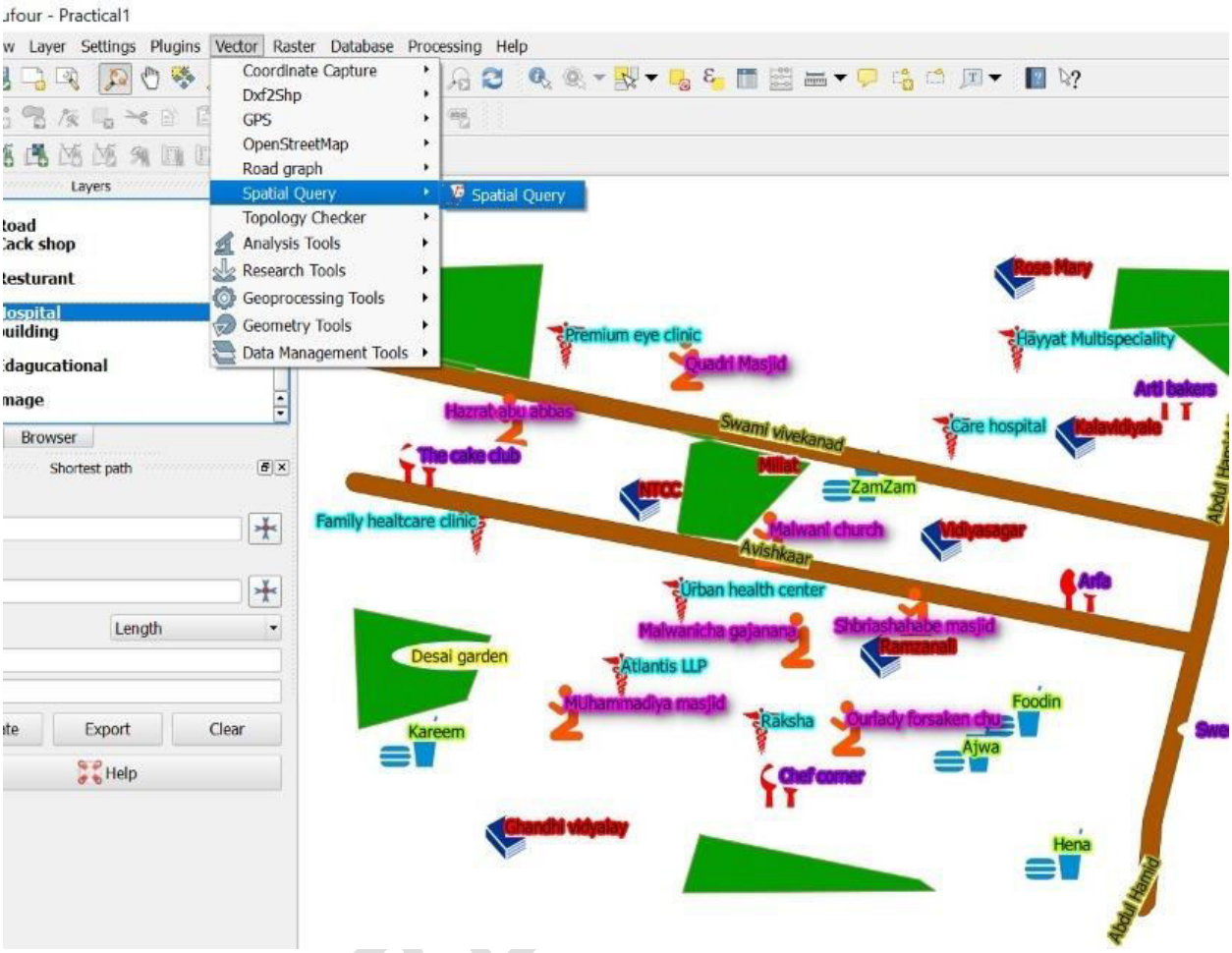
Aim: Performing Spatial Queries on the map created in Practical 1 and existing data.

FIRING QUERIES ON MAP CREATED IN PRACTICAL 1

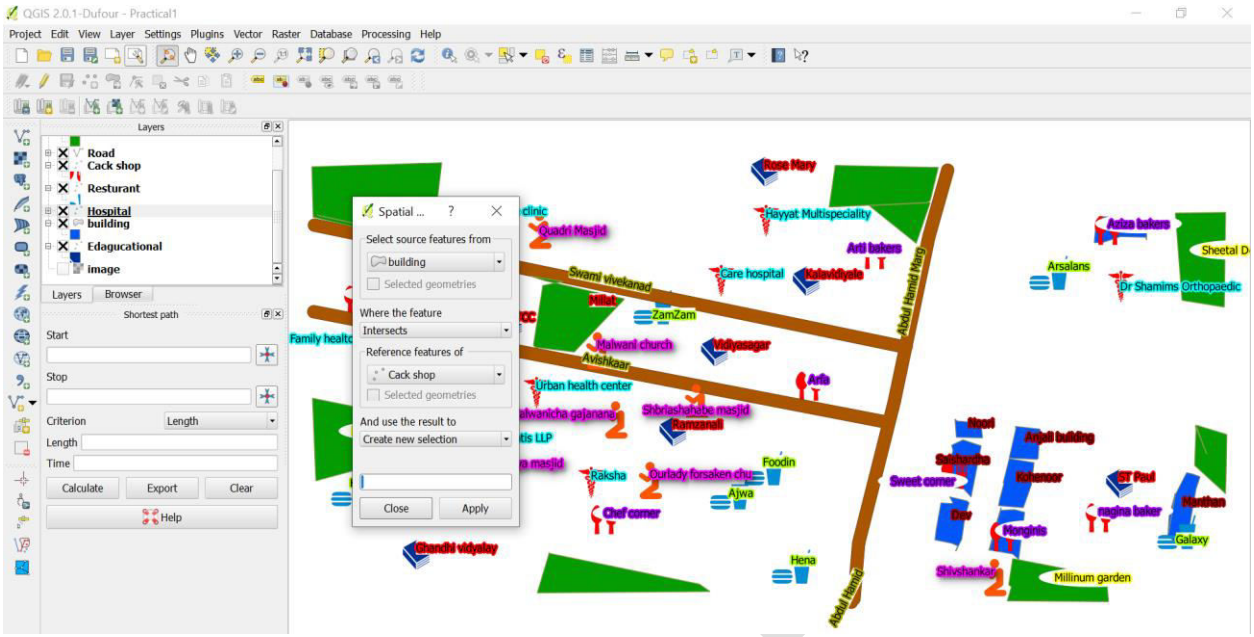
Step 1: Open the map Created in Practical 1.



Step 2: Click on Vector then Spatial Query - Spatial Query.

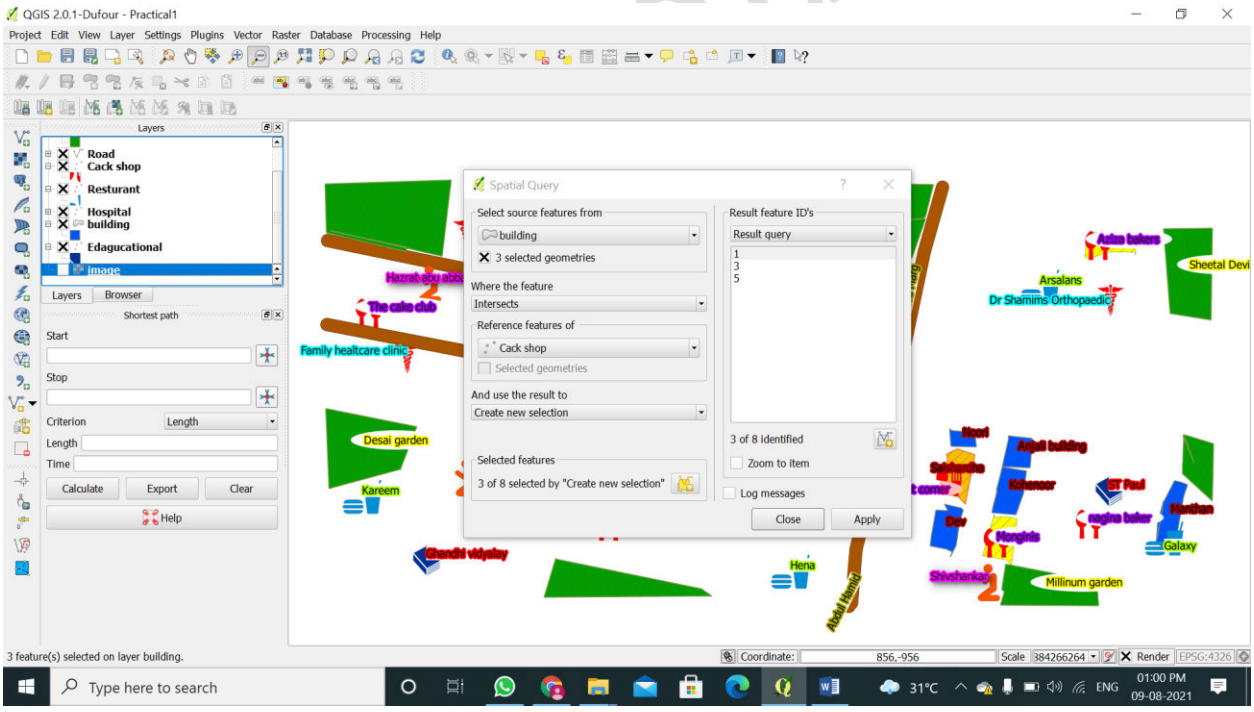


Step 3: On the Spatial Query Window, Select the input layer 1, the relationship and the input layer 2 and Click on “Apply”.



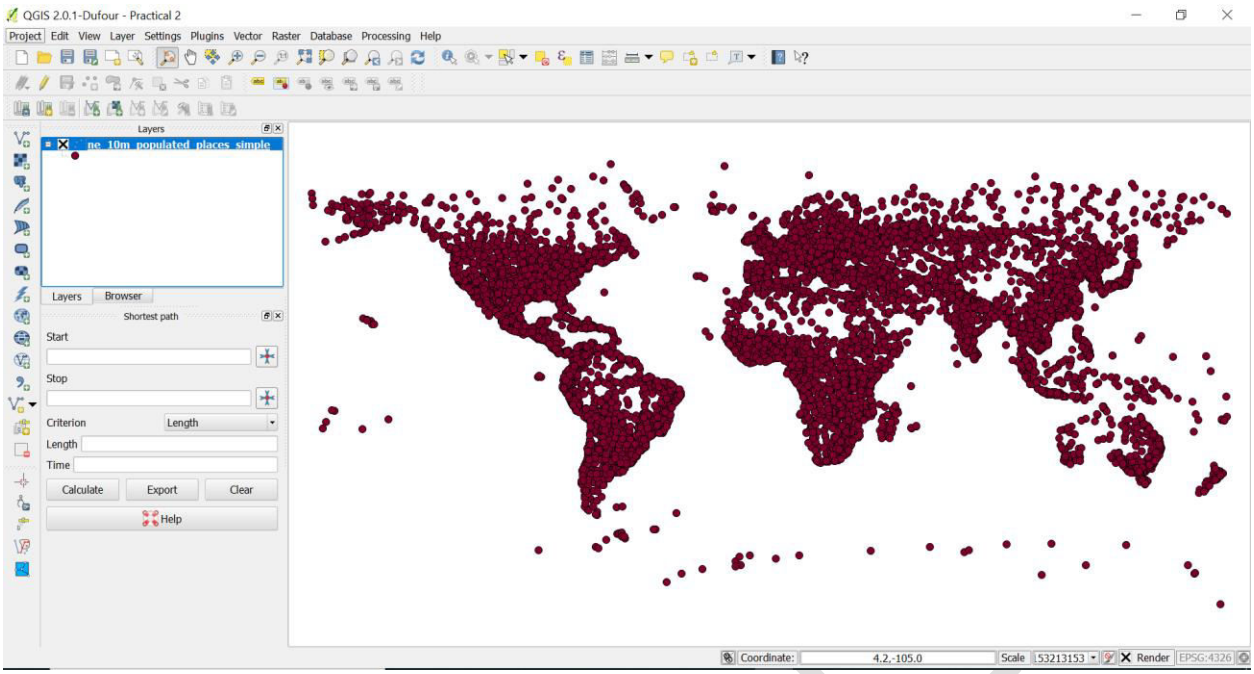
Step 4: Result will be highlighted Yellow coloured box in the map

(Fire minimum 5 queries)

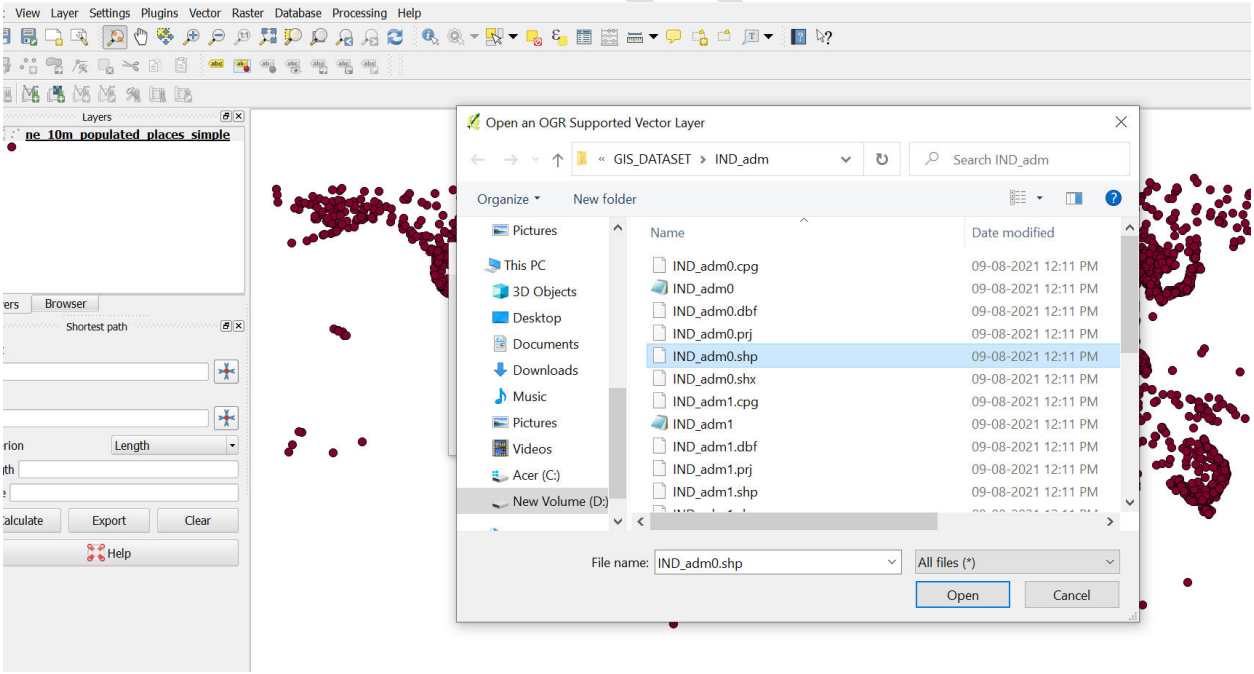


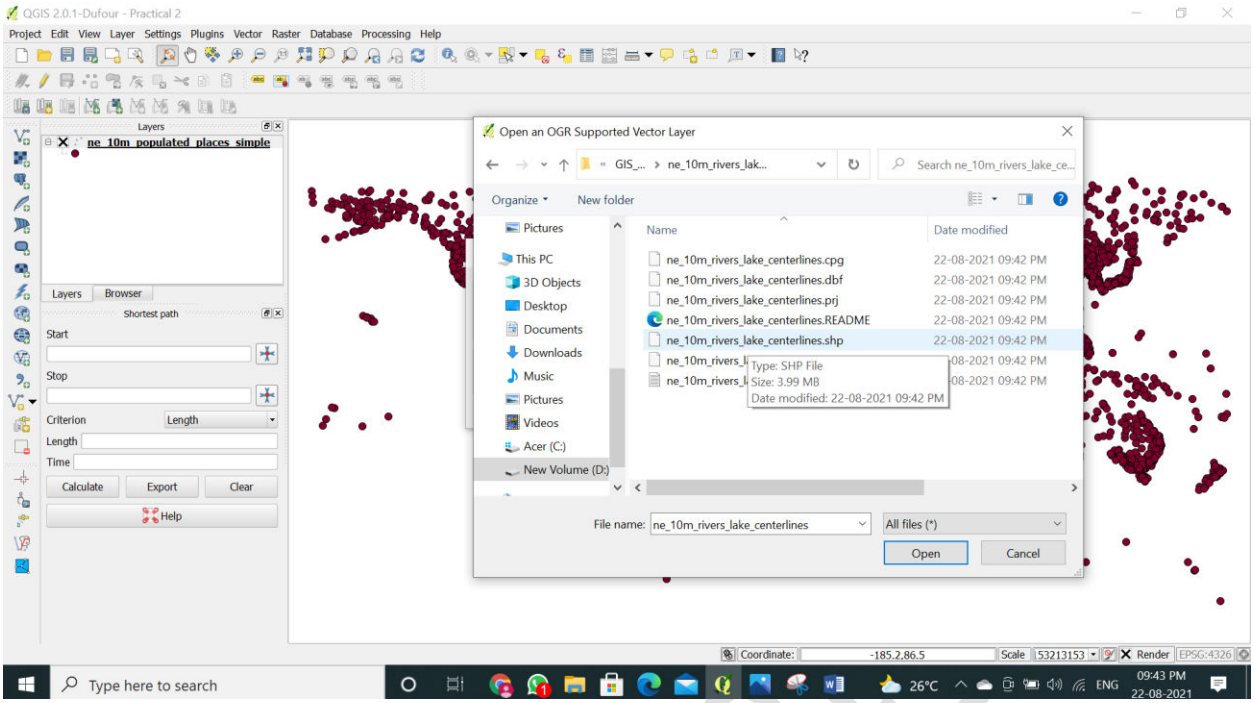
FIRING QUERIES ON EXISTING DATA SET

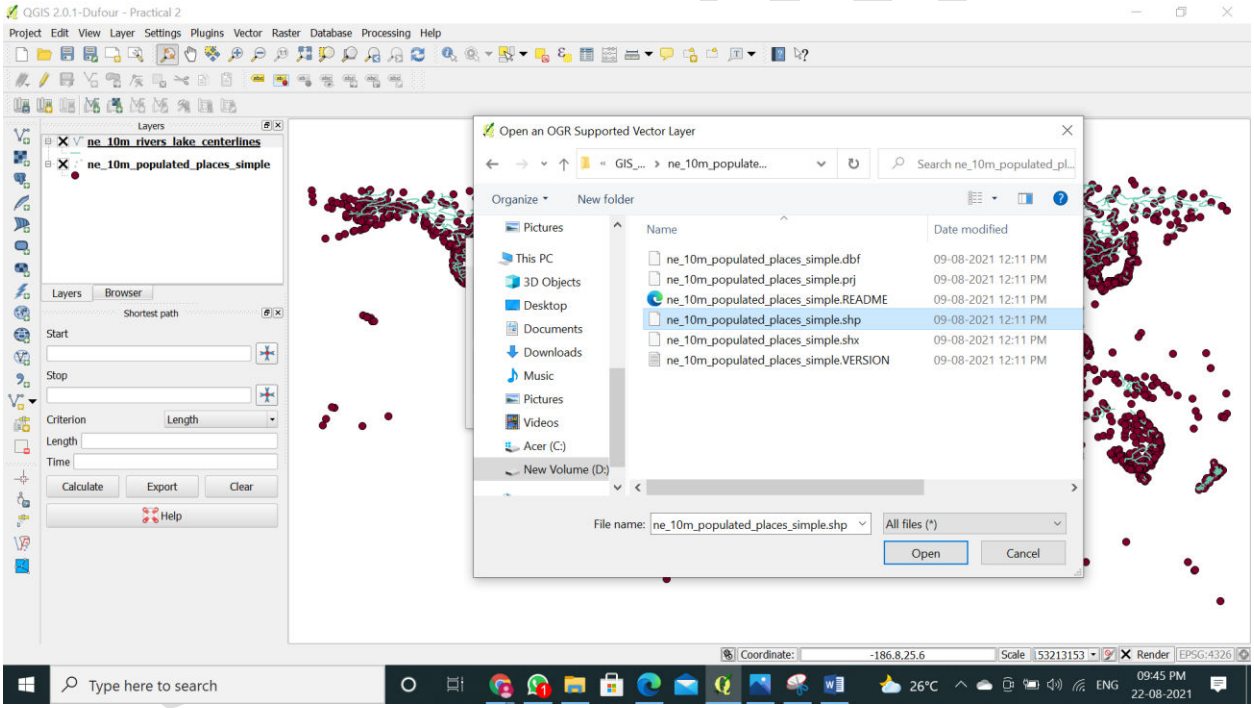
Step 1: Open the map.



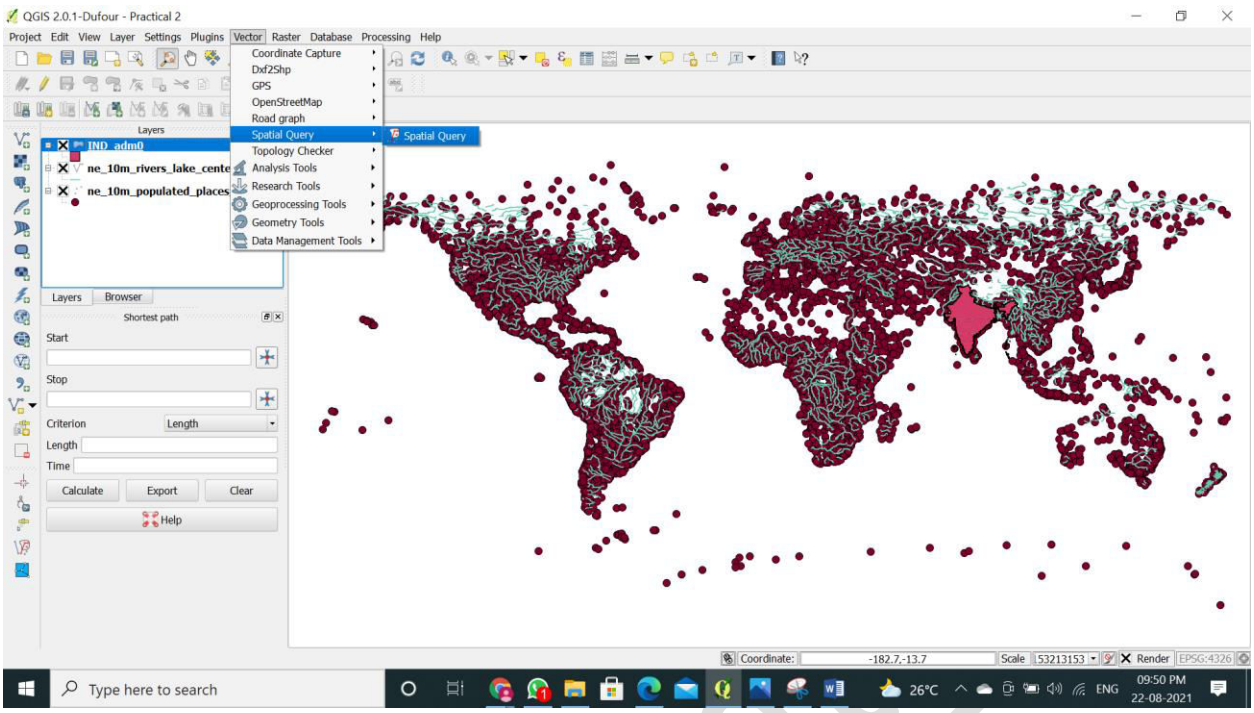
Step 2: Click on layer select “add vector layer” browse and select “IND_adm0.shp”, “ne_10m_rivers_lake_centerlines” and “ne_10m_populated_places_simple”.



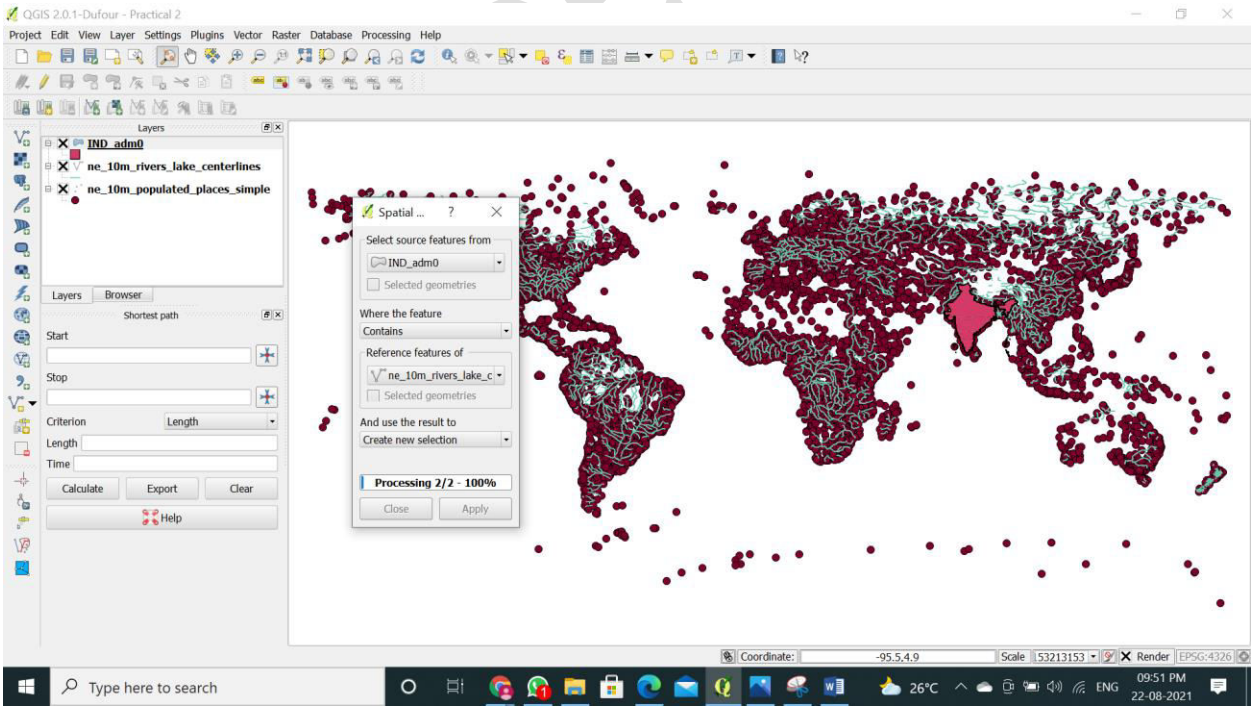




Step 3: Step 2: Click on Vector then Spatial Query - Spatial Query.

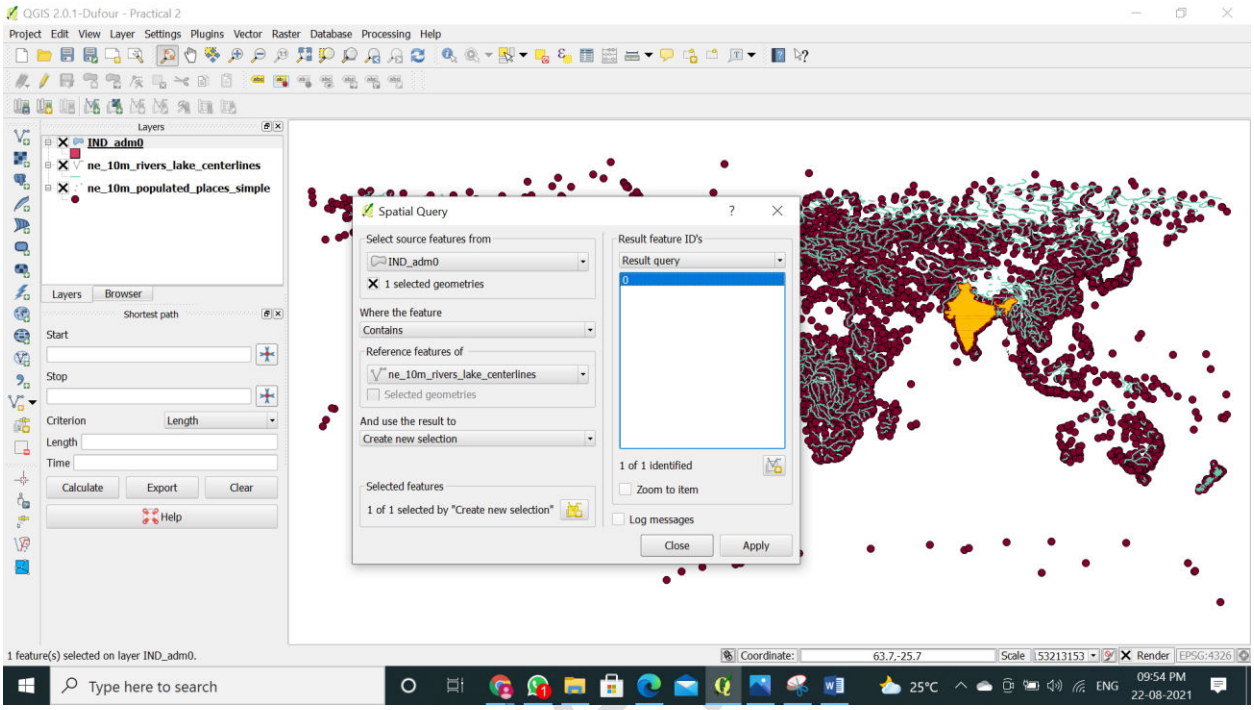


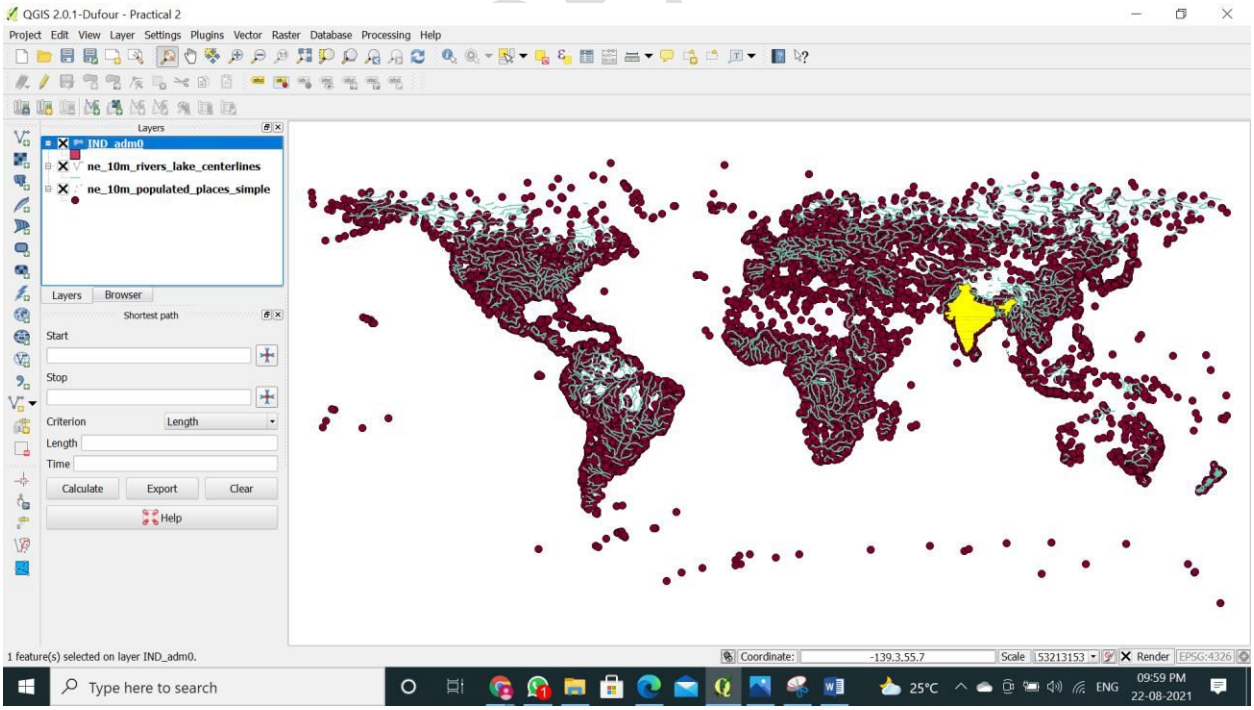
Step 4: On the Spatial Query Window, Select the input layer 1, the relationship and the input layer 2 and Click on “Apply”.



Step 5: Result will be highlighted Yellow coloured box in the map.

(Wait for the result to display as the data set is huge it might take some time)





Practical 4

AIM: Raster Mosaicking and Clipping

A mosaic is a combination or merge of two or more images. In GIS, a single raster dataset can be created from multiple raster datasets by mosaicking them together.

Steps:

MOSAICKING

Step1: Go to Layer → Add Layer → Add Raster Layer.

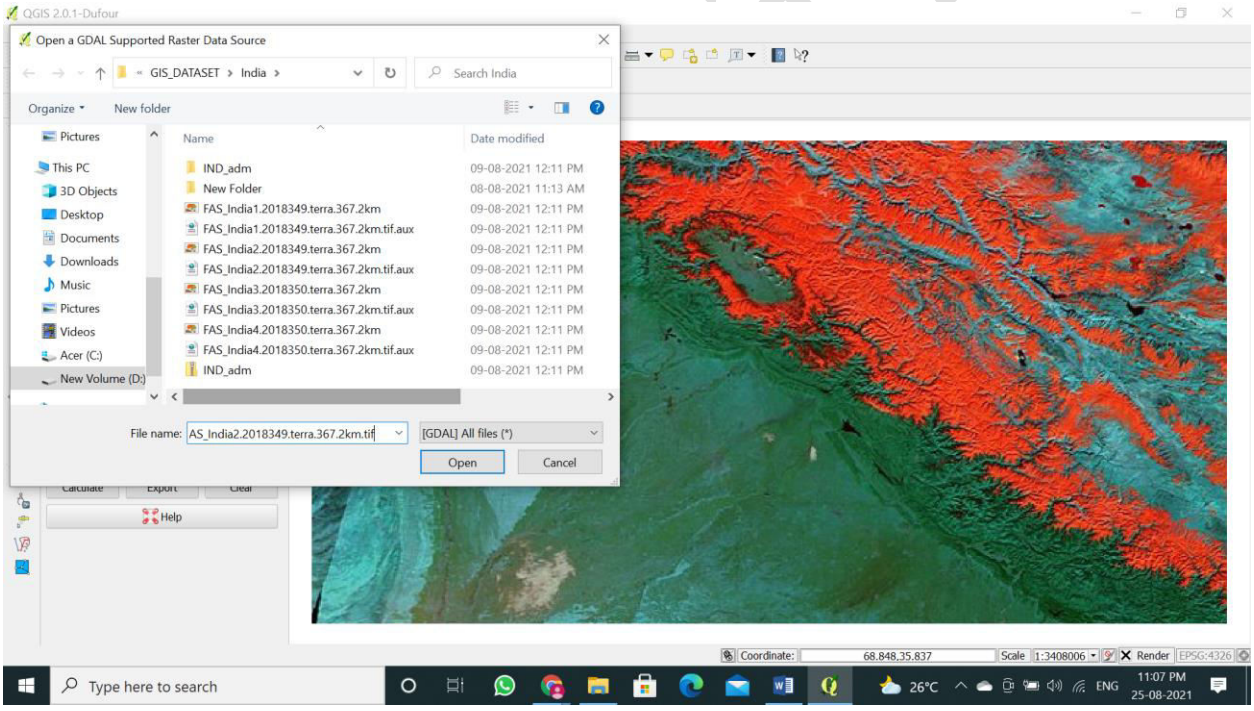
Select the following ".tif" raster images for India from data folder.

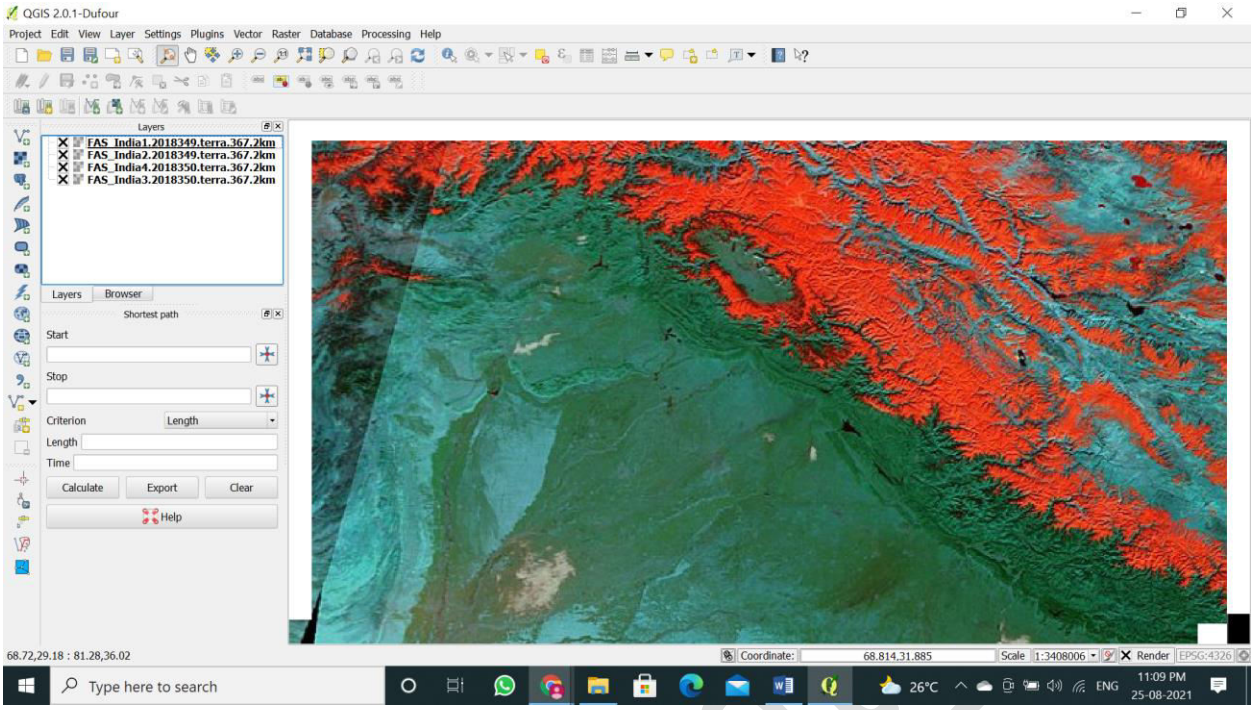
FAS_India1.2018349.terra.367.2km.tif

FAS_India2.2018349.terra.367.2km.tif

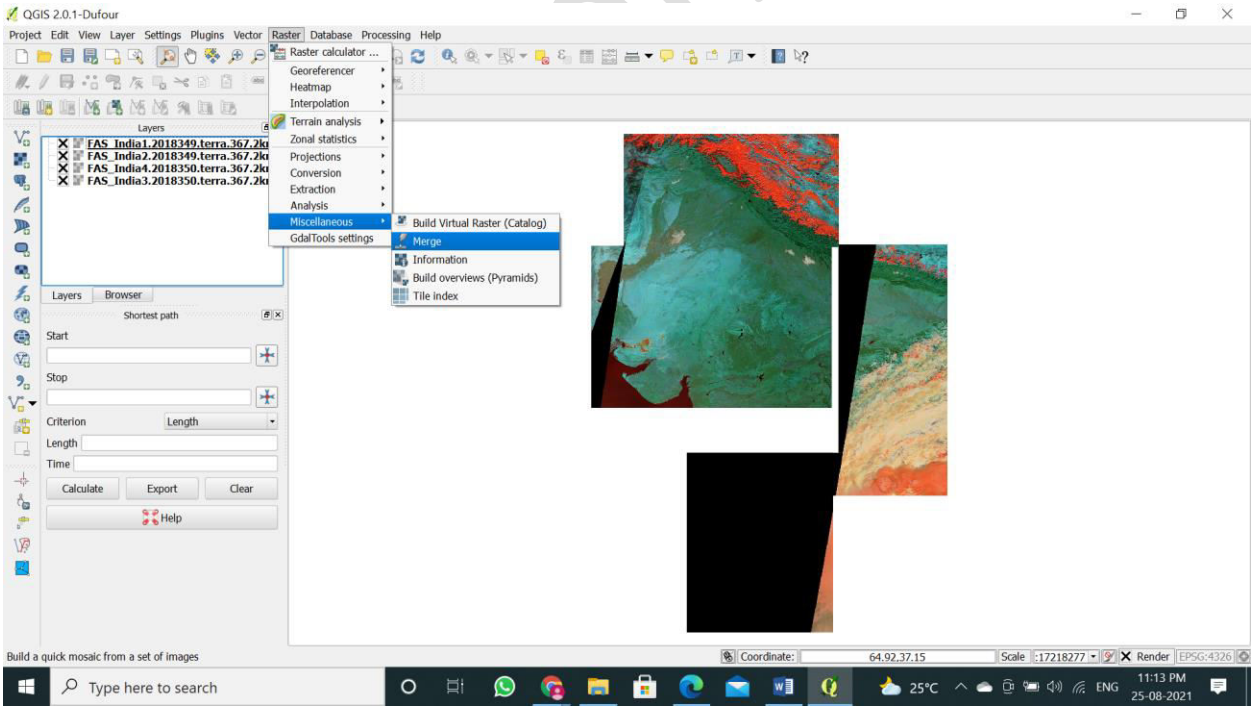
FAS_India3.2018349.terra.367.2km.tif

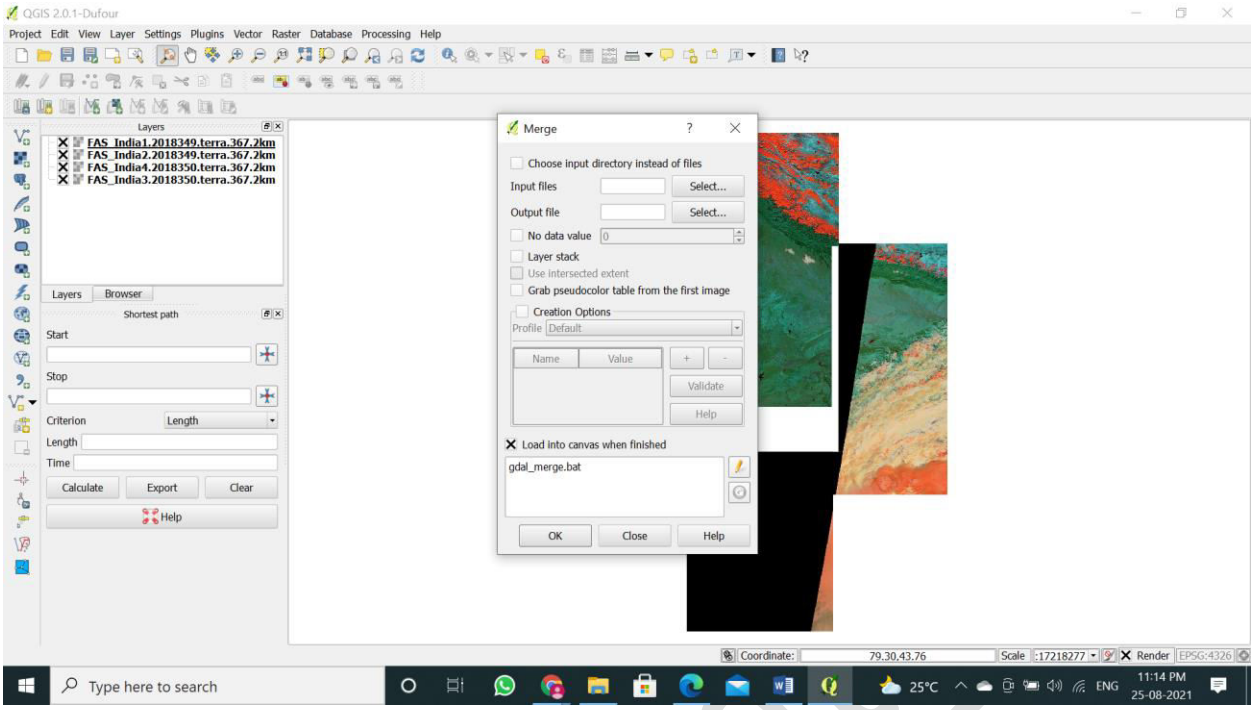
FAS_India4.2018349.terra.367.2km.tif



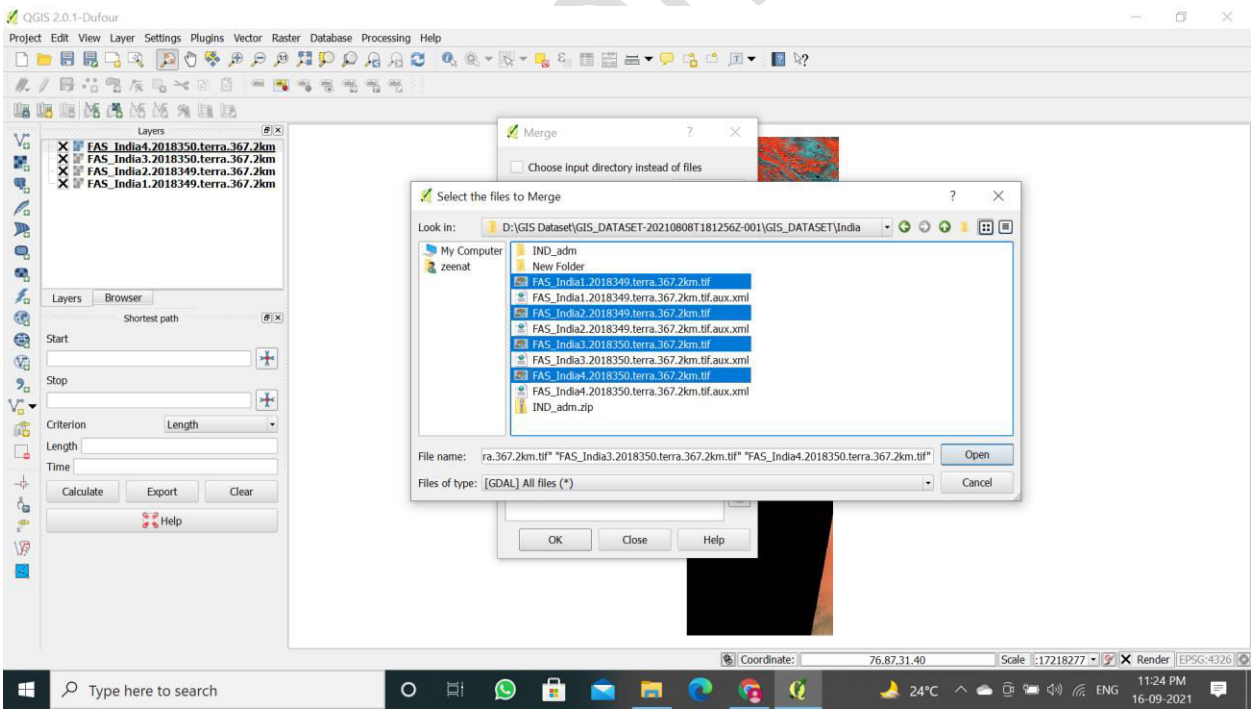


Step 2: Go to Raster → Miscellaneous → Merge

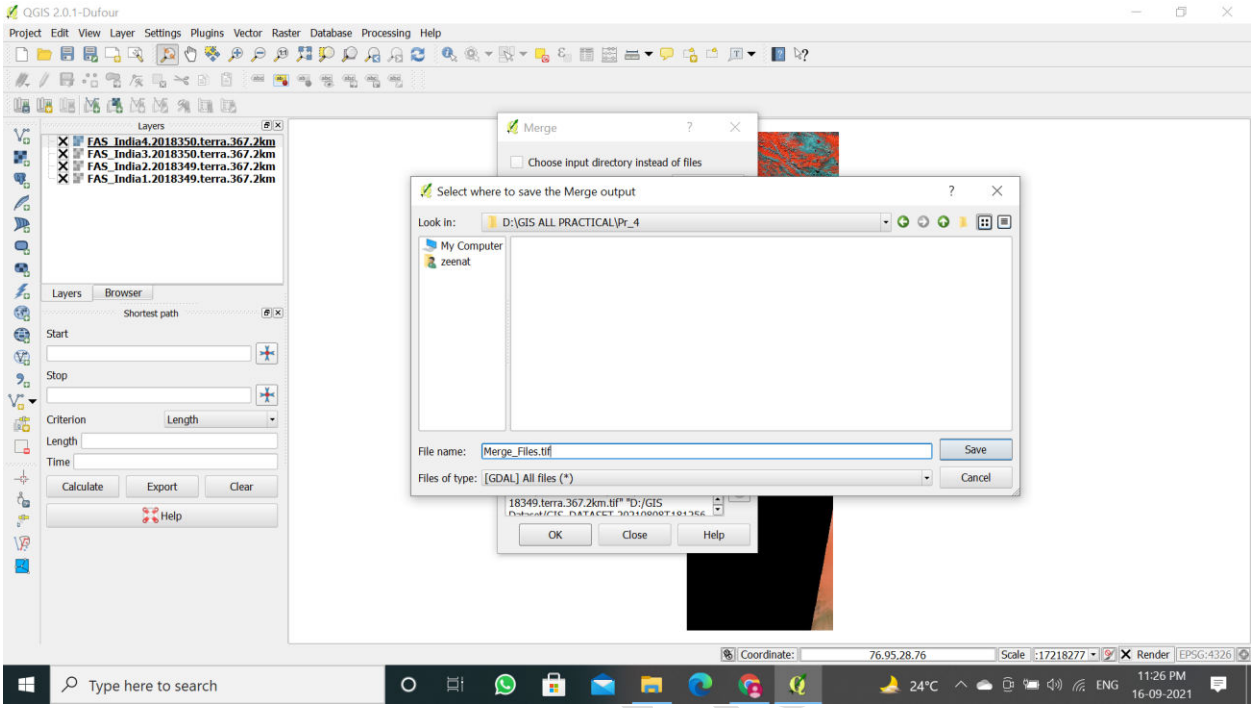




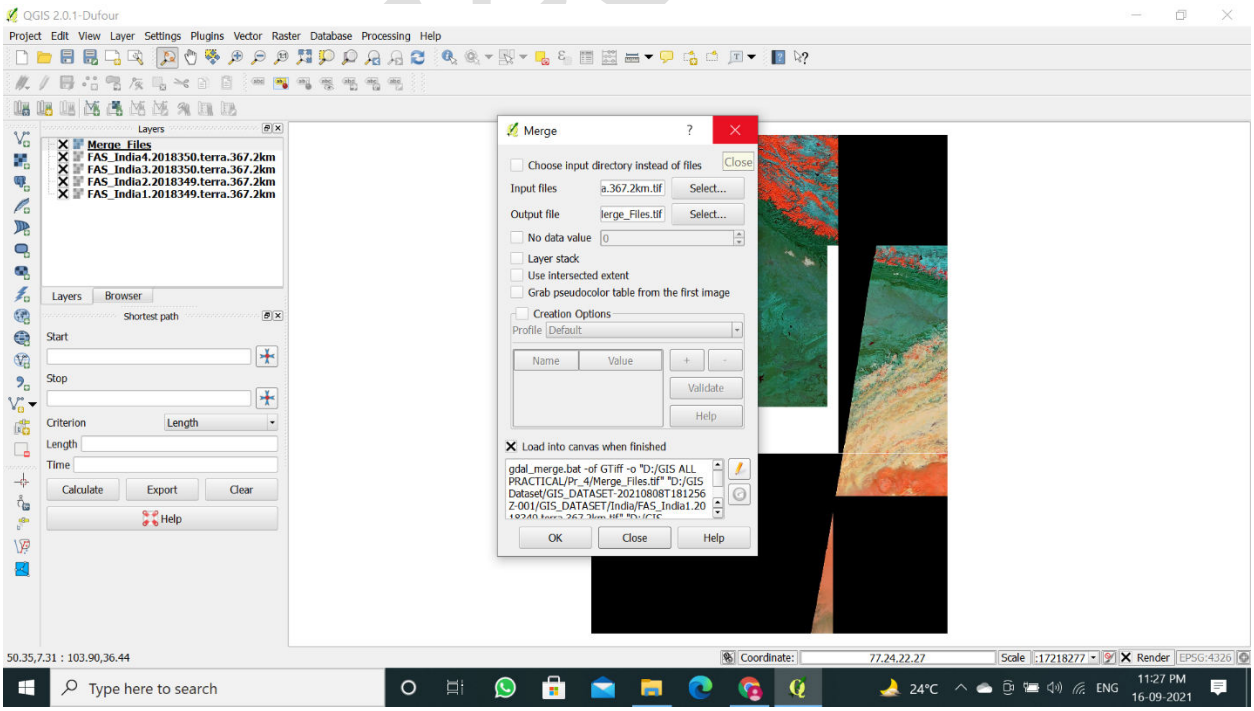
3. In the Merge dialog window, Click on Select of Input Files Select all layers and Press OK.

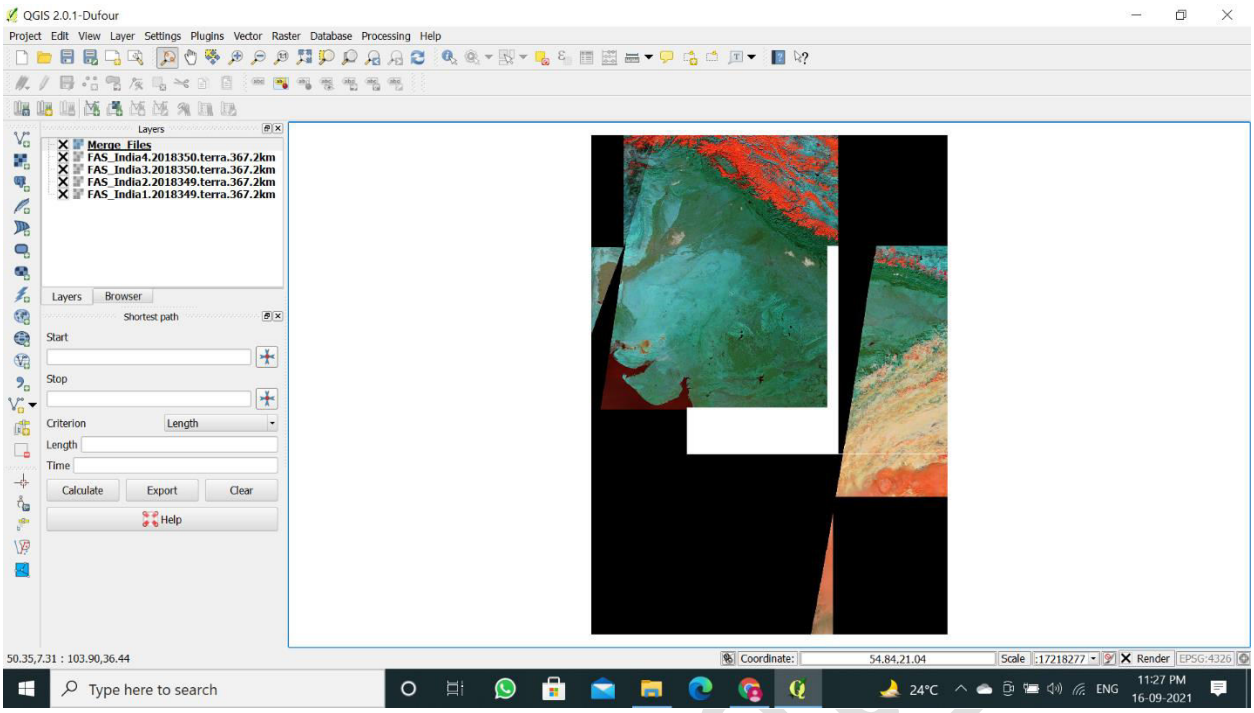


4. In Merge dialog window select a file name and location to save merged images. (Merge_Files.tif)



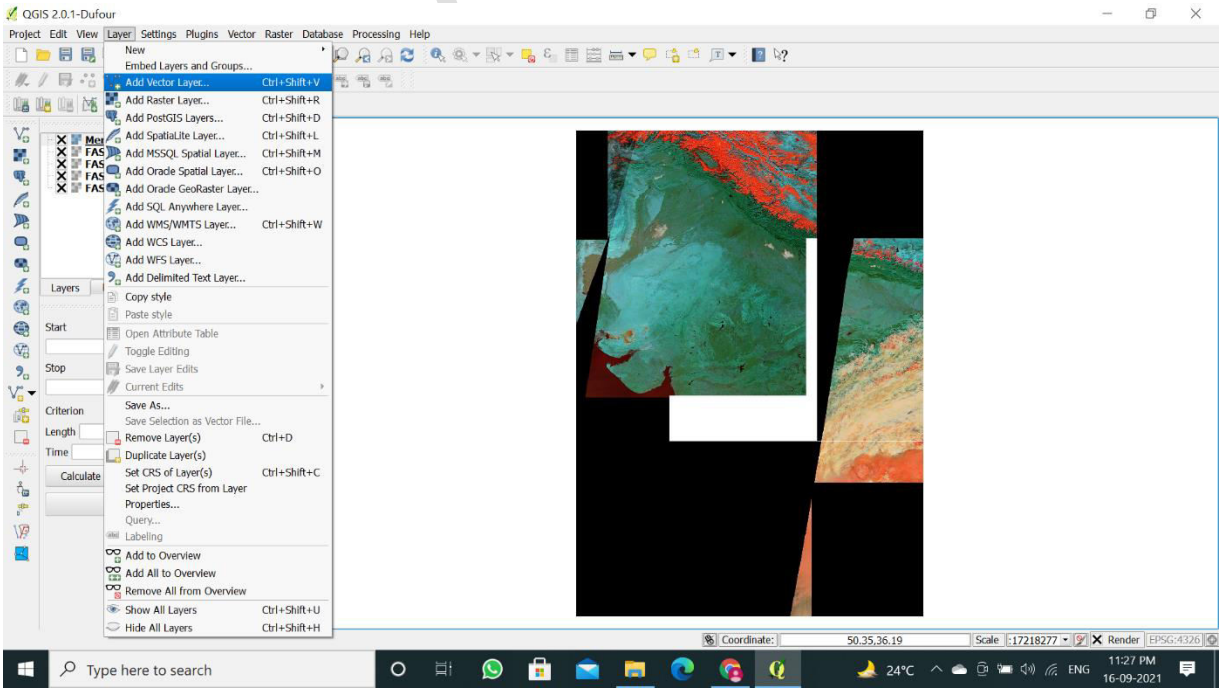
5. Press Run and after completion of operation close the Merge window dialog box

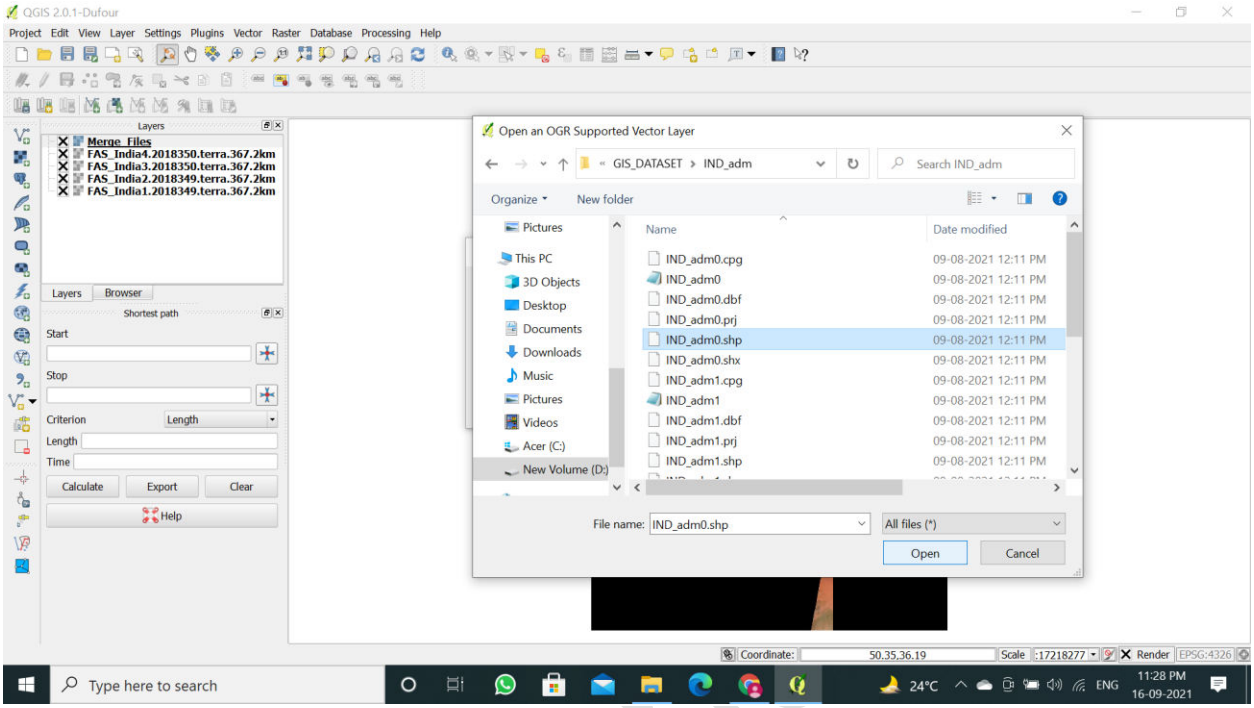




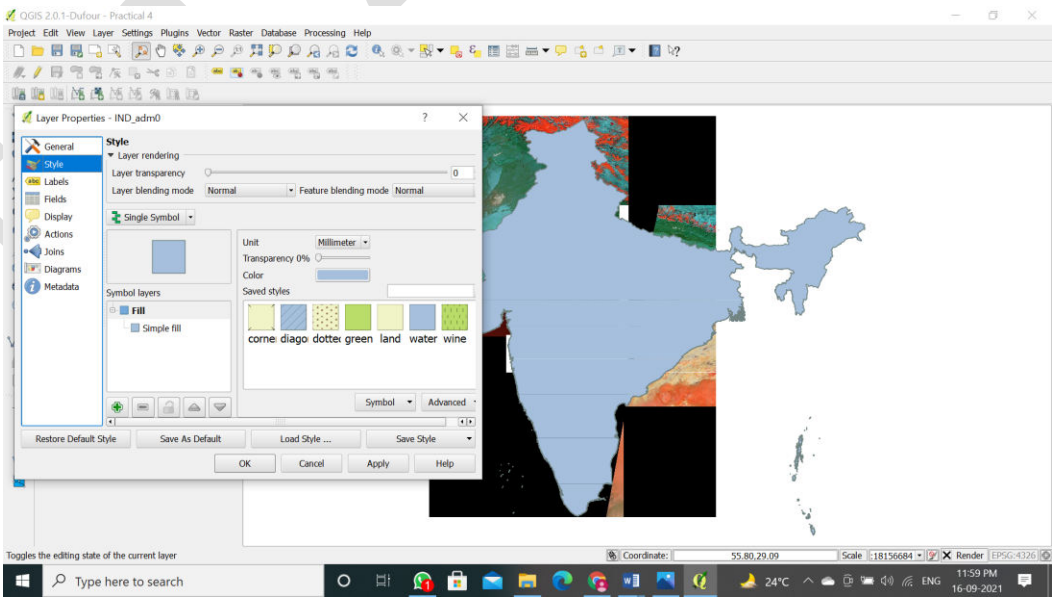
CLIPPING BOUNDARY

1. Go to layer □ Add layer □ Add Vector Layer and add the following file to your project: **IND_adm0.shp**



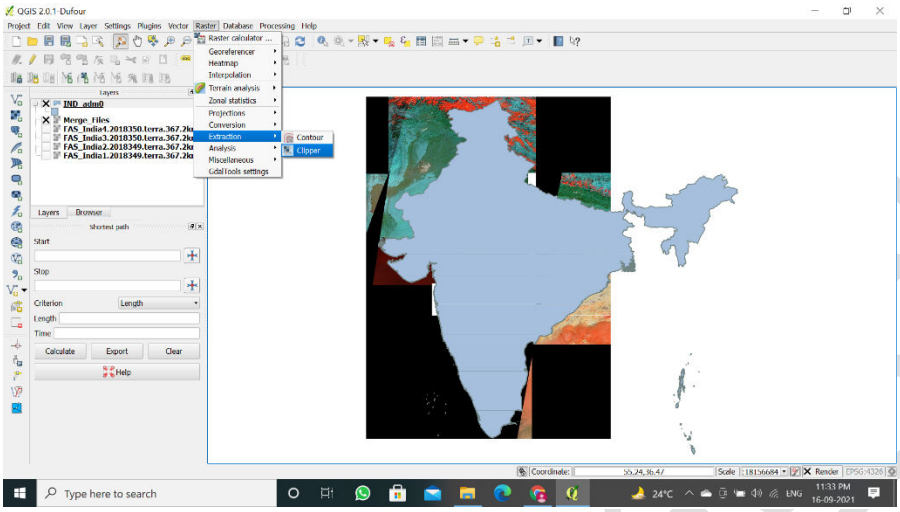


2. Right click on IND_adm0 and go to symbology. Click on any outline color, apply and then OK.

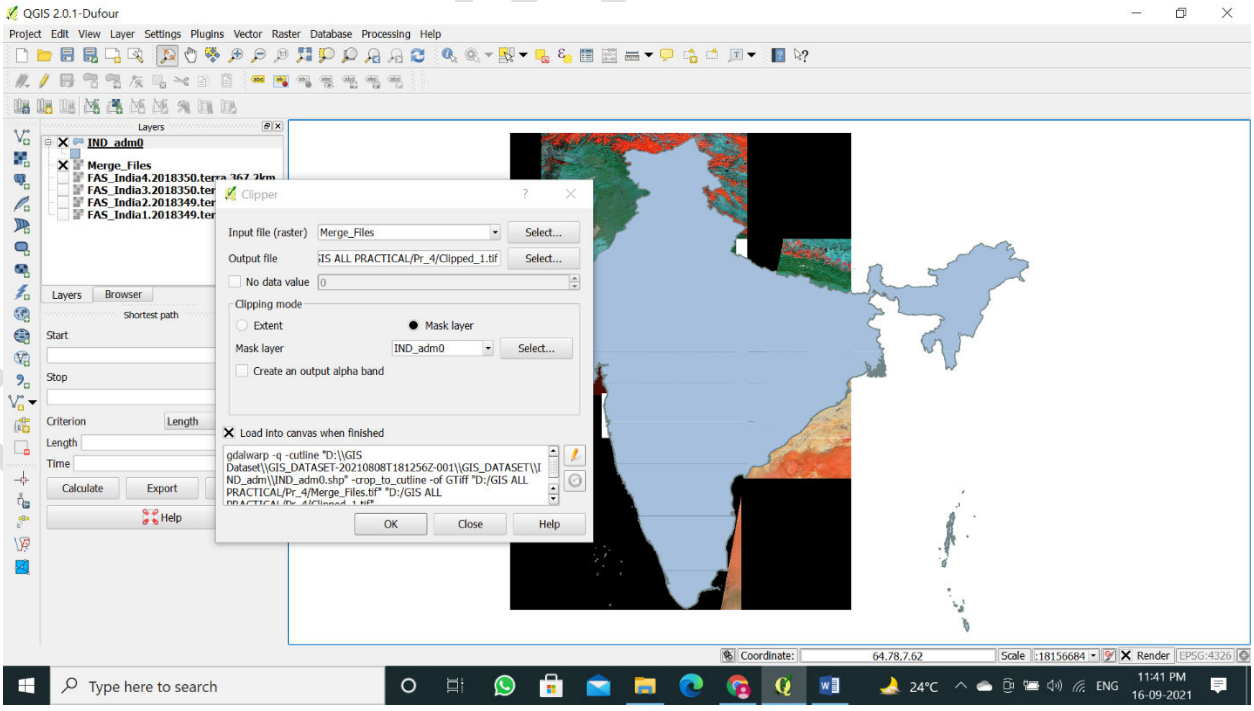


CLIPPING

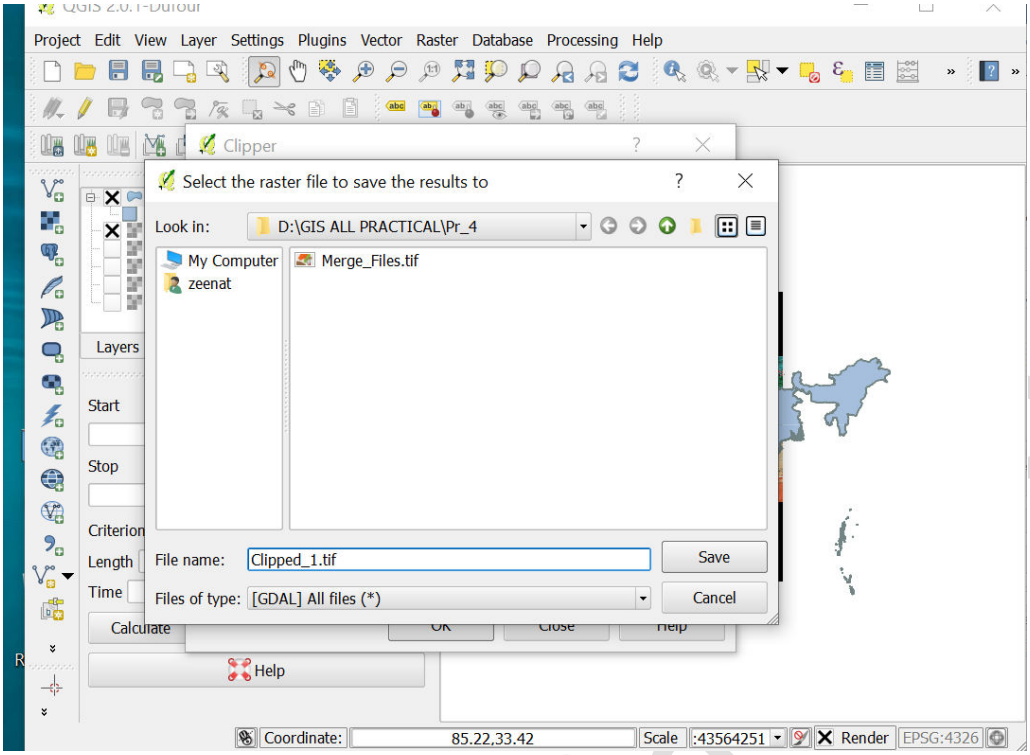
1. Go to Raster → Extraction → Clipper.



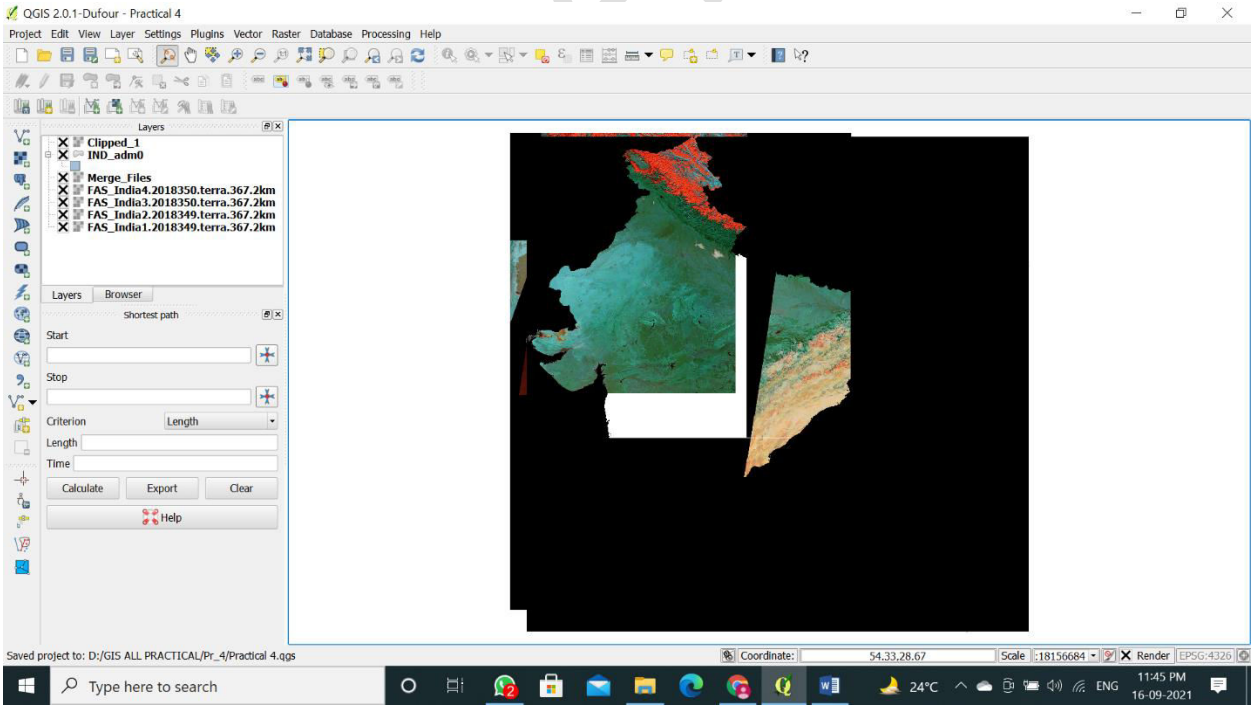
2. Select the merge raster image as input (merge.tif), Saving output file, click on Mask Layer and Ind_adm0 as mask layer.



3. Select a file name and location for clipped raster as Clipped_File.tif.


Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Clipper
Select the raster file to save the results to
Look in:
D:\GIS ALL PRACTICAL\Pr_4
My Computer
zeenat
Merge_Files.tif
File name:
Clipped_1.tif
Save
Files of type:
[GDAL] All files (*)
Cancel
Layers
Start
Stop
Criterion
Length
Time
Calculate
Help
Coordinate:
85.22,33.42
Scale
:43564251
Render
EPSG:4326

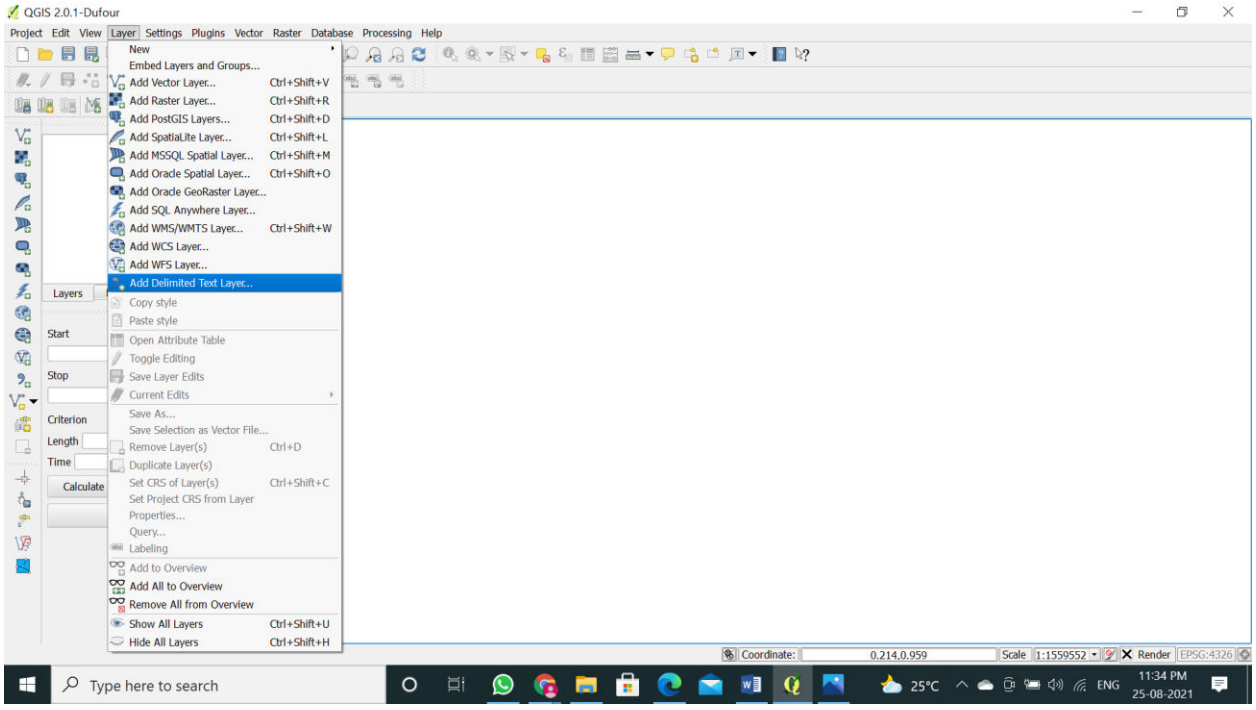
4. Press RUN

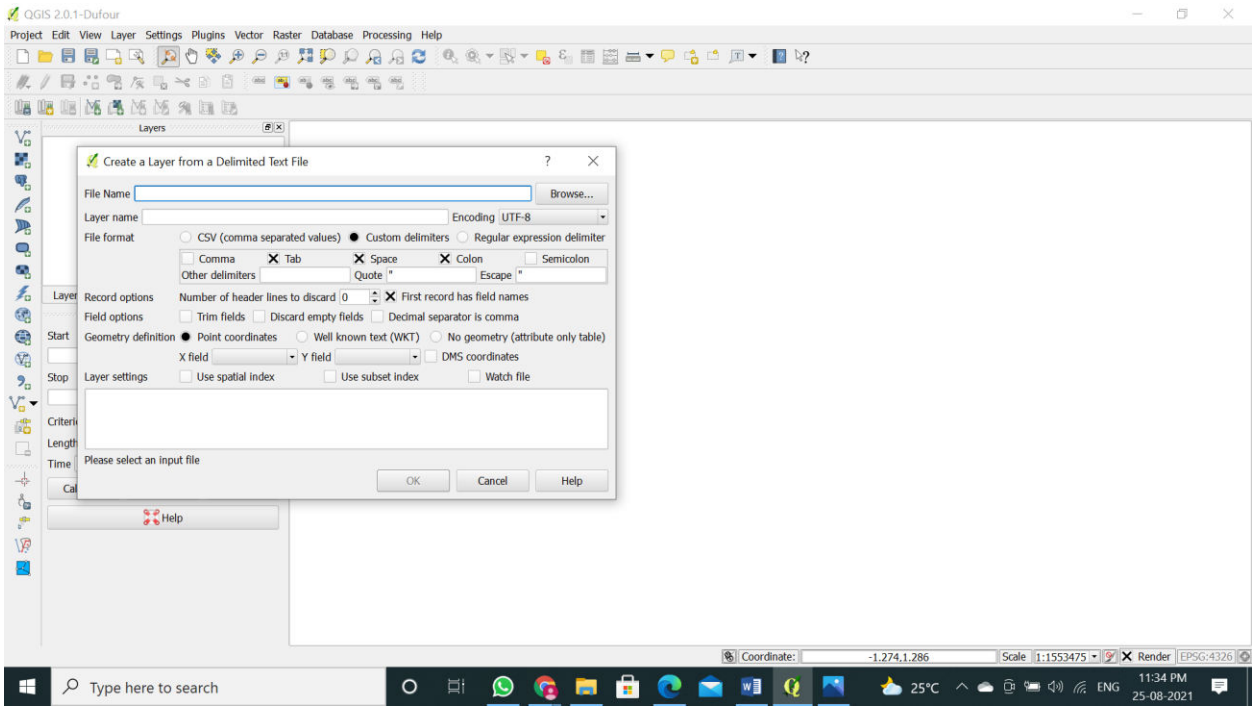

QGIS 2.0.1-Dufour - Practical 4
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
Clipped_1
IND_adm0
Merge_Files
FAS_India4.2018350.terra.367.2km
FAS_India3.2018350.terra.367.2km
FAS_India2.2018349.terra.367.2km
FAS_India1.2018349.terra.367.2km
Layers
Browser
Shortest path
Start
Stop
Criterion
Length
Length
Time
Calculate
Export
Clear
Help
Saved project to: D:/GIS ALL PRACTICAL/Pr_4/Practical 4.qgs
Coordinate:
54.33,28.67
Scale
:18156684
Render
EPSG:4326
Type here to search
24°C
ENG
11:45 PM
16-09-2021

Practical 5

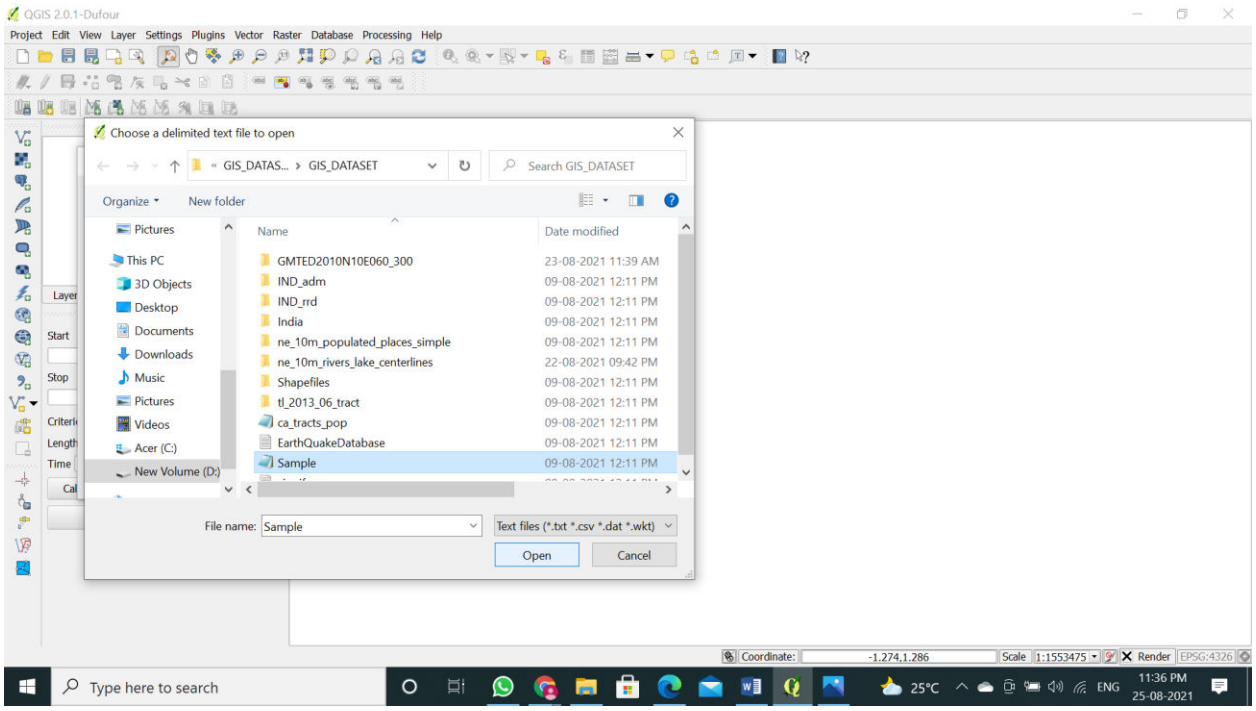
Aim: Importing Spreadsheets or import CSV Files.

Step 1: Go to Layer > Add Layer > Add Delimited text Layer

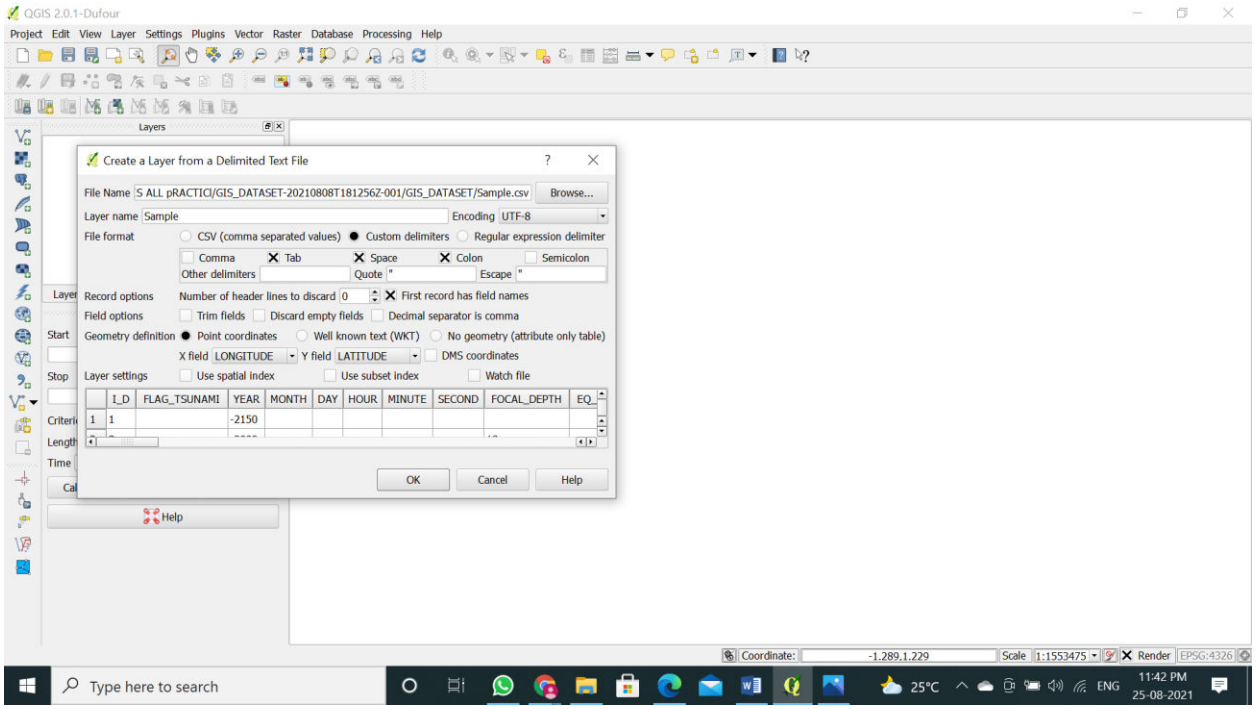


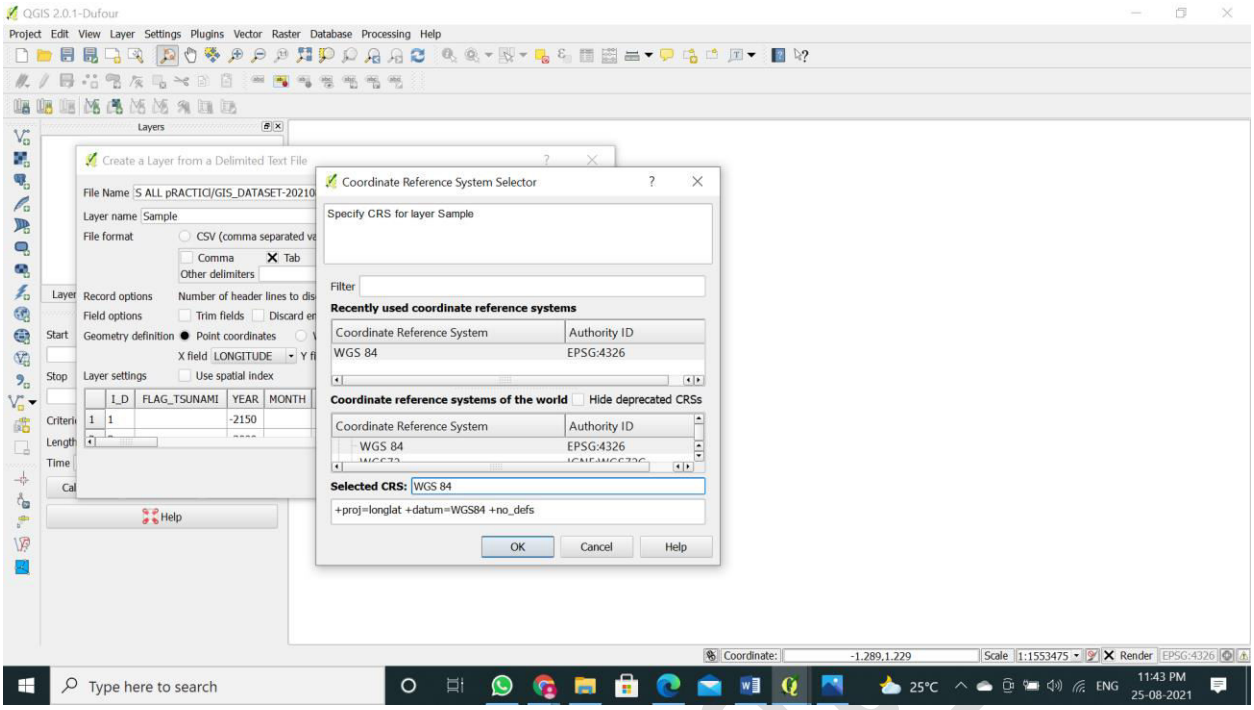


Step 2: Data Source Manager | Delimited Text window will appear and select the Sample.csv file from data folder.

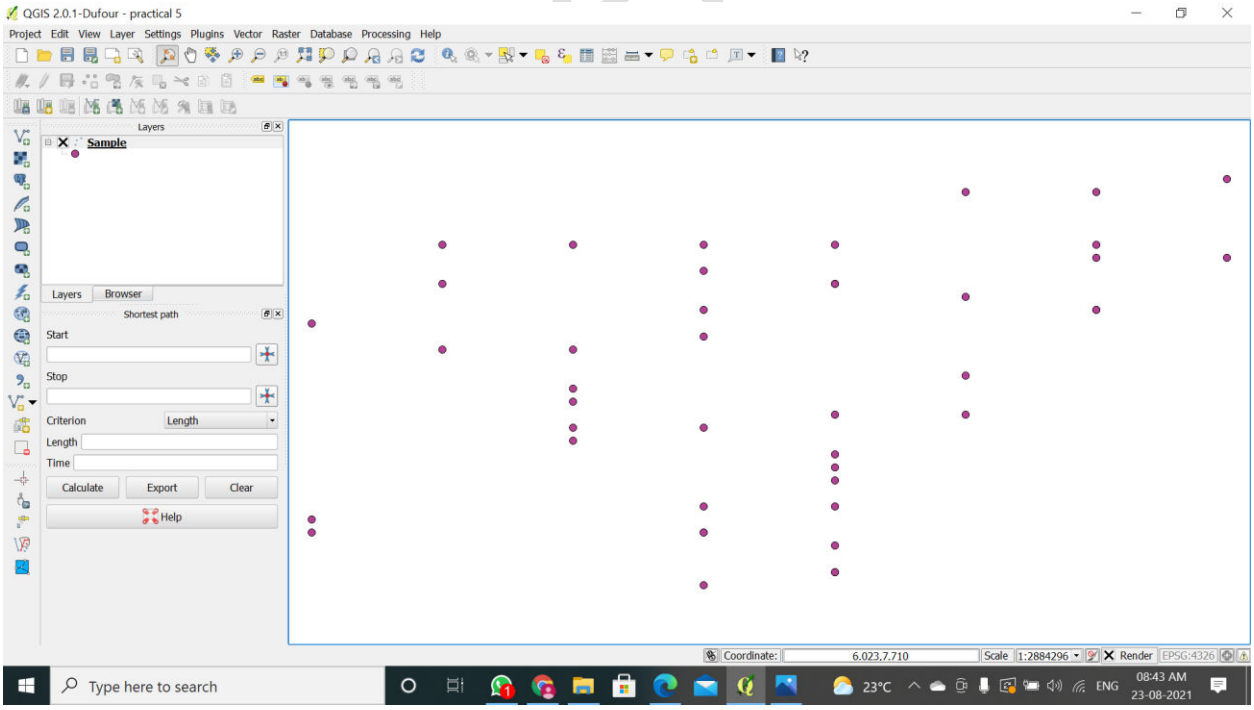


Step 3: Make following changes: under delimited Text CHECK TAB, COLON, SPACE Geometry definition X – Longitude, Y – Latitude geometry CRS EPSG:4326-WGS 84 • Press ADD and close the window.





Step 4: Press Add and Close the Window



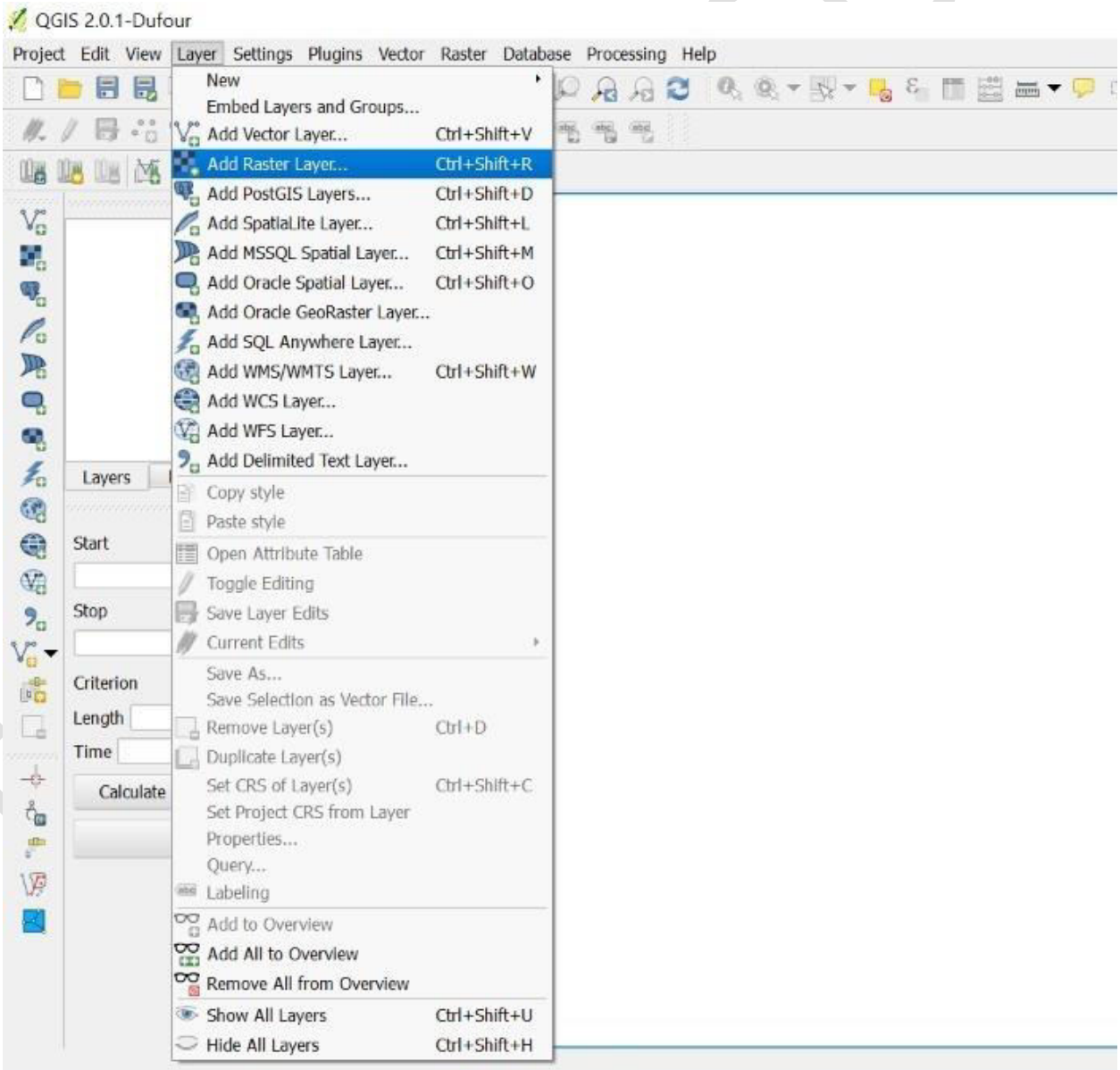
Practical 6

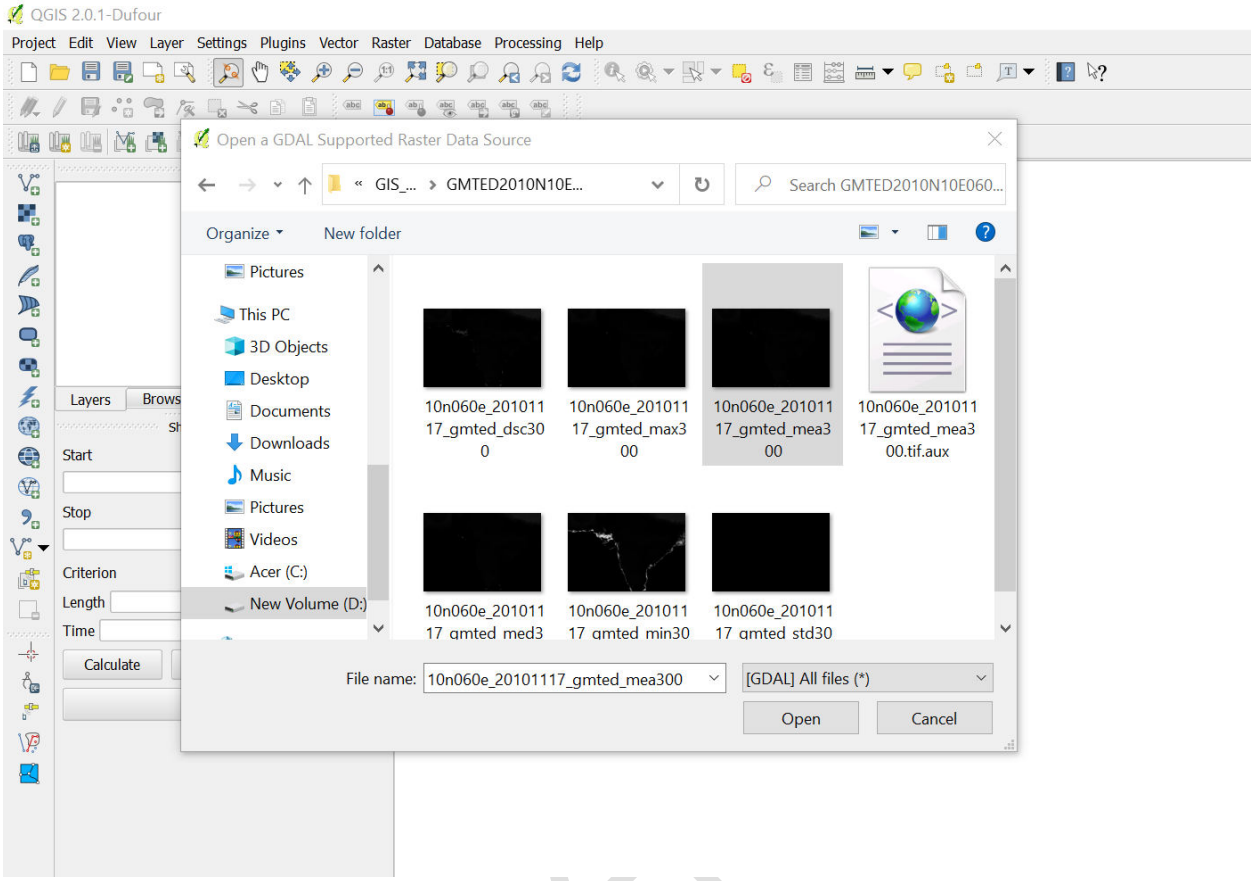
Aim: Working with Attributes, Terrain Data Analysis

A terrain dataset is a multiresolution, TIN based surface built from measurements stored as features in a good database. Terrain or elevation data is useful for many GIS analysis like, to generate various products from elevation data such as contours, hillshades etc.

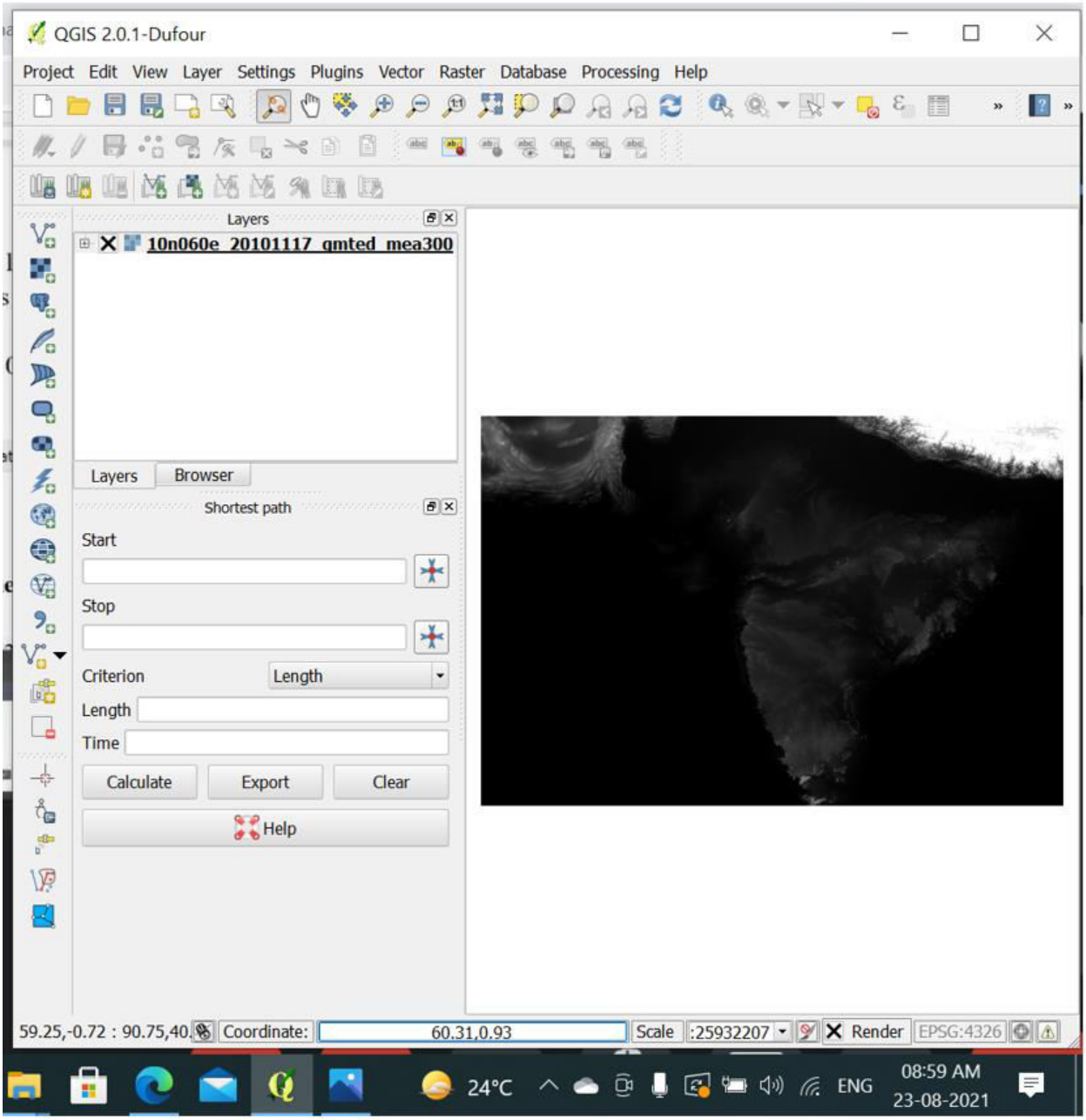
1. Go to Layer > Add Raster Layer > Select

   "**10_n006e_20101117_gmted_mea300.tif"**, from Data Folder

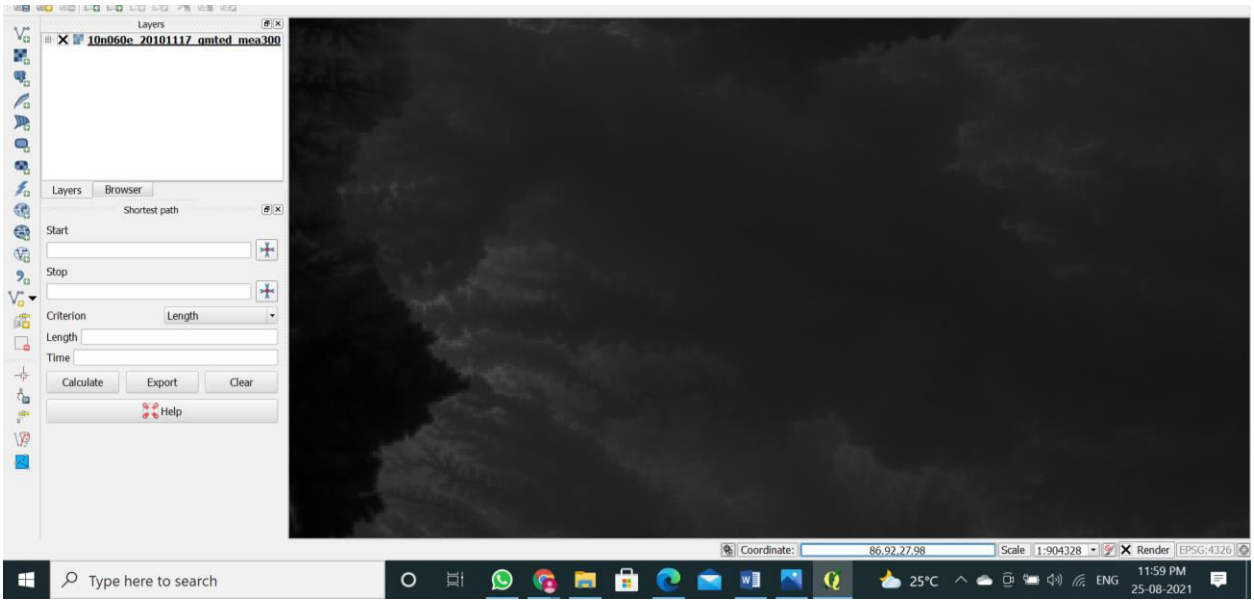




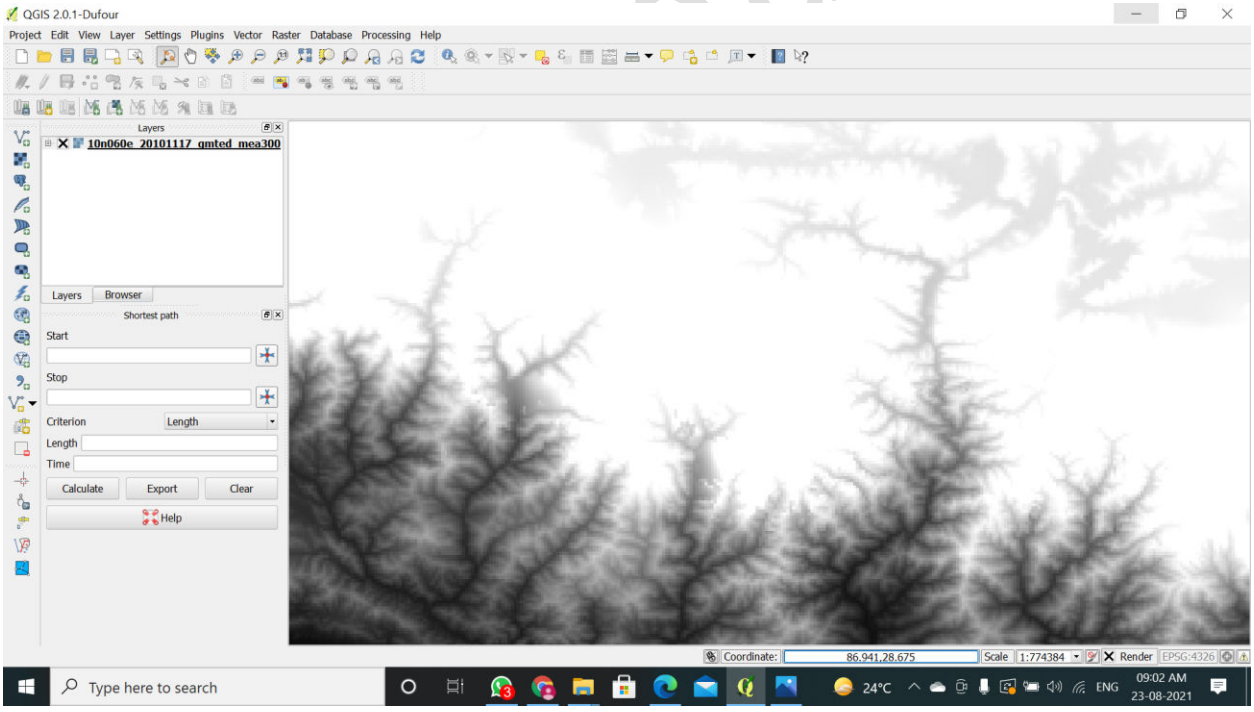
2. The Lower Latitude region are shown using dark color and highest using light shade as seen on top region containing Himalaya and Mt Everest – is located at the coordinates 27.9881 Degree N 89.9253 Degree E.



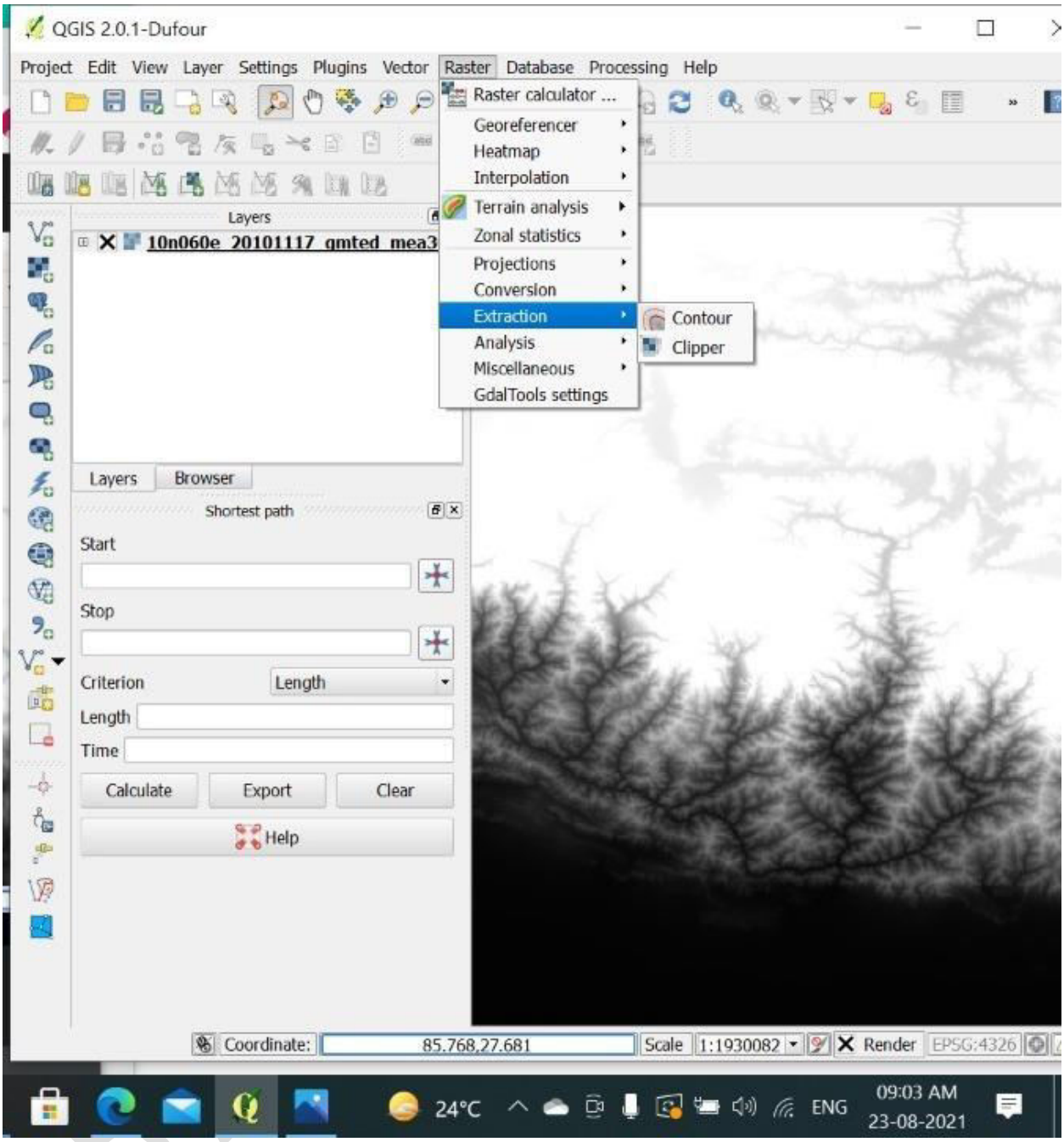
3. Enter 86.92,27.98 in the coordinate field , Scale 900000 and Magnifier 100% at the bottom of QGIS

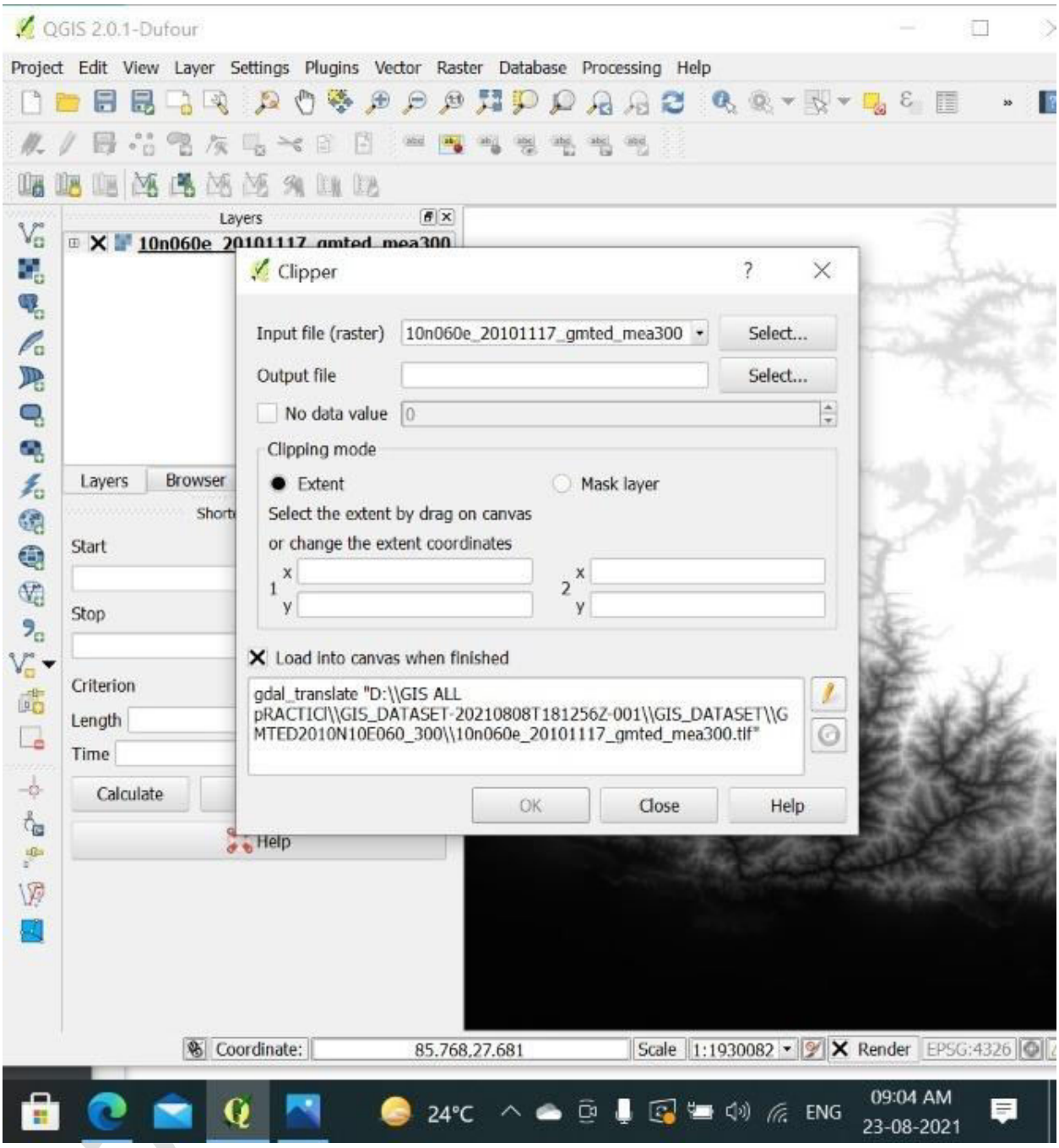


4. Press enter the view port will be centered on Himalaya Region.



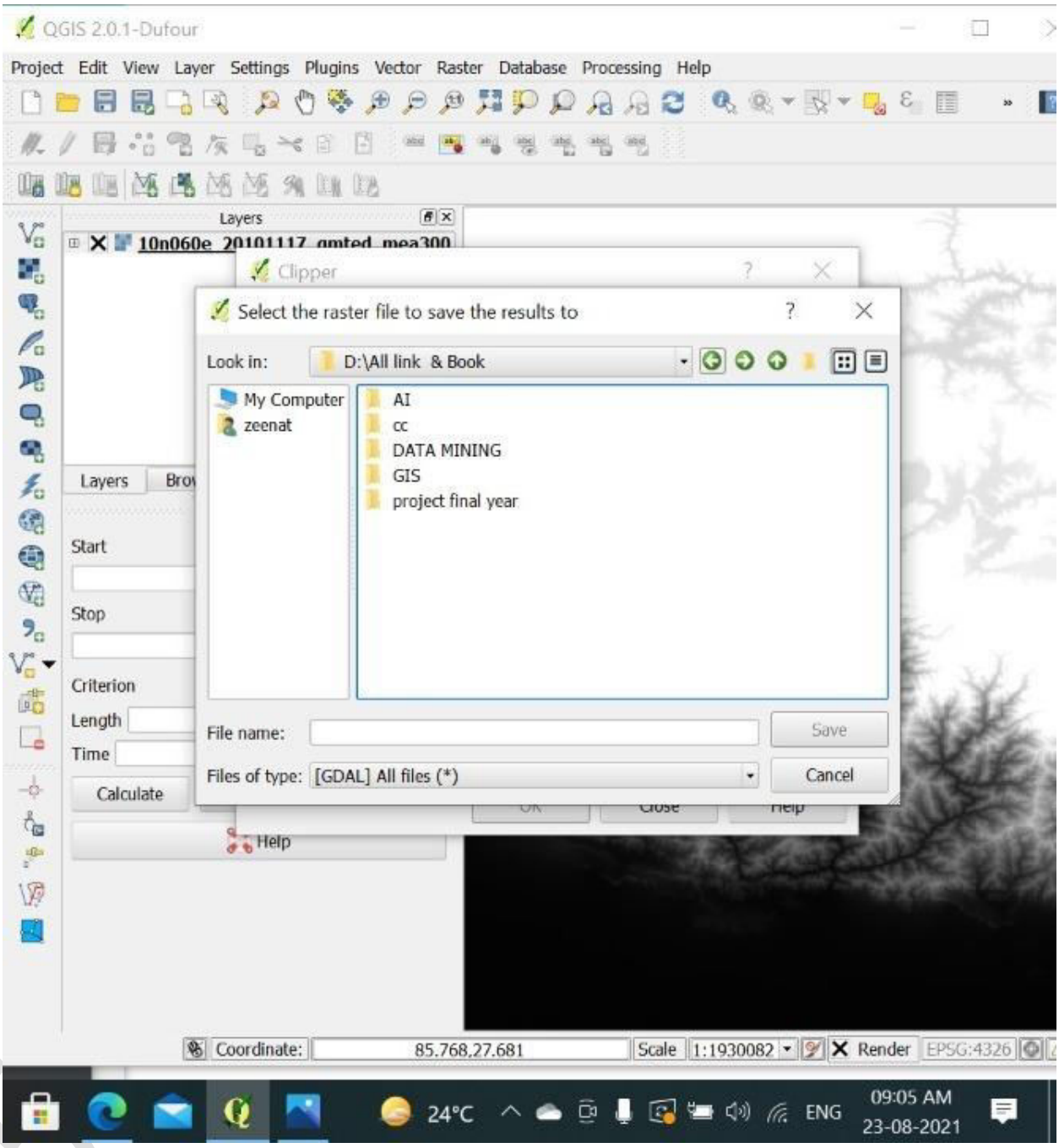
5. Go to Raster > Extraction > Clipper

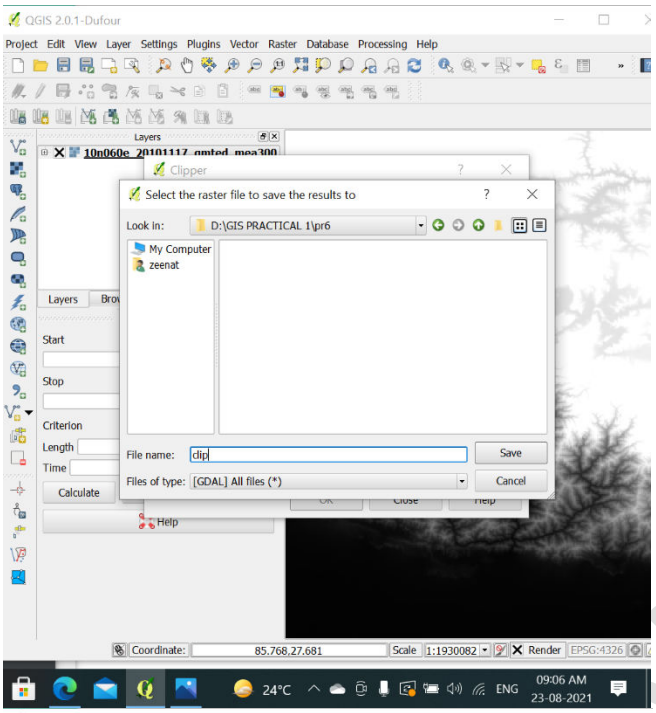

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Raster calculator ...
Georeferencer
Heatmap
Interpolation
Terrain analysis
Zonal statistics
Projections
Conversion
Extraction
Analysis
Miscellaneous
GdalTools settings
Contour
Clipper
Layers
10n060e_20101117_gmted_mea3
Layers
Browser
Shortest path
Start
Stop
Criterion
Length
Length
Time
Calculate
Export
Clear
Help
Coordinate:
85.768,27.681
Scale
1:1930082
Render
EPSG:4326
24°C
ENG
09:03 AM
23-08-2021

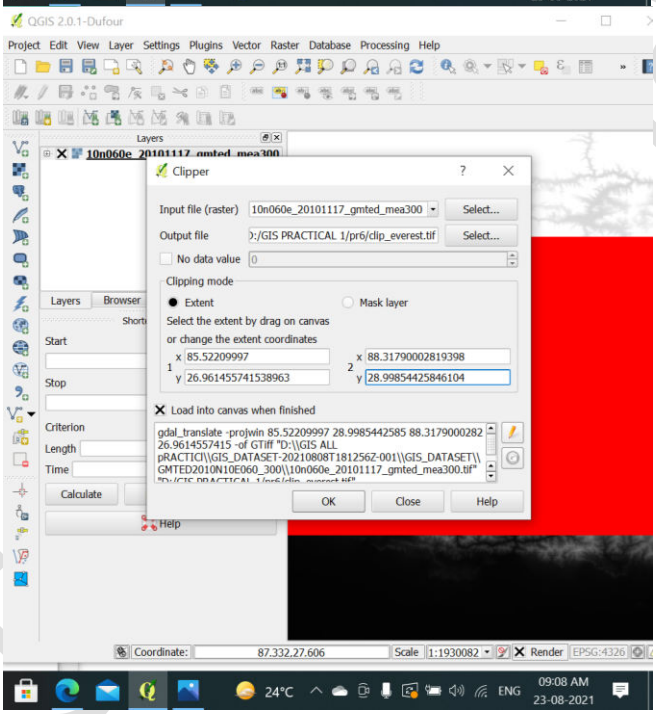


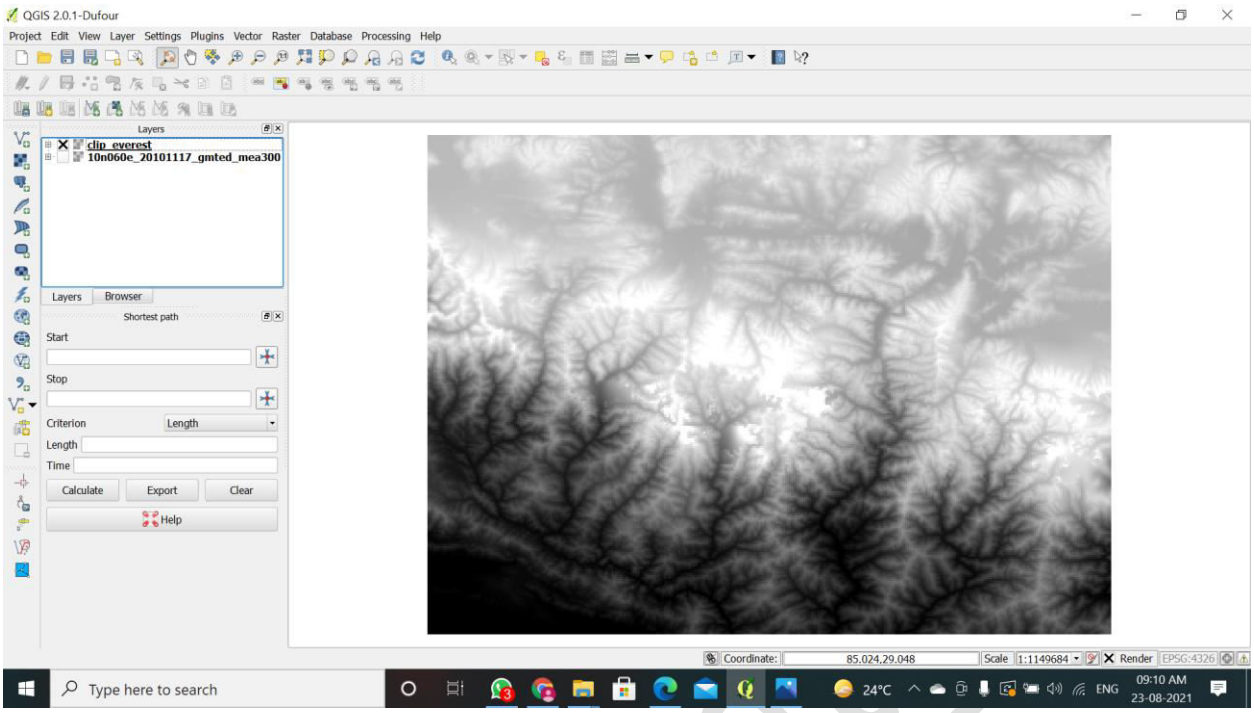
6. Select clip by Extent, select input file as **10n060e_2010117_gmted_mea300.tif** and output file as
"clipped_everest.tif" Xmin=85.52209997, xmax=88.31790002819398, ymin=26.961455741538963, ymax= 28.99854425846104, and click OK Deselect the original file.

Counter lines are the lines on a map joining points of equal height above or below sea level. A contour interval in surveying is the vertical distance or the difference in the elevation between the two contour lines in a topographical map. **To derive counter lines from raster.**

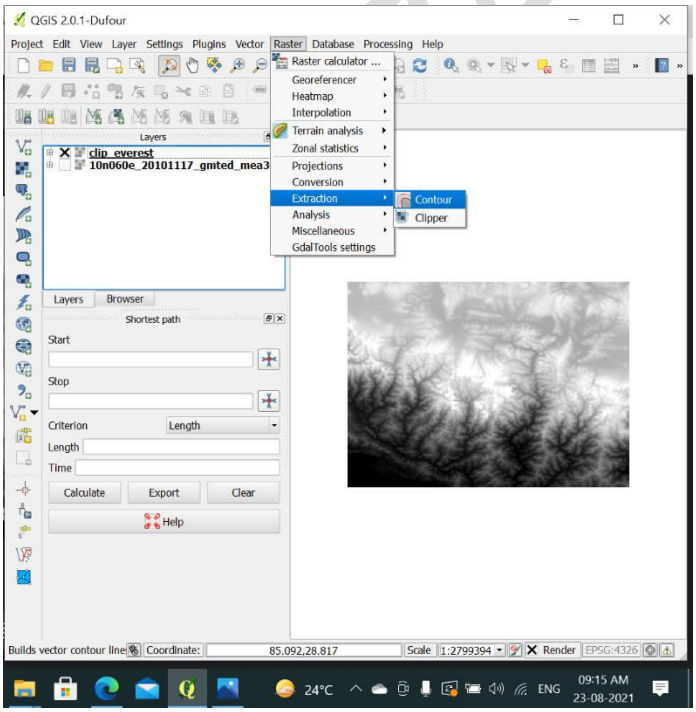

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
10n060e_20101117_gmted_mea300
Clipper
Select the raster file to save the results to
Look in: D:\All link & Book
My Computer
zeenat
AI
cc
DATA MINING
GIS
project final year
File name:
Save
Files of type: [GDAL] All files (*)
Cancel
Layers
Start
Stop
Criterion
Length
Time
Calculate
Help
Coordinate: 85.768,27.681
Scale 1:1930082
Render
EPSG:4326
24°C
ENG
09:05 AM
23-08-2021

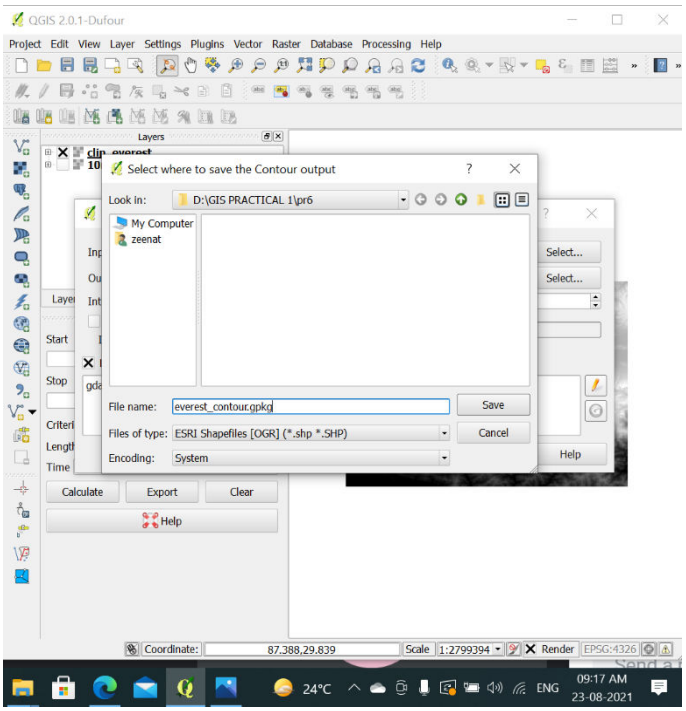

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Clipper
Select the raster file to save the results to
Look in: D:\GIS PRACTICAL 1\pr6
My Computer
zeenat
File name: clip
Save
Files of type: [GDAL] All files (*)
Cancel
Start
Stop
Criterion
Length
Time
Calculate
Help
Coordinate: 85.768,27.681
Scale 1:1930082
Render
EPSG:4326
24°C
ENG
09:06 AM
23-08-2021


QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Clipper
Input file (raster) 10n060e_20101117_gmted_mea300
Select...
Output file D:/GIS PRACTICAL 1/pr6/clip_everest.tif
Select...
No data value 0
Clipping mode
Extent
Mask layer
Select the extent by drag on canvas
or change the extent coordinates
1 x 85.52209997
y 26.961455741538963
2 x 88.31790002819398
y 28.99854425846104
Load into canvas when finished
gdal_translate -projwin 85.52209997 28.9985442585 88.3179000282 26.9614557415 -of GTiff "D:\\GIS ALL PRACTICI\\GIS_DATASET-20210808T181256Z-001\\GIS_DATASET\\GMTED2010N10E060_300\\10n060e_20101117_gmted_mea300.tif"
OK
Close
Help
Coordinate: 87.332,27.606
Scale 1:1930082
Render
EPSG:4326
24°C
ENG
09:08 AM
23-08-2021

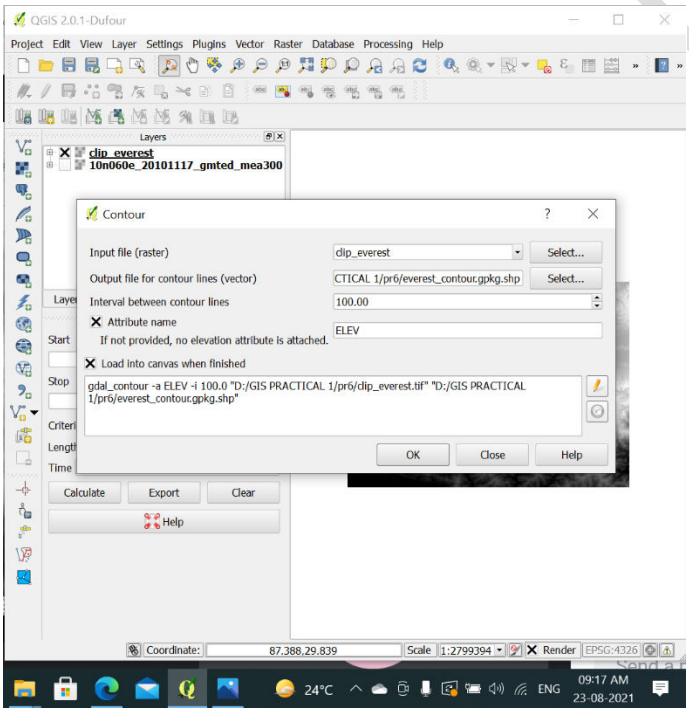


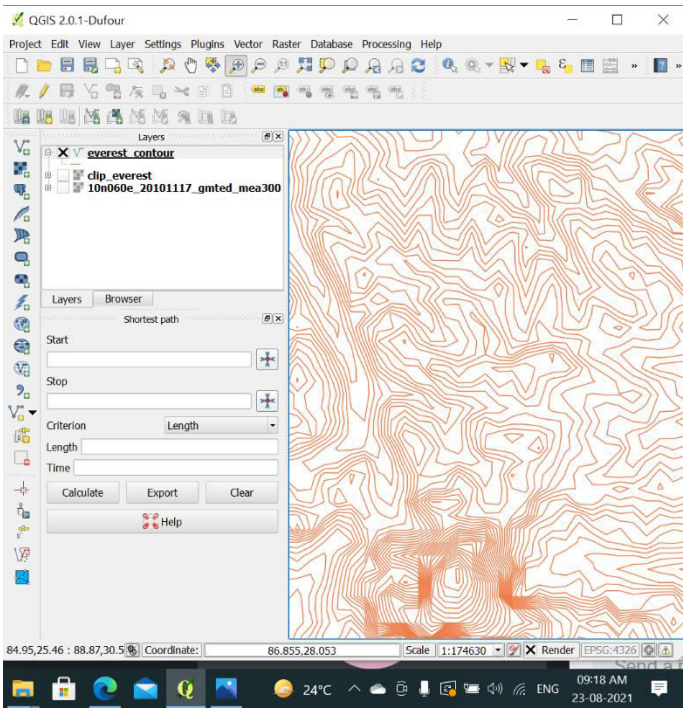
7. Go to Raster → Extraction→ Contour
8. Select Input file as **"clipped_everest.tif"** and output file= (browse to your folder) **everest.gpkg,** Interval=100, SELECT attribute name check box and click ok
9. contour layer will appear

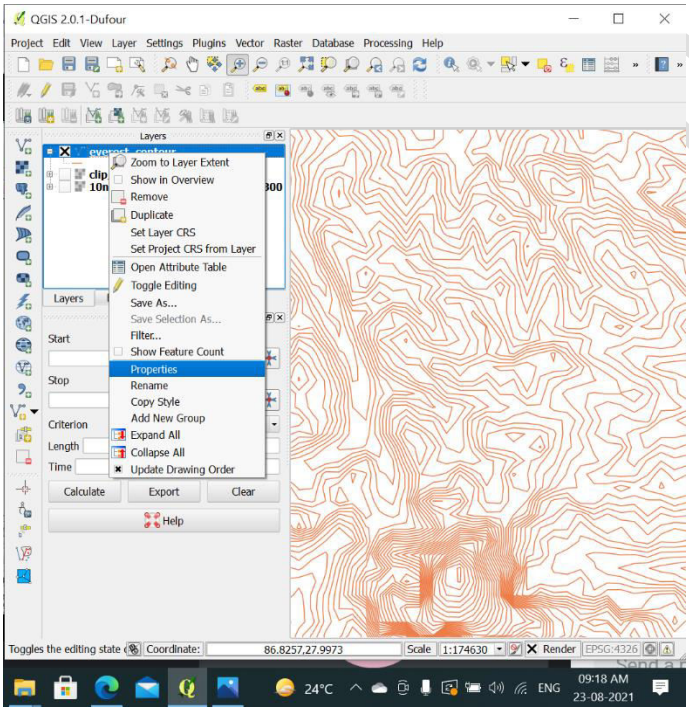


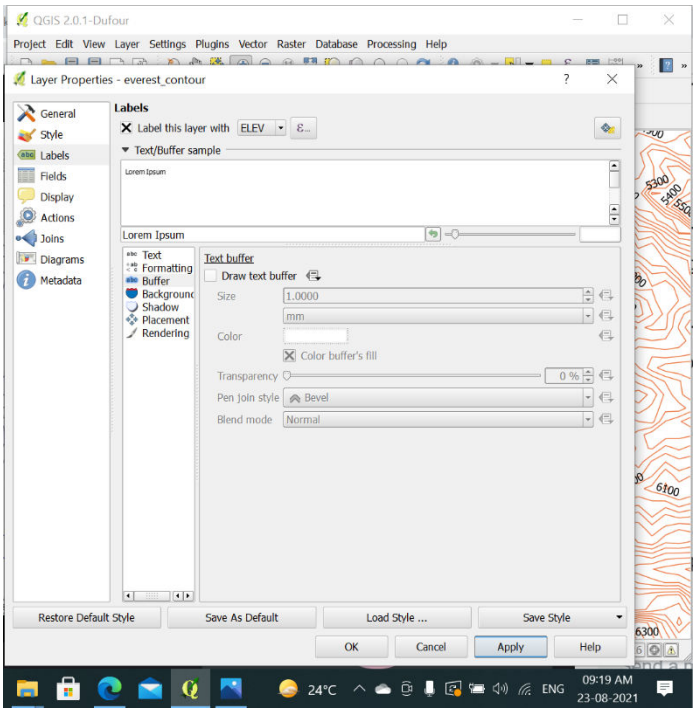


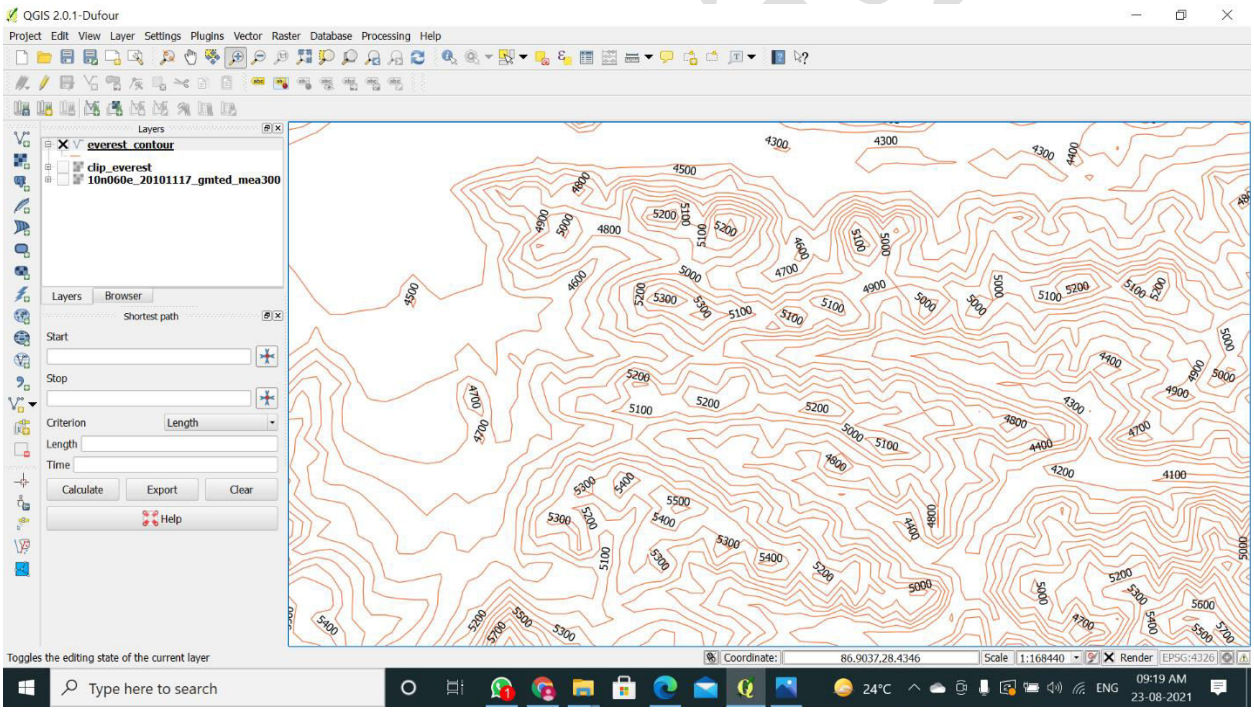
10. Label the layer using “ELEV” field and set appropriate symbols for line. Right click on layer□ properties□ Labels □ (Select attribute as ELEV)



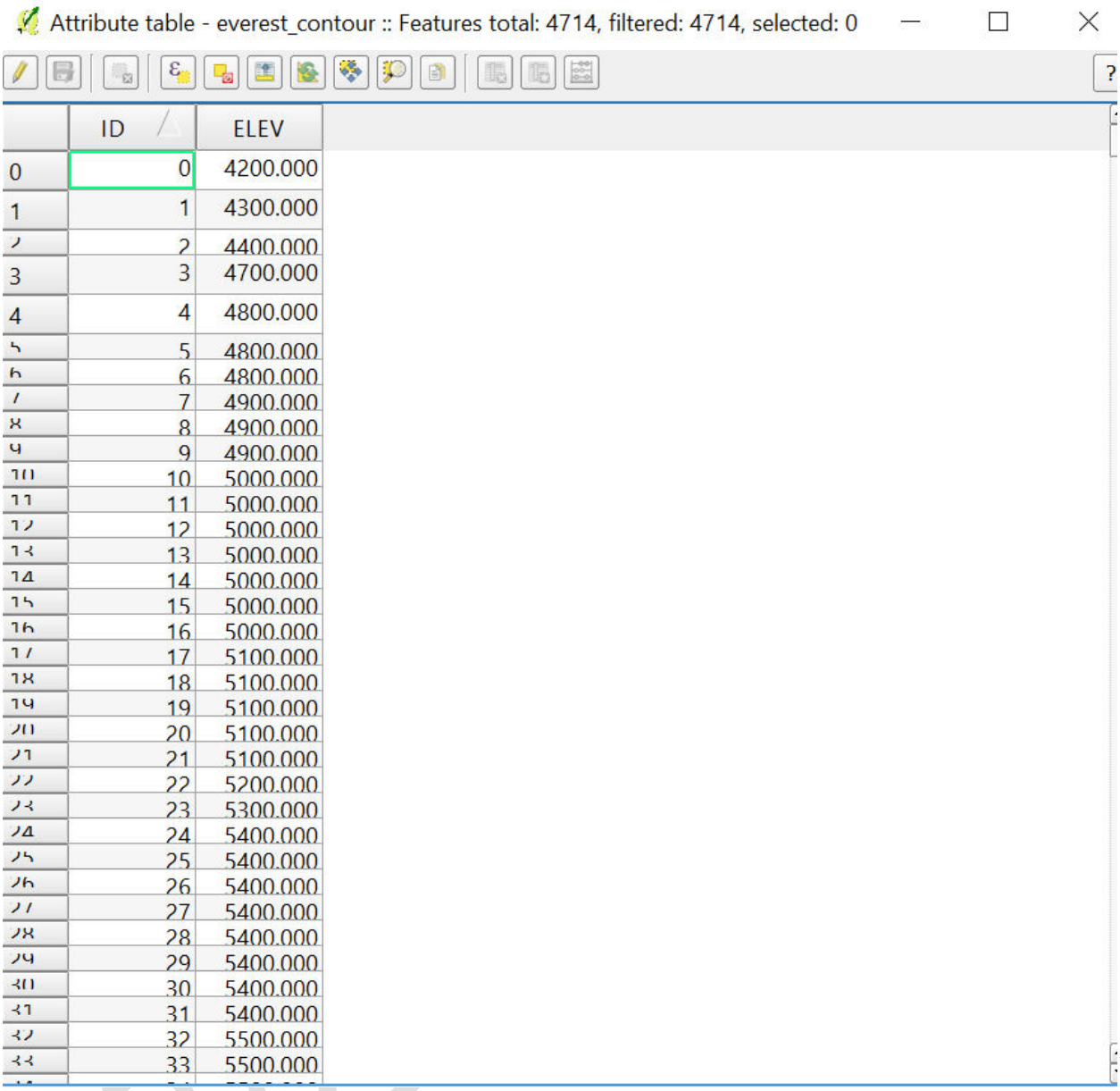

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
everest_contour
clip_everest
10n060e_20101117_gmted_mea300
Layers Browser
Shortest path
Start
Stop
Criterion Length
Length
Time
Calculate Export Clear
Help
84.95,25.46 : 88.87,30.5 Coordinate: 86.855,28.053 Scale 1:174630 Render EPSG:4326
24°C ENG 09:18 AM 23-08-2021


QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
Zoom to Layer Extent
Show in Overview
Remove
Duplicate
Set Layer CRS
Set Project CRS from Layer
Open Attribute Table
Toggle Editing
Save As...
Save Selection As...
Filter...
Show Feature Count
Properties
Rename
Copy Style
Add New Group
Expand All
Collapse All
Update Drawing Order
Layers
Start
Stop
Criterion
Length
Time
Calculate Export Clear
Help
Toggles the editing state Coordinate: 86.8257,27.9973 Scale 1:174630 Render EPSG:4326
24°C ENG 09:18 AM 23-08-2021





11. In the Layer panel right click on Contour Raster Layer and select “Open Attribute table”,the table in descending order based in the value of “ELEV” column.

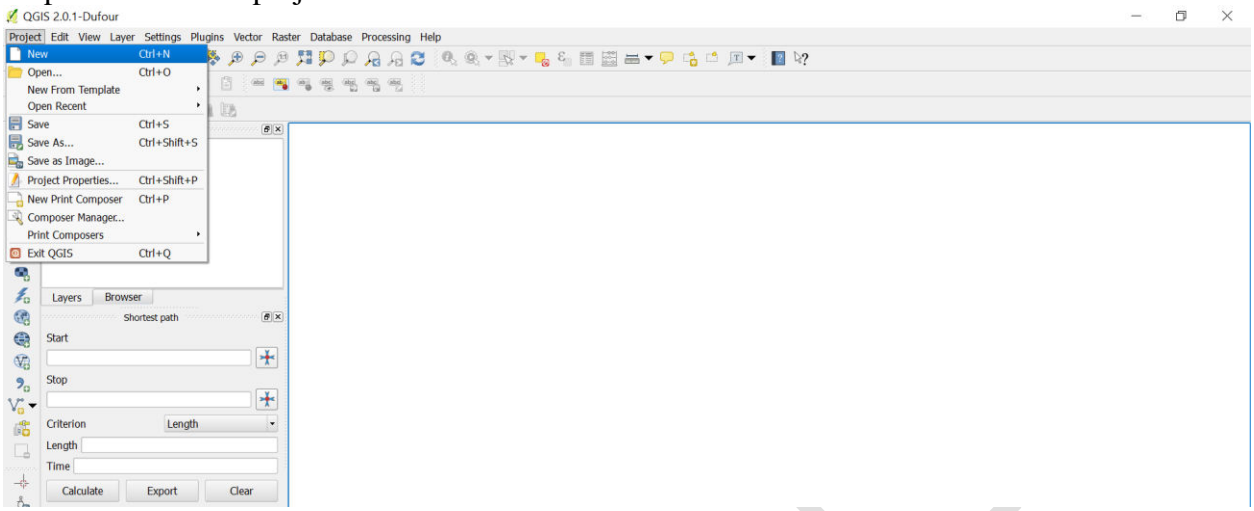


	ID	ELEV
0	0	4200.000
1	1	4300.000
2	2	4400.000
3	3	4700.000
4	4	4800.000
5	5	4800.000
6	6	4800.000
7	7	4900.000
8	8	4900.000
9	9	4900.000
10	10	5000.000
11	11	5000.000
12	12	5000.000
13	13	5000.000
14	14	5000.000
15	15	5000.000
16	16	5000.000
17	17	5100.000
18	18	5100.000
19	19	5100.000
20	20	5100.000
21	21	5100.000
22	22	5200.000
23	23	5300.000
24	24	5400.000
25	25	5400.000
26	26	5400.000
27	27	5400.000
28	28	5400.000
29	29	5400.000
30	30	5400.000
31	31	5400.000
32	32	5500.000
33	33	5500.000

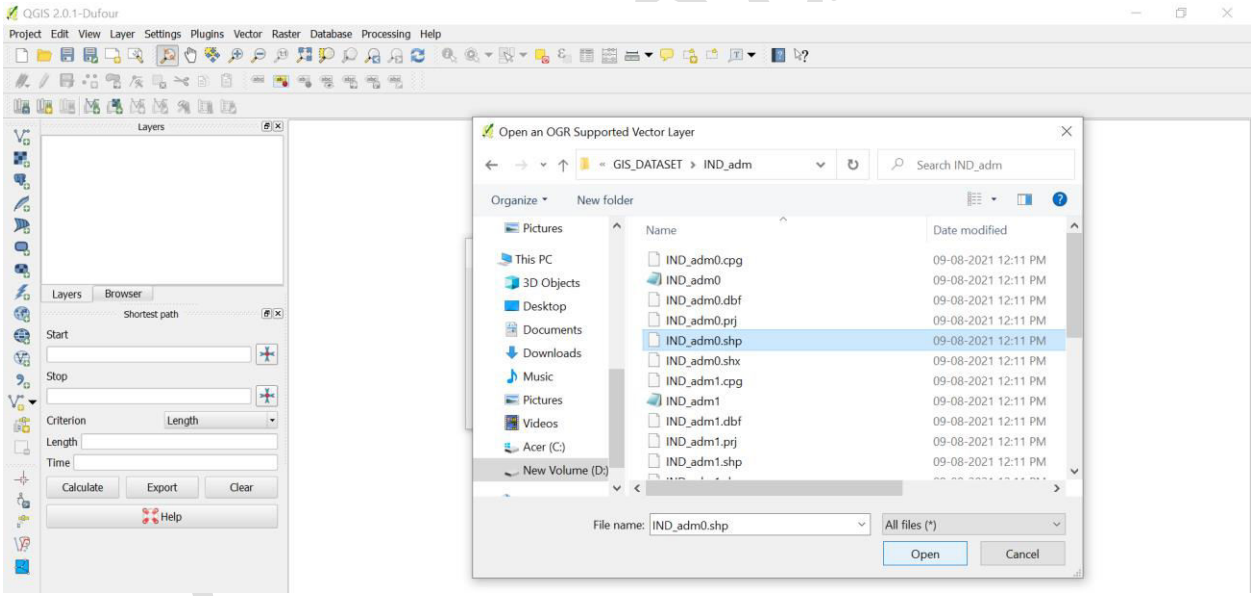
Practical 7

Aim: Georeferencing Topo Sheets and Scanned Maps

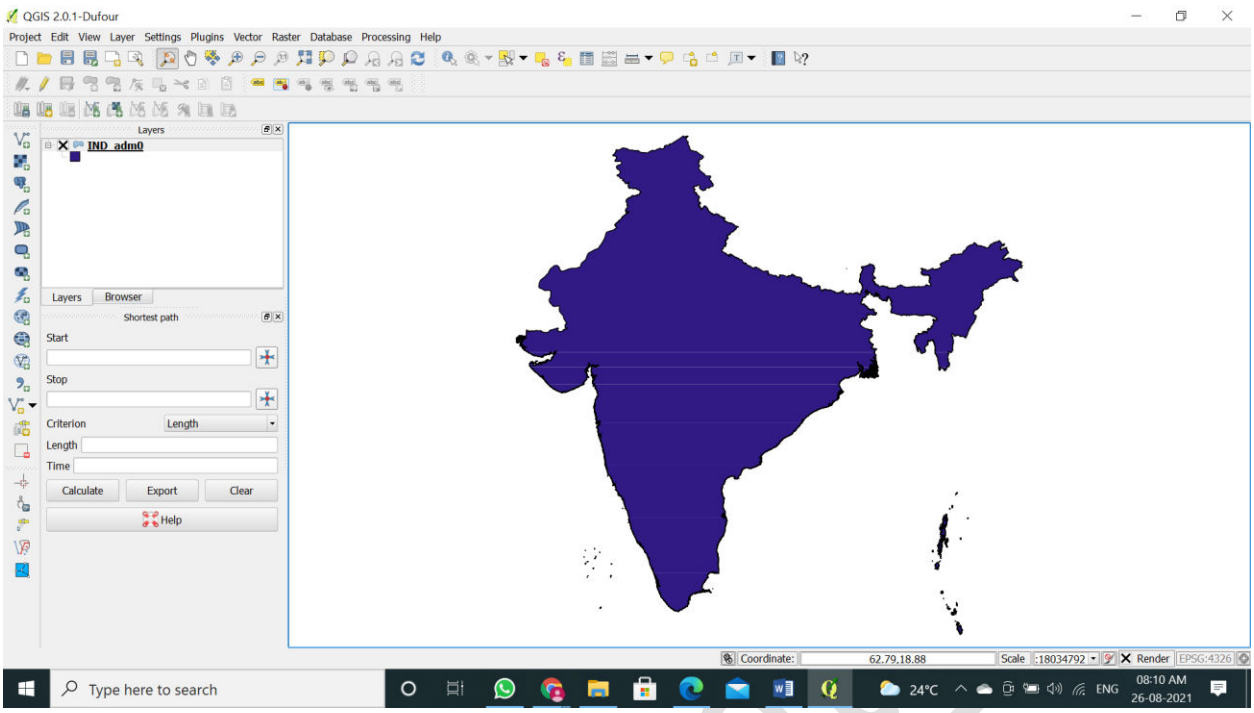
Step 1: Start a new project



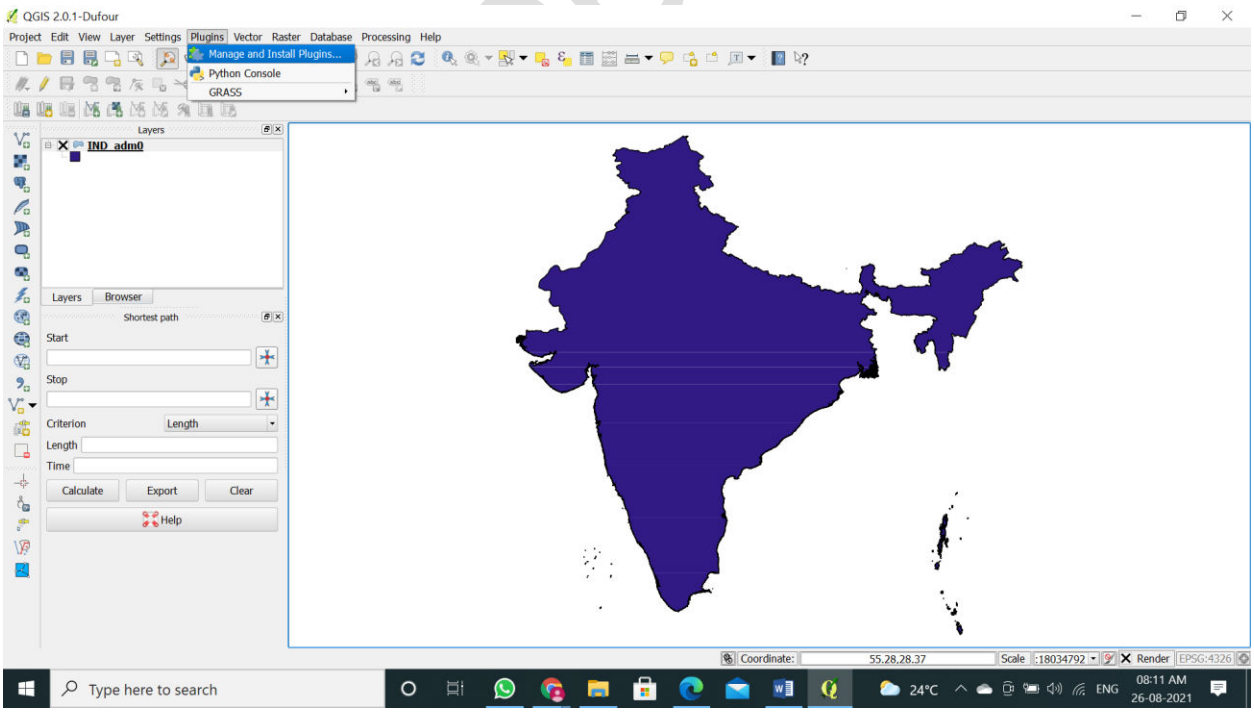
Step 2: Go to Layers → Add Layer → Add vector Layer Select **IND_adm0.shp**

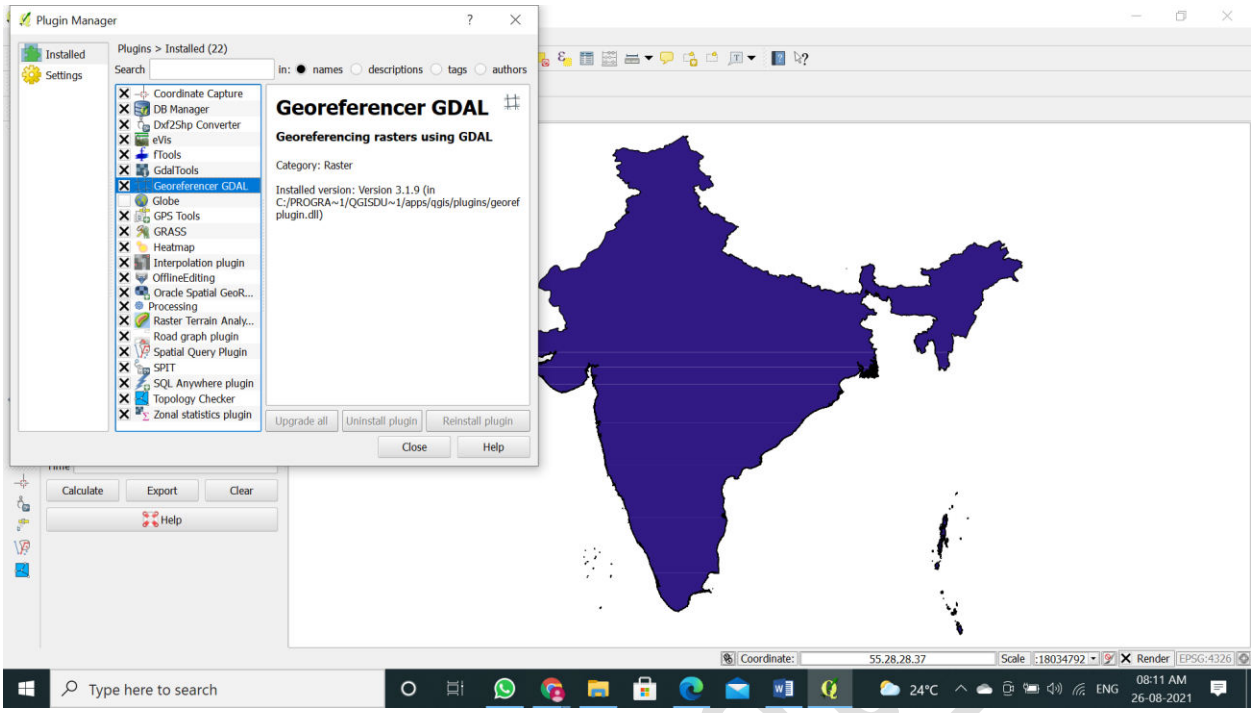


Step 3: Zoom in to Mumbai region in the layer.

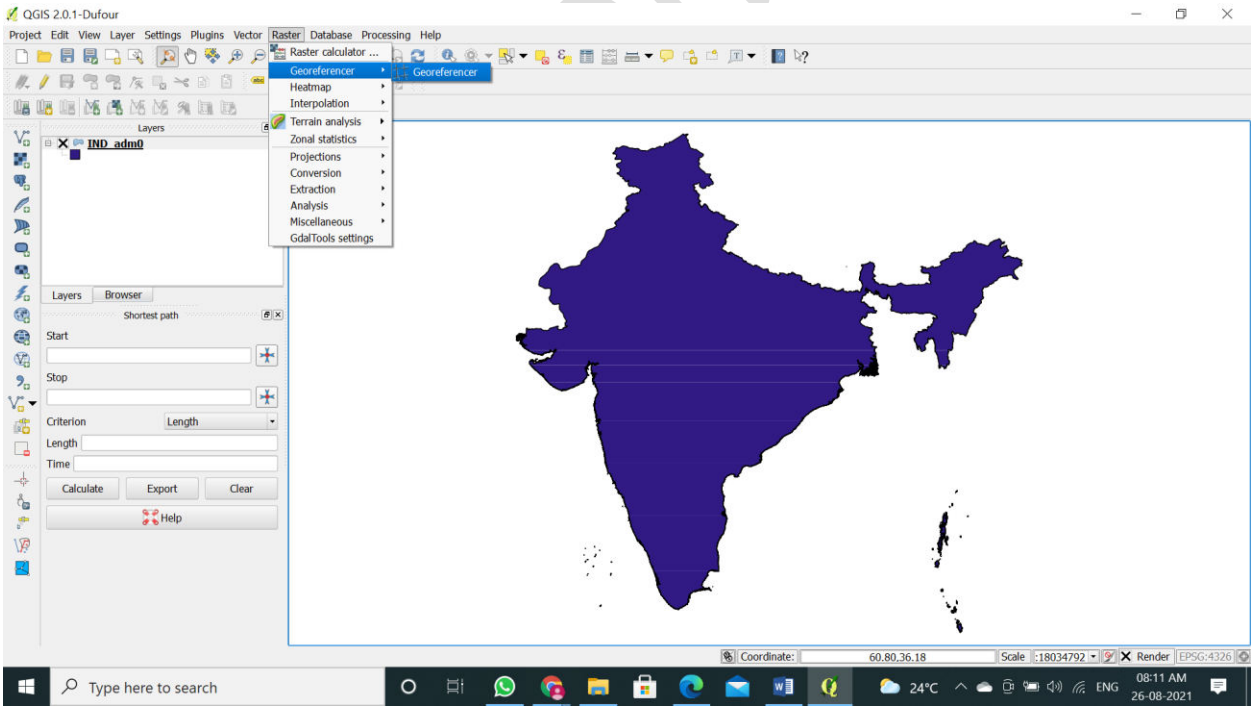


NOTE**: For** Georeferencing **analysis > Go to Plugin → Install Georeferencer GADL**. After successful installation of plugin,

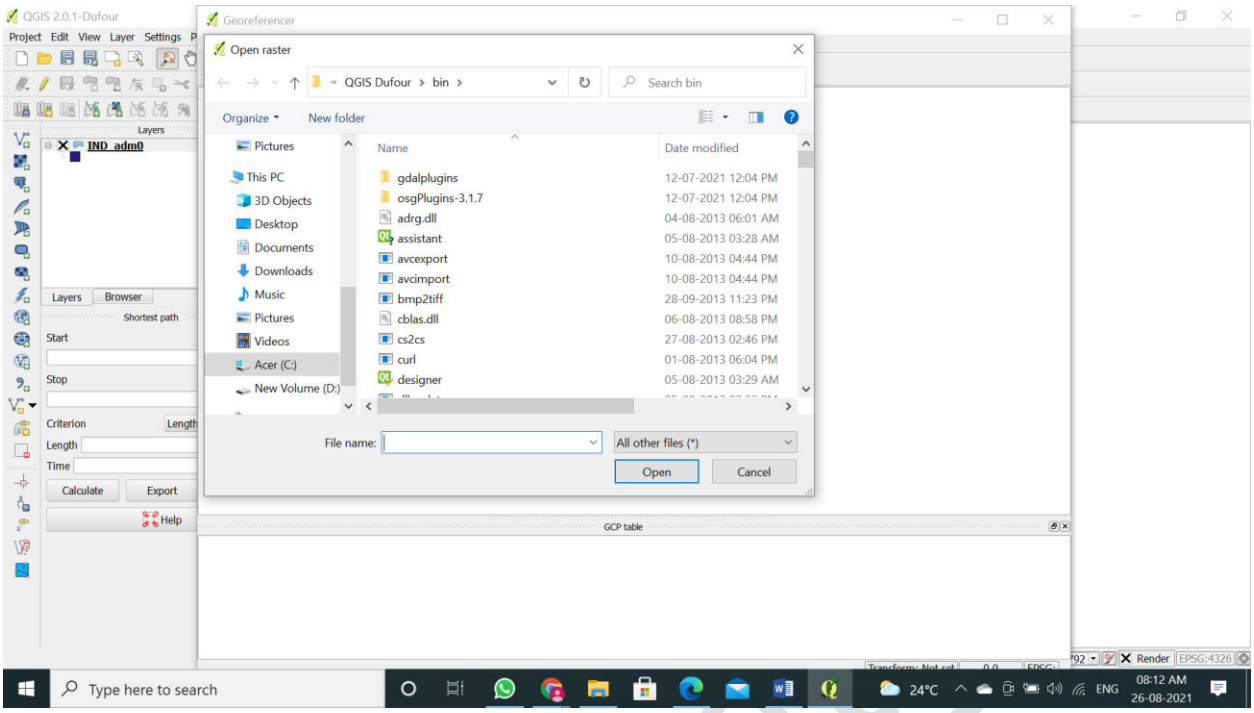




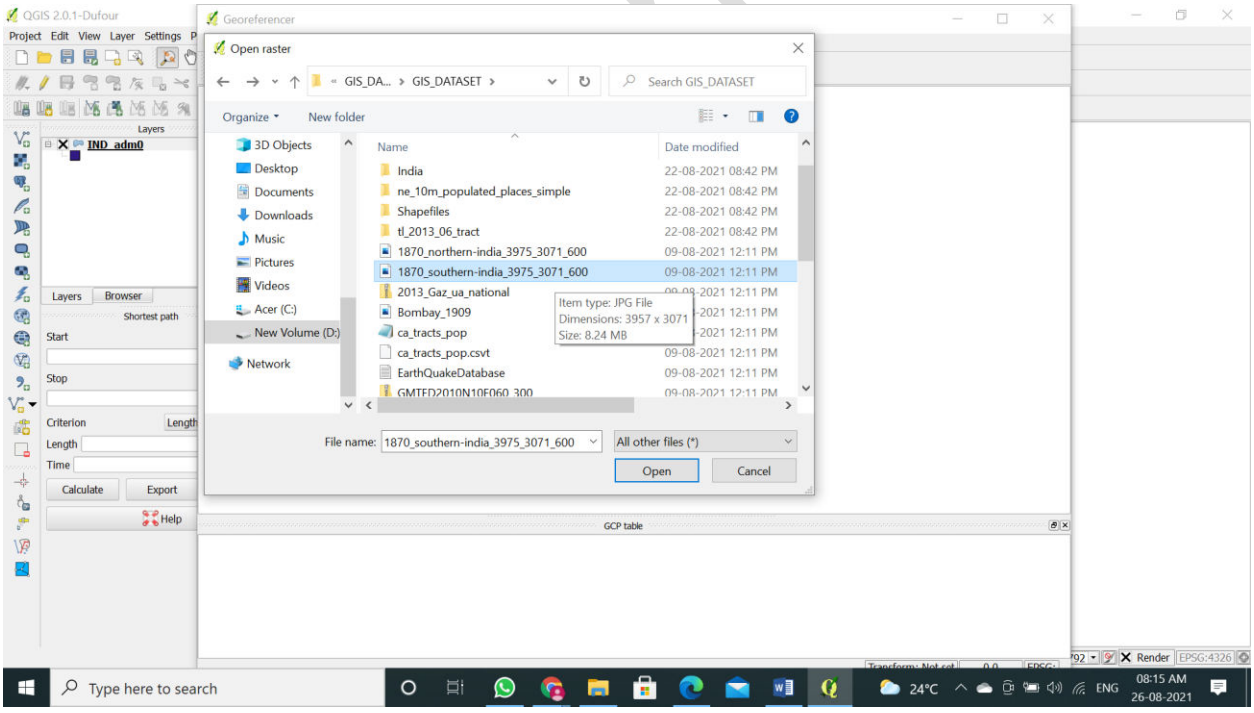
Step 4: Go to Raster → Georefrencer Georeference



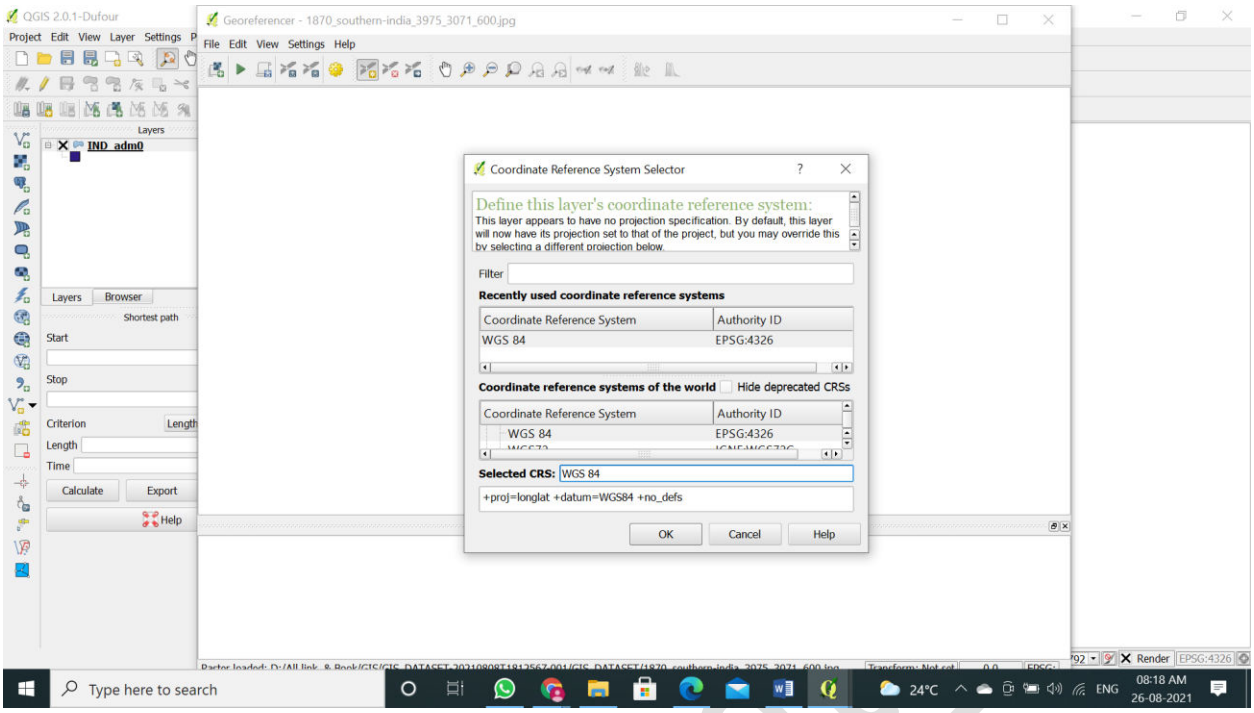
Step 5: File → Open Raster

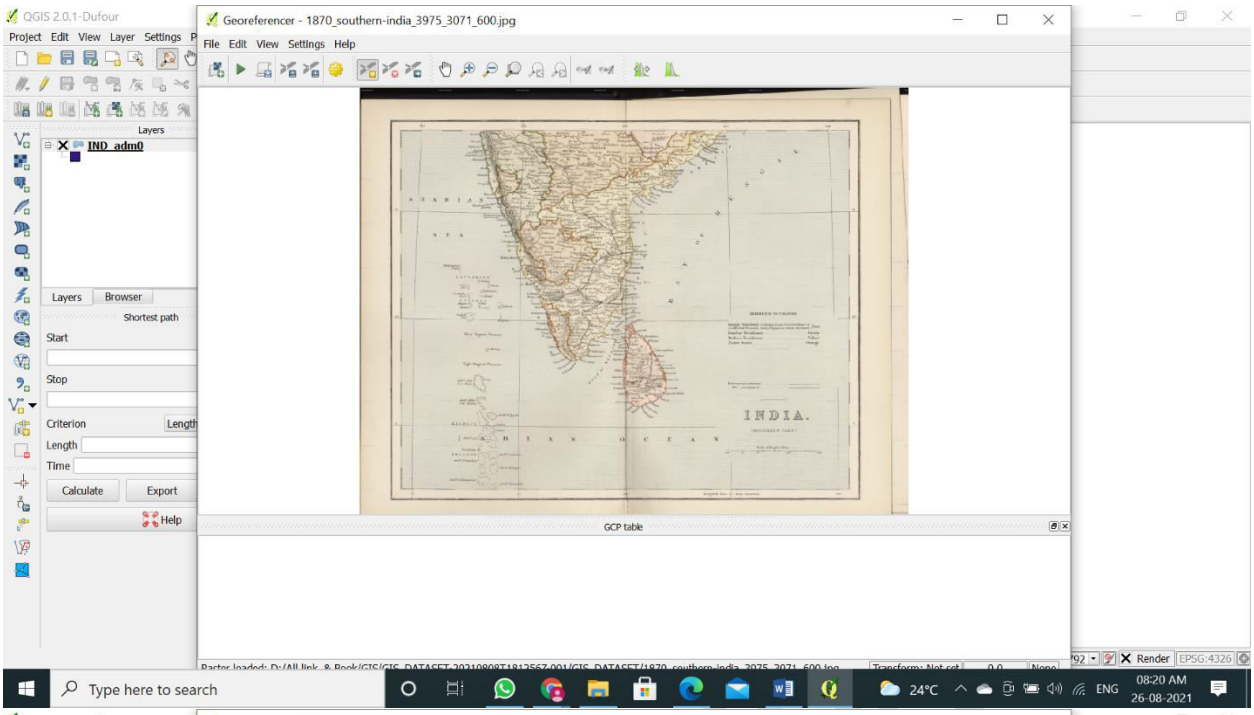


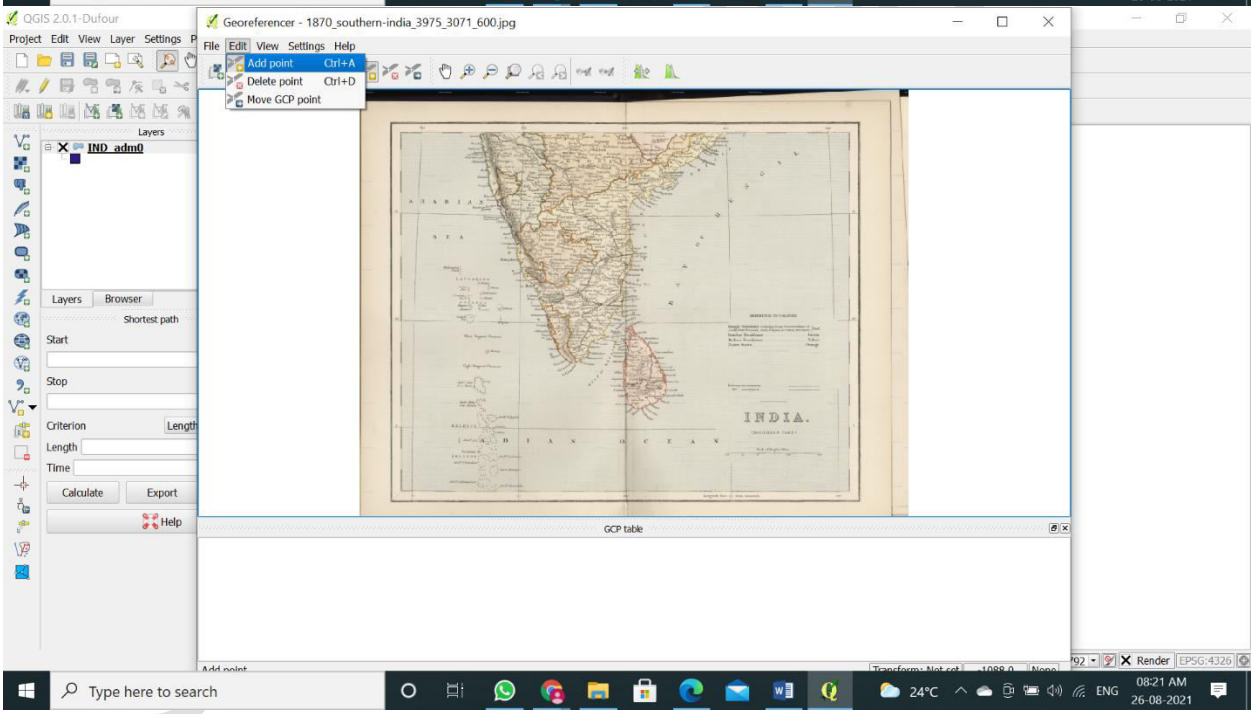
Step 6: Select file “1870_southern-india_3975_3071_600.jpg” from project data folder

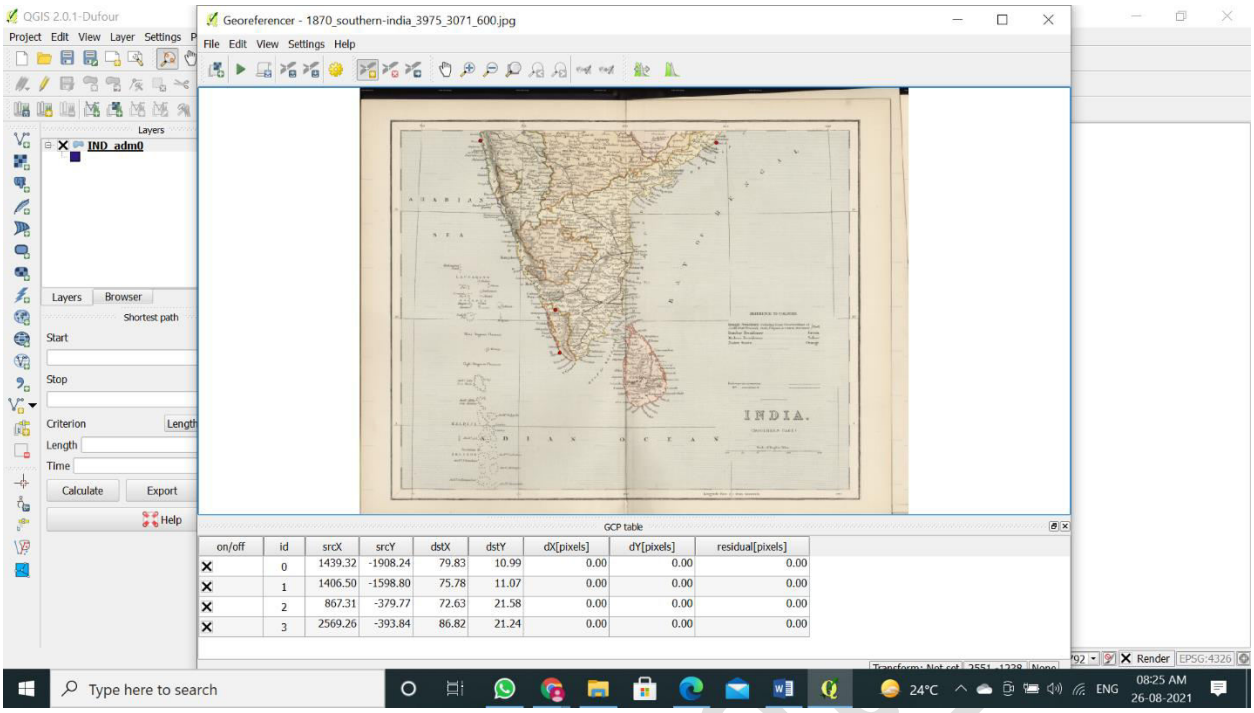


Step 7: In Georeferencer window Go to Edit → Add Points (**NO** DIALOG BOX WILL BE OPENED, CLICK ANYWHERE ON IMAGE LOADED, SELECT BUTTON **“FROM MAP CANVAS”** AND CLICK ON ANY POINT IN THE ORIGINAL MAP IN **MUMBAI REGION**) (ADD 4 POINTS)


QGIS 2.0.1-Dufour
Project Edit View Layer Settings
Georeferencer - 1870_southern-india_3975_3071_600.jpg
File Edit View Settings Help
Layers
IND_adm0
Layers Browser
Shortest path
Start
Stop
Criterion
Length
Time
Calculate
Export
Help
Coordinate Reference System Selector
Define this layer's coordinate reference system:
This layer appears to have no projection specification. By default, this layer will now have its projection set to that of the project, but you may override this by selecting a different projection below.
Filter
Recently used coordinate reference systems
Coordinate Reference System
Authority ID
WGS 84
EPSG:4326
Coordinate reference systems of the world
Hide deprecated CRSs
Selected CRS: WGS 84
+proj=longlat +datum=WGS84 +no_defs
OK
Cancel
Help
Render
EPSG:4326
Type here to search
24°C
ENG
08:18 AM
26-08-2021


QGIS 2.0.1-Dufour
Project Edit View Layer Settings
Georeferencer - 1870_southern-india_3975_3071_600.jpg
File Edit View Settings Help
Layers
IND_adm0
Layers Browser
Shortest path
Start
Stop
Criterion
Length
Time
Calculate
Export
Help
INDIA.
GCP table
Type here to search
24°C
ENG
08:20 AM
26-08-2021


QGIS 2.0.1-Dufour
Project Edit View Layer Settings
Georeferencer - 1870_southern-india_3975_3071_600.jpg
File Edit View Settings Help
Add point Ctrl+A
Delete point Ctrl+D
Move GCP point
Layers
IND_adm0
Layers Browser
Shortest path
Start
Stop
Criterion
Length
Time
Calculate
Export
Help
INDIA.
GCP table
Type here to search
24°C
ENG
08:21 AM
26-08-2021



Step 8: Go to Settings →Transformation Settings

Select Transformation type → Thin Plate Spline

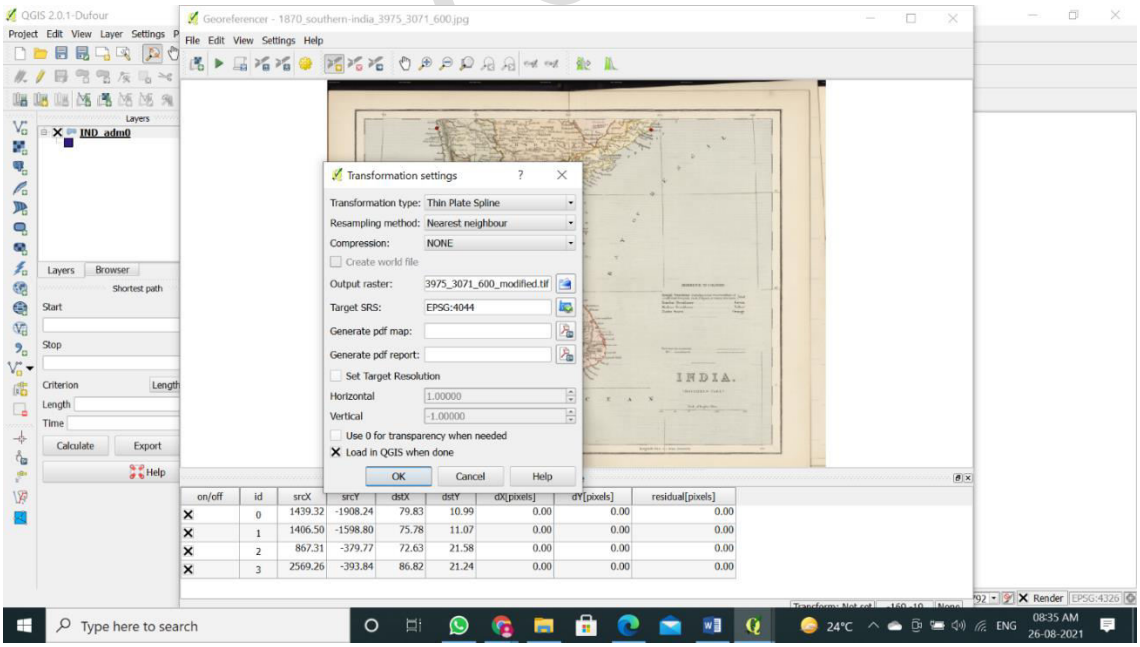
Re-sampling Method → Nearest Neighbour

Target TRS → Everest 1830 datum: EPSG 4044

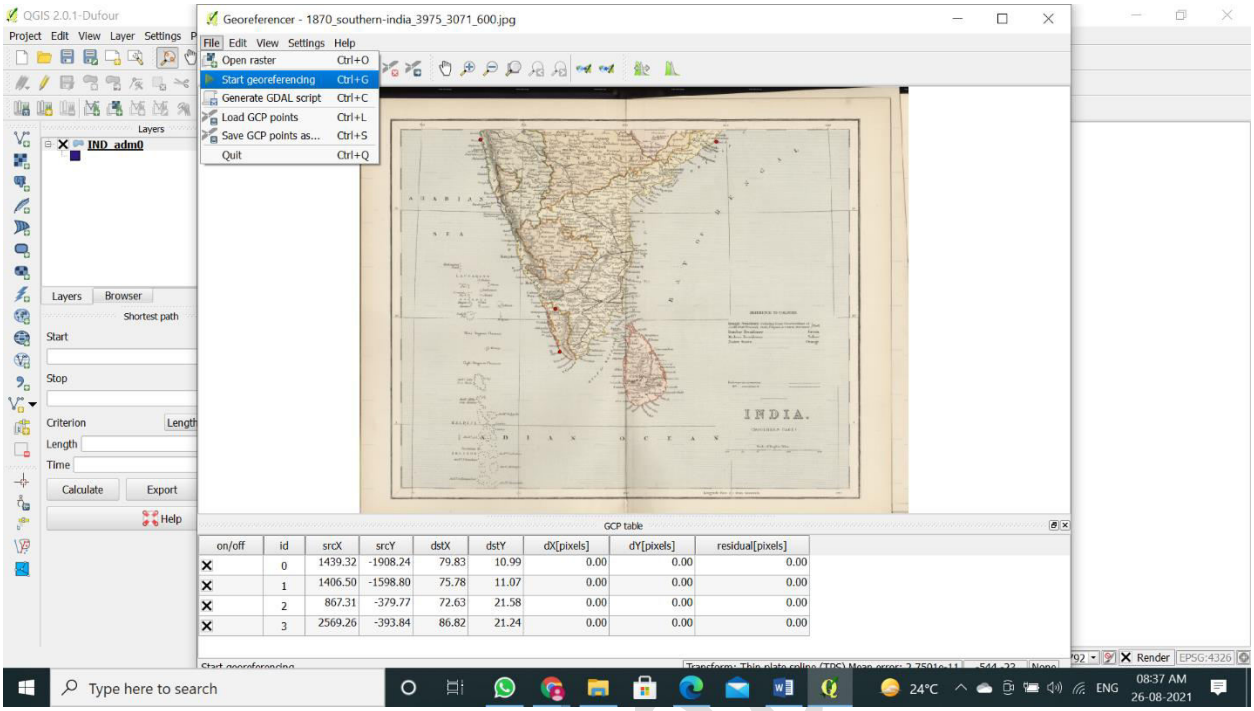
Select Output Raster: **MODIFIED.TIF**

Check the Load in QGIS When Done Option

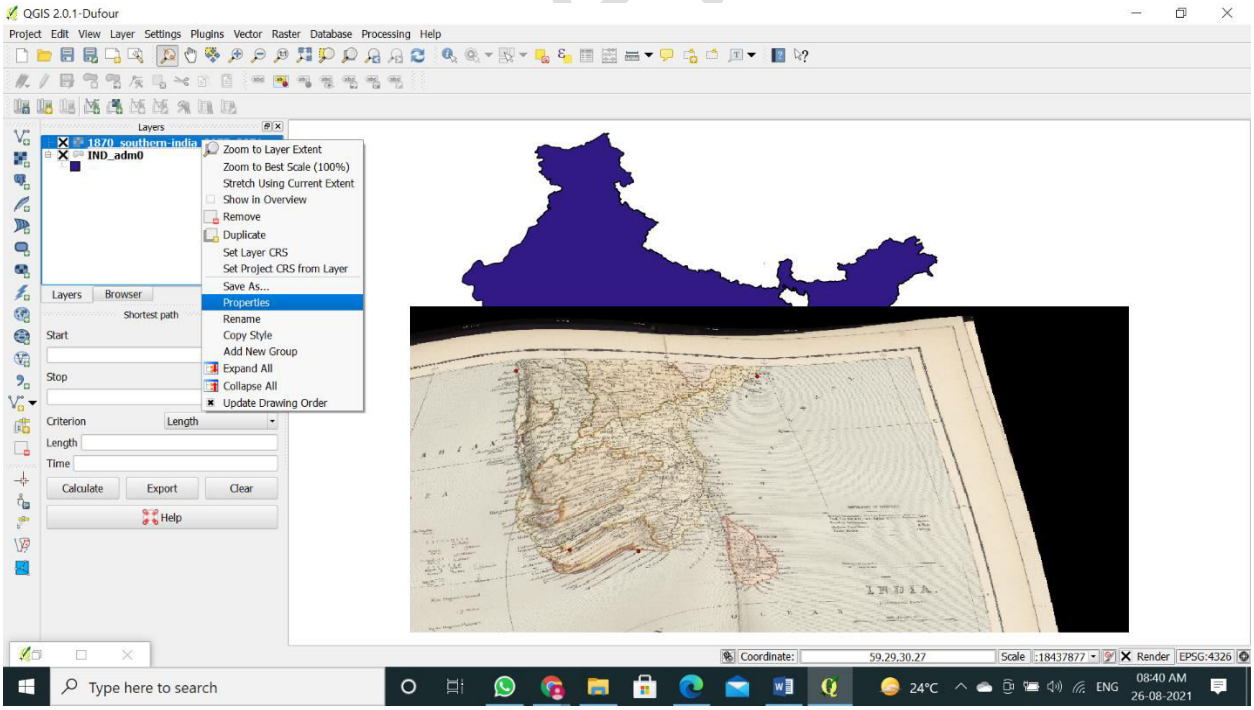
Press “OK”.



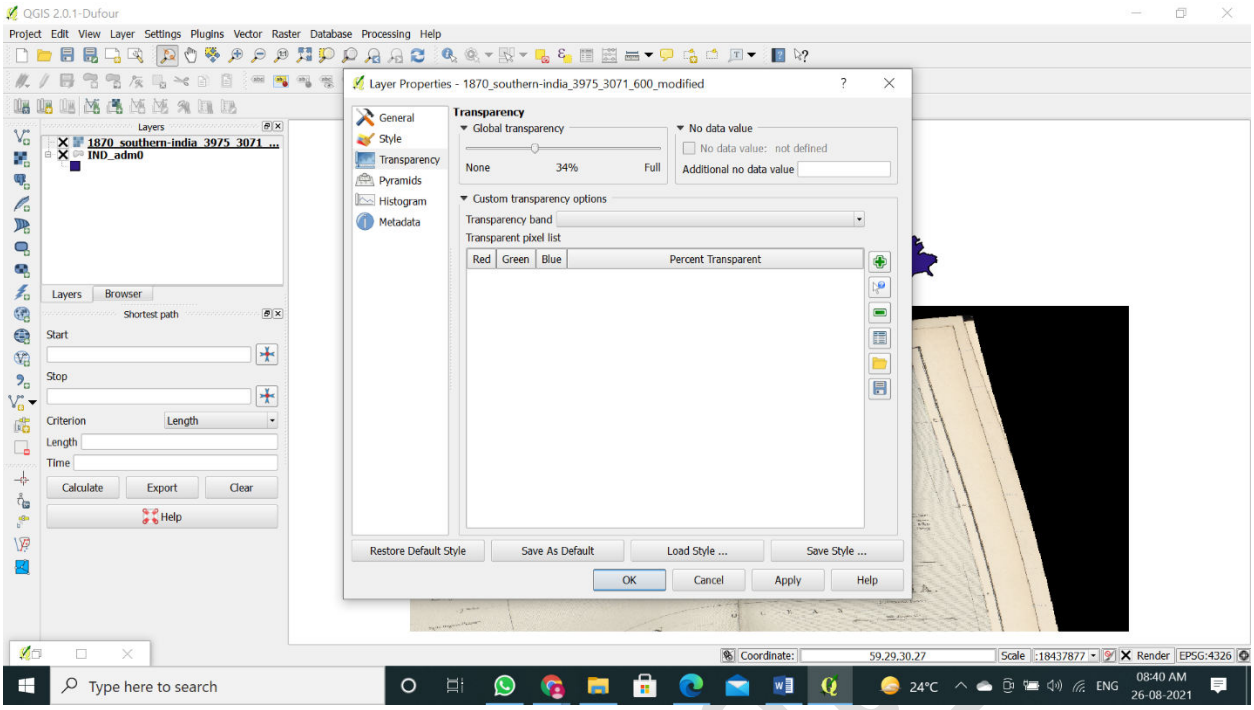
Step 9: In Georeferencing window go to → File → Start Georeferencing



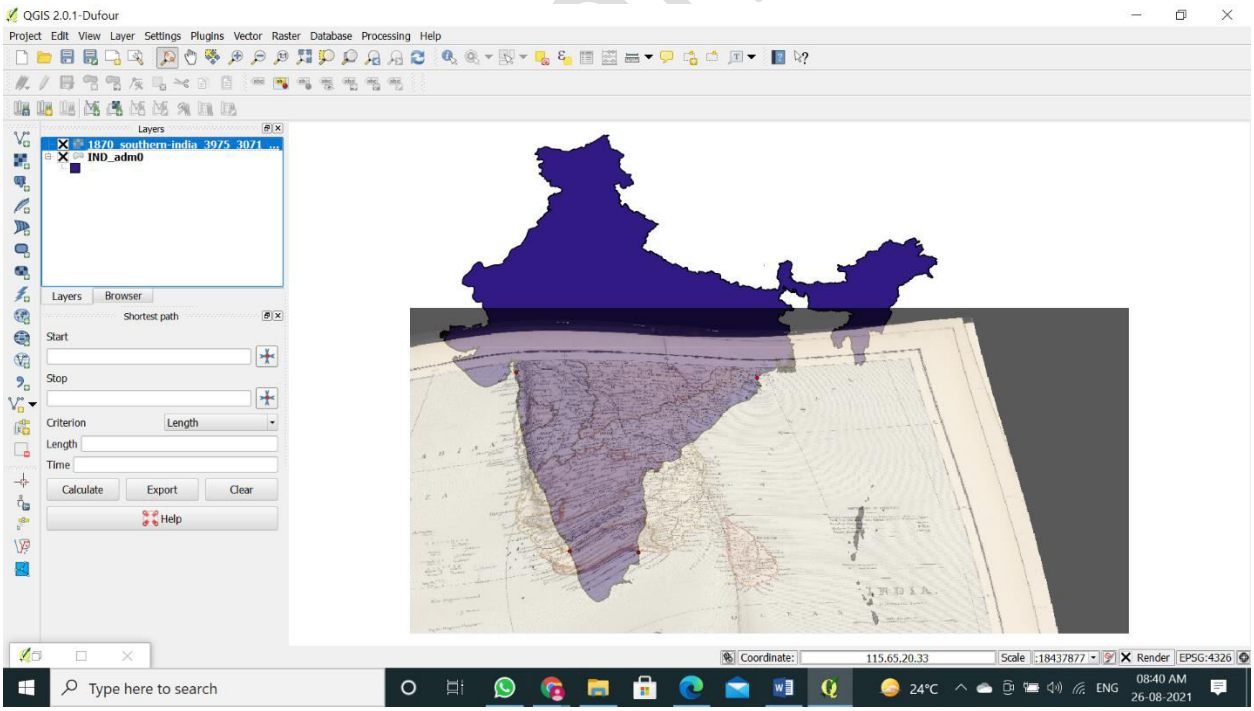
Step 10: Select the newly added layer in Layer Panel Right click and go to property.



Step 11: In TRANSPARENCY TAB Global Opacity to 38%



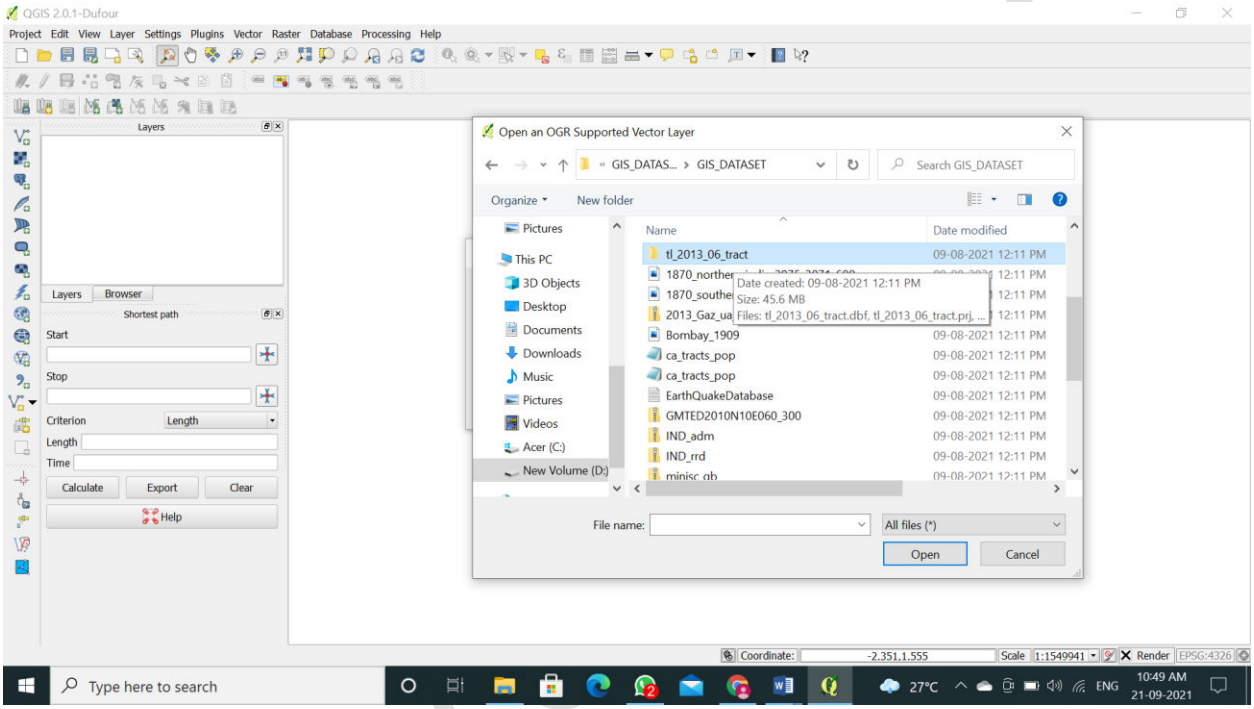
Step 12: The Scanned Image map coincides with the existing map.



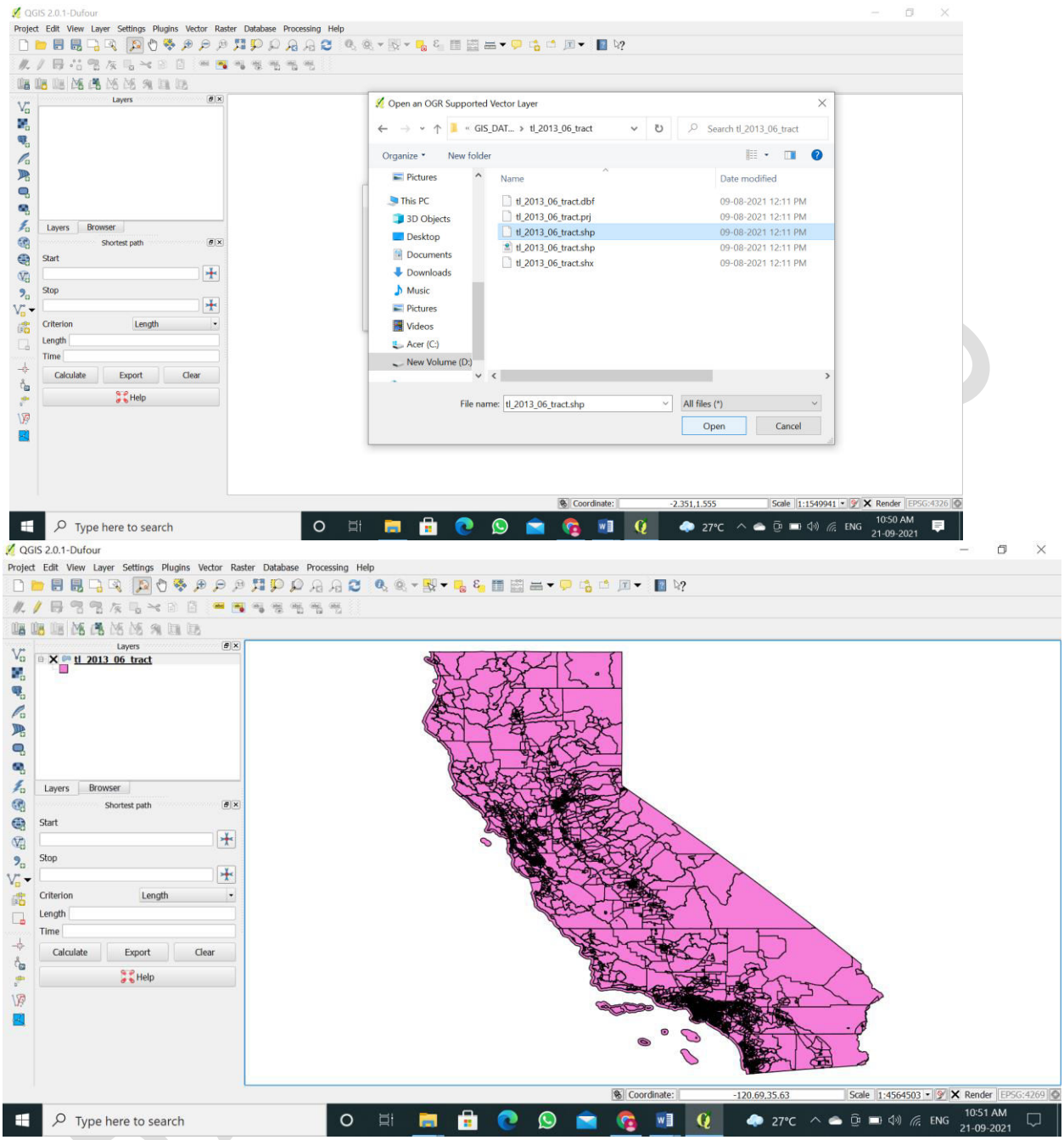
Practical 8A

Aim: Performing Table Joins

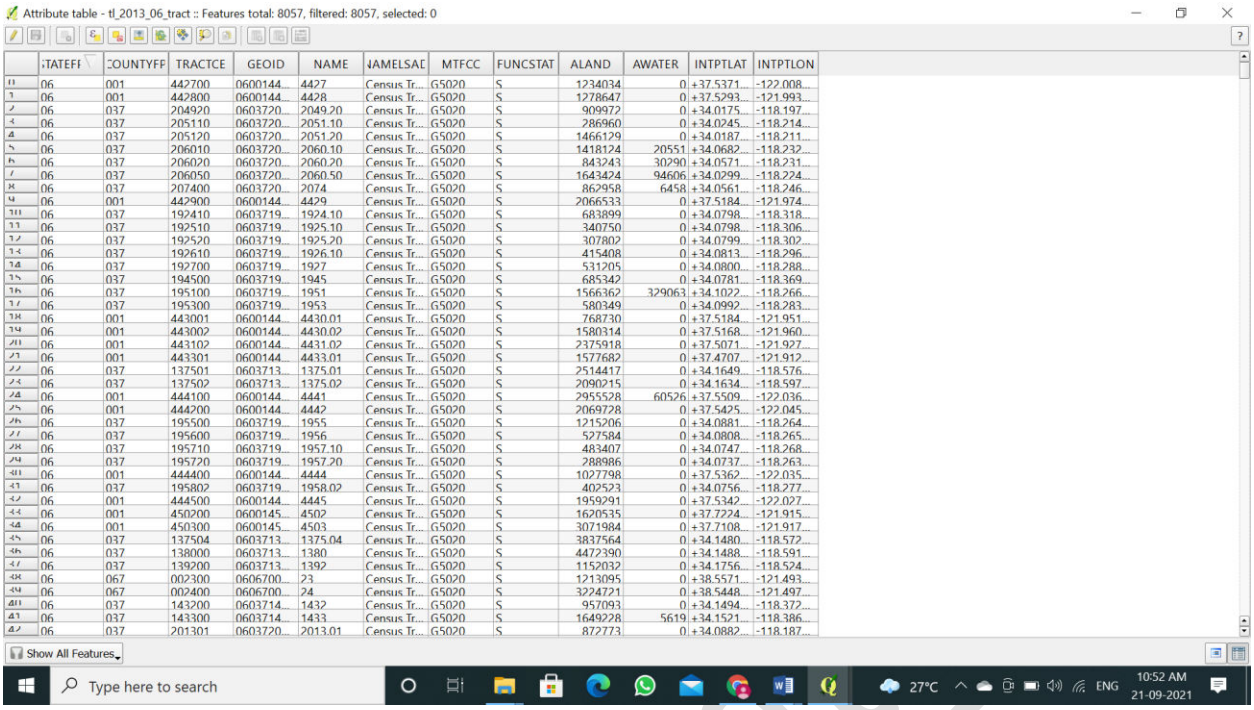
Step 1: Go to Layer ‣ Add Vector Layer. Browse to the downloaded zip fil tl_2013_06_tract.zip and select it.



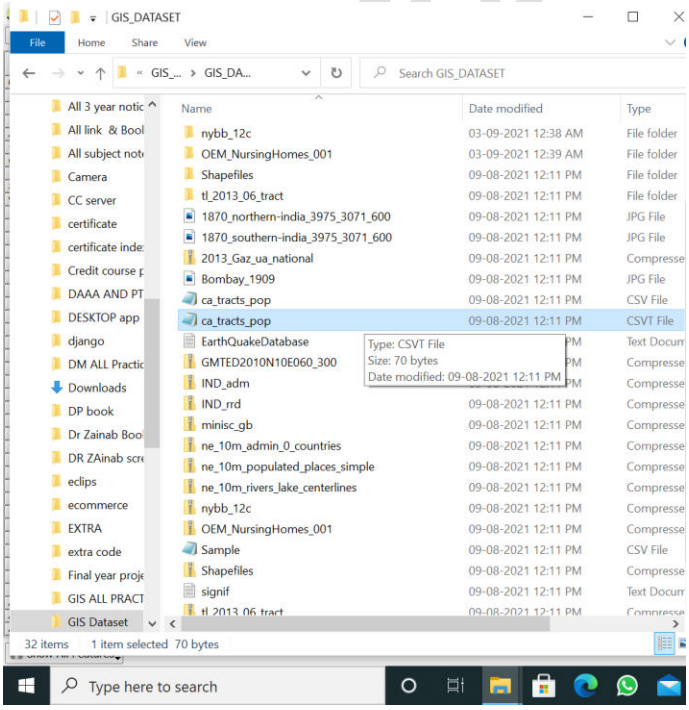
Step 2: Select the tl_2013_06_tract.shp layer and click OK.



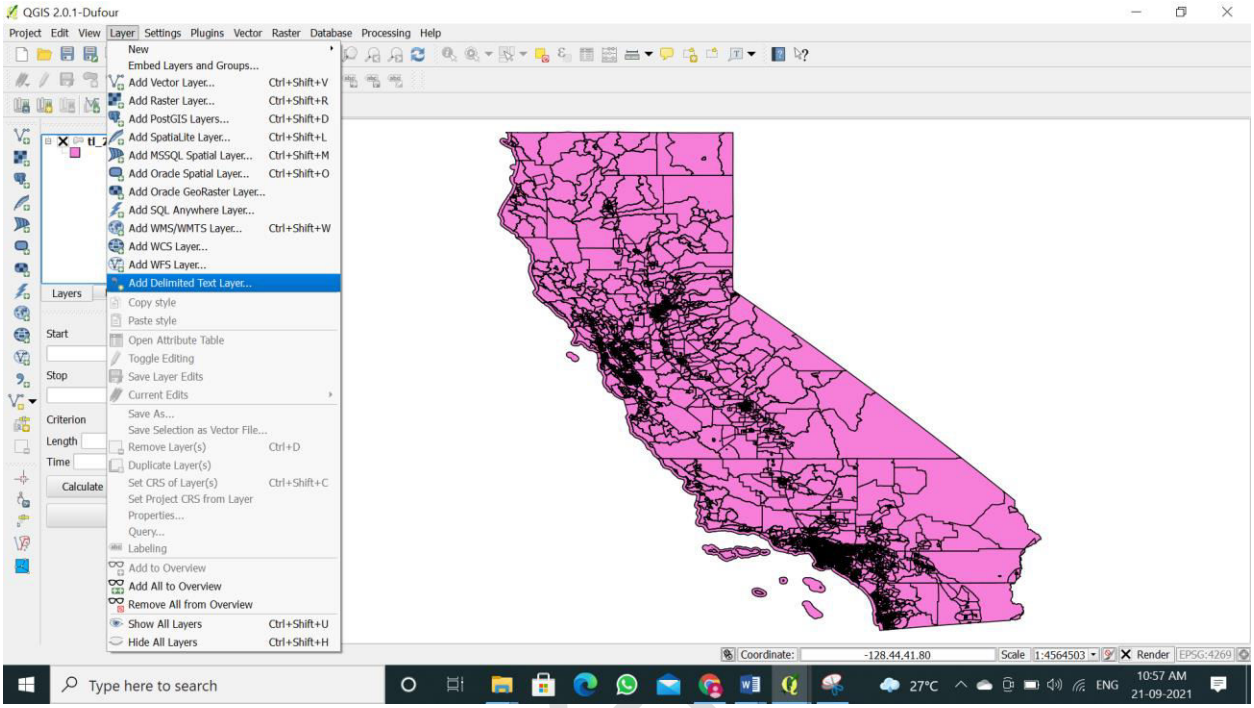
Step 3: Right-click on the layer and select Open Attribute Table NOTE: To join a table with this shapefile, we need a unique and common attribute for each feature. In this case, the GEOID field is a unique identifier for each tract and can be used to link this shapefile with any other table containing the same ID.

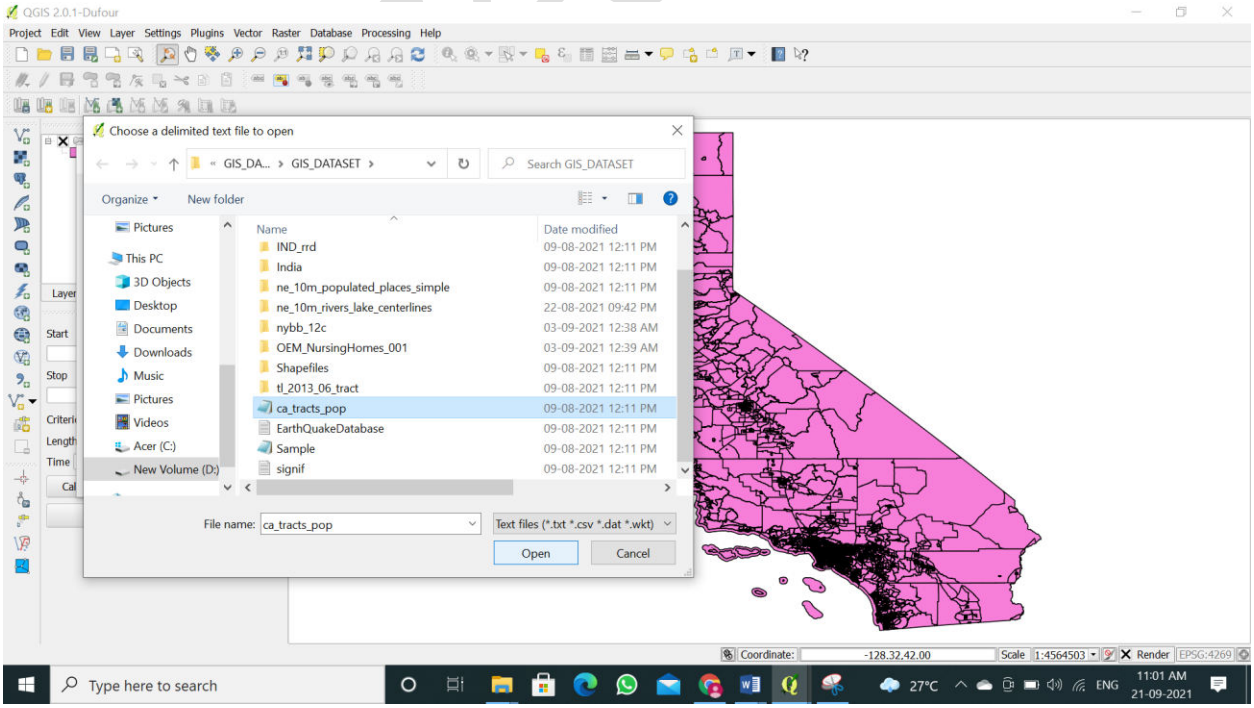


Step 4: To tell QGIS to import the field as a number, we need to create a sidecar file with a .csvt extension. This file will have only 1 row specifying data types for each column. Save this file as ca_tracts_pop.csvt in the same directory as the original .csv file

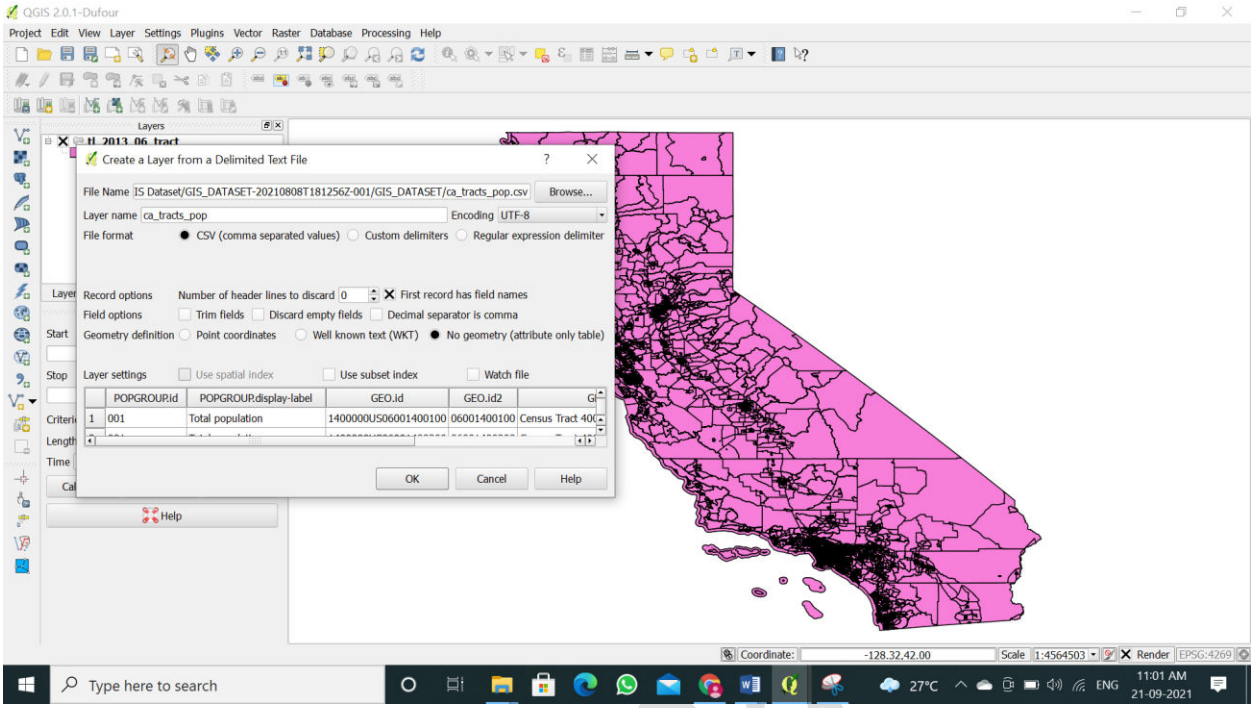


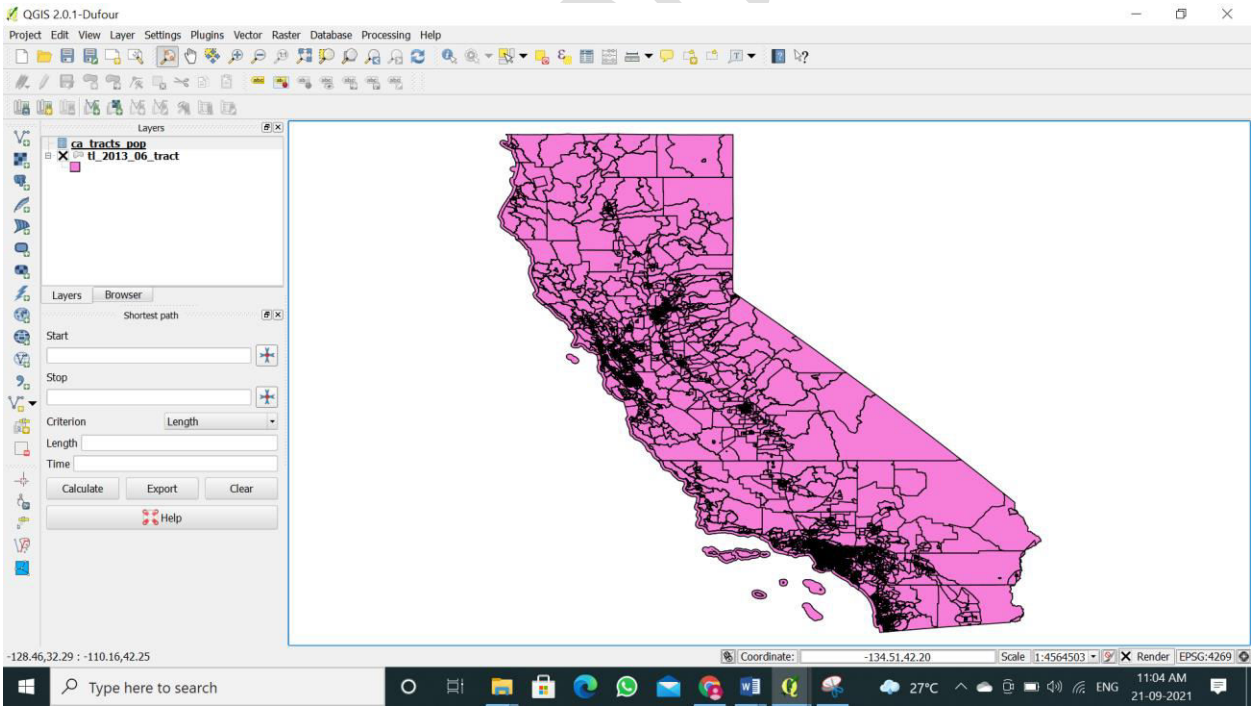
Step 5: Now we are ready to import the CSV file to QGIS. Go to Layer ▸ Add Delimited Text Layer. Browse to the folder containing the CSV file and select it. Make sure you have selected File format as CSV (comma separated values). Since we are importing this as a table, we must specify that our file contains no geometry.



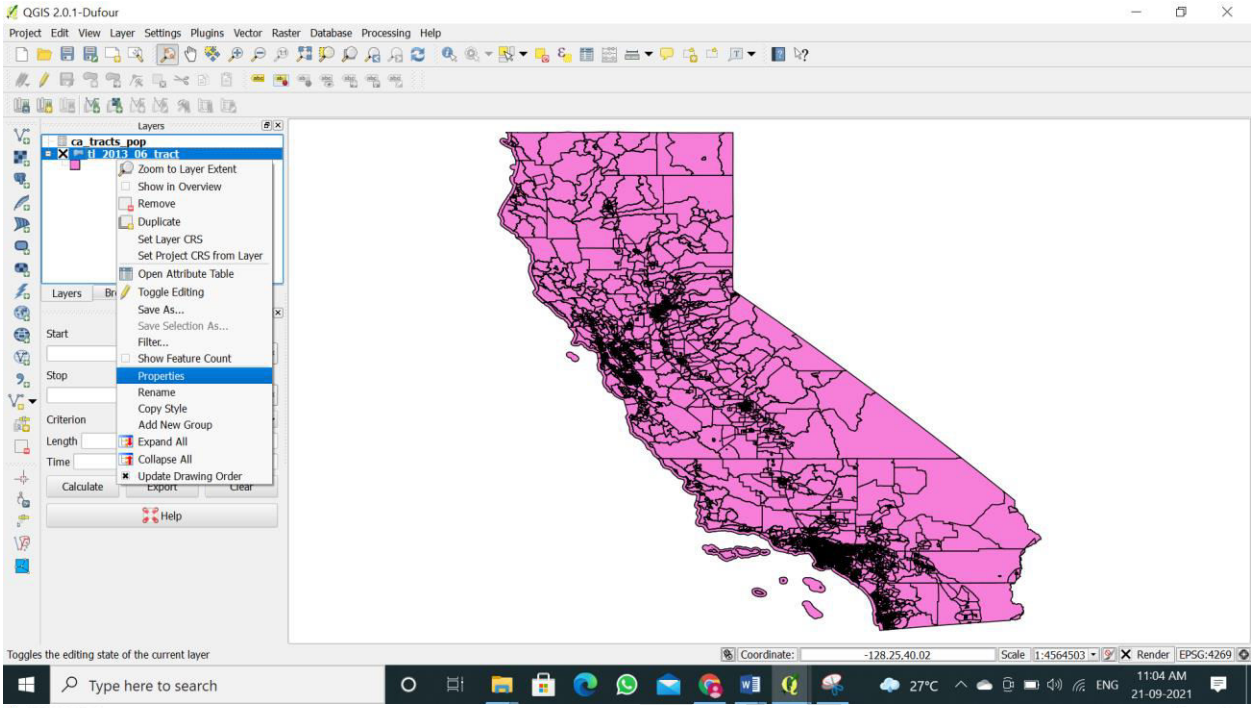


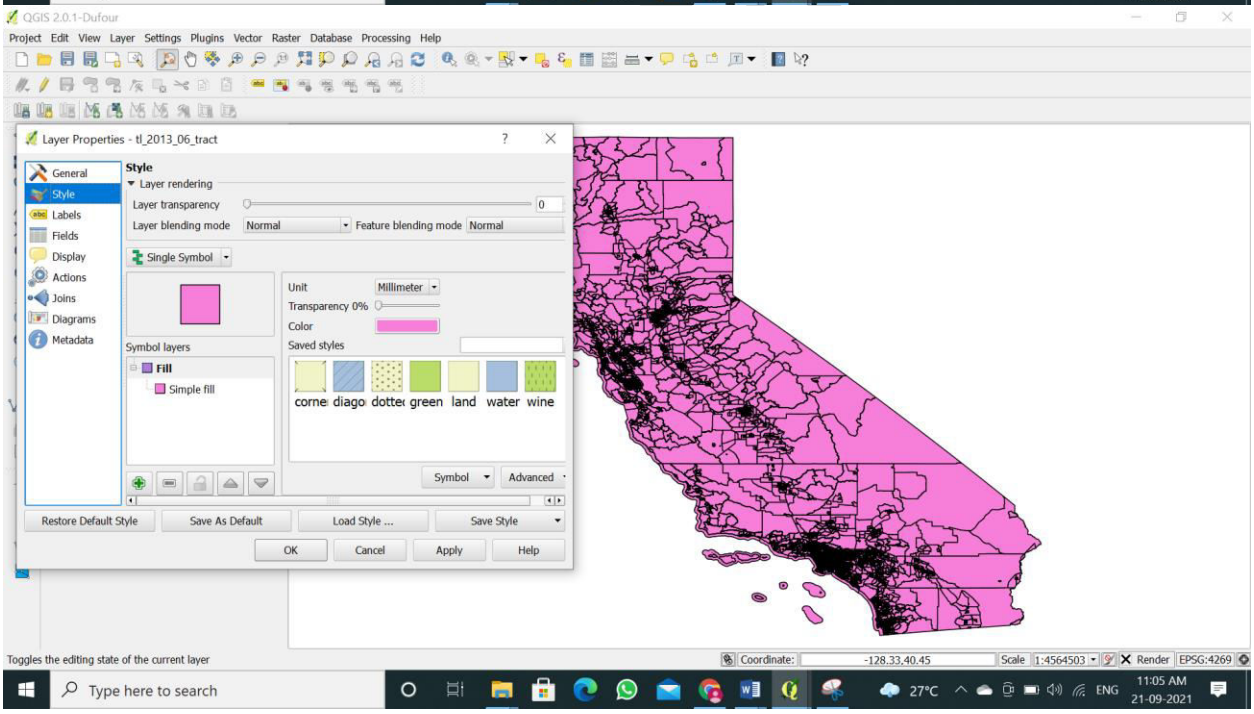
Step 6: Select the No geometry (attribute only table) option. Click OK.



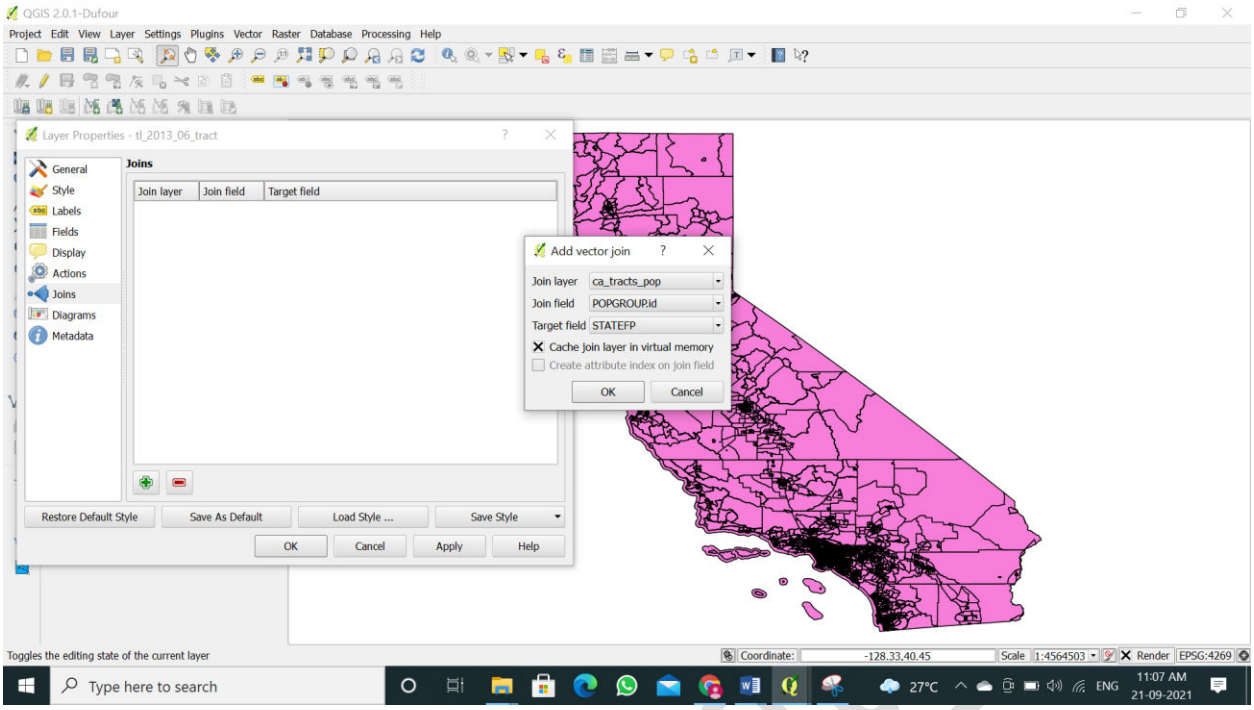


Step 7: Select the tl_2013_06_tract layer. Right-click on it and select Properties .

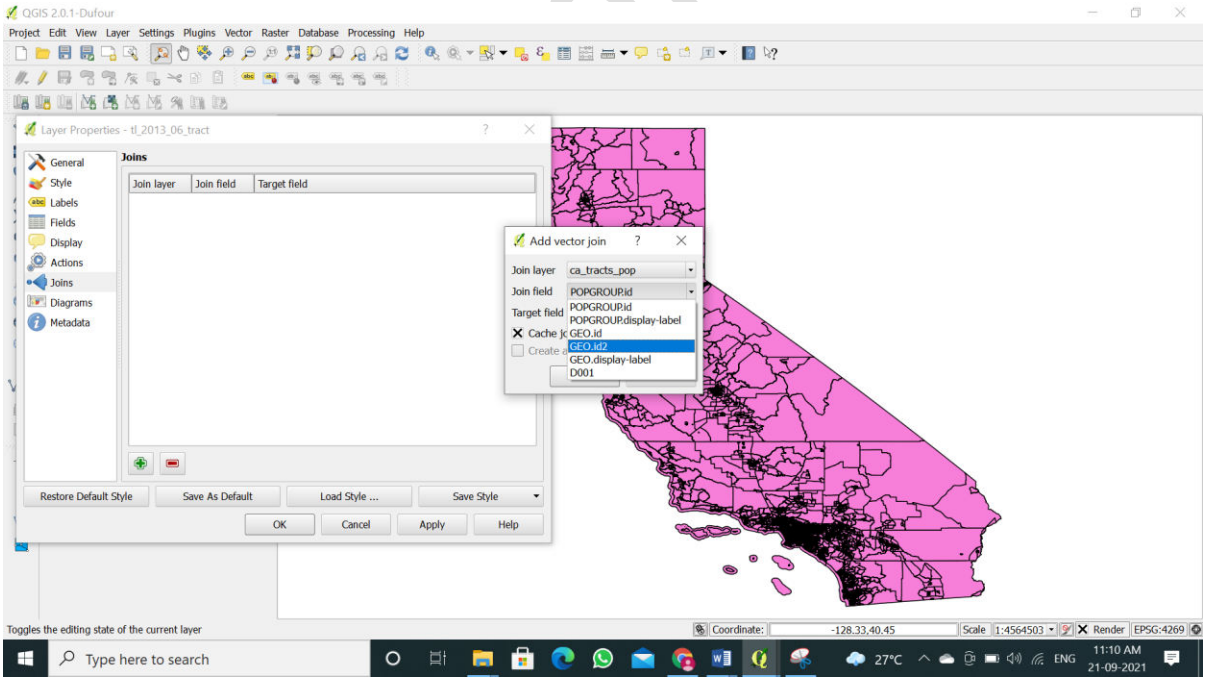


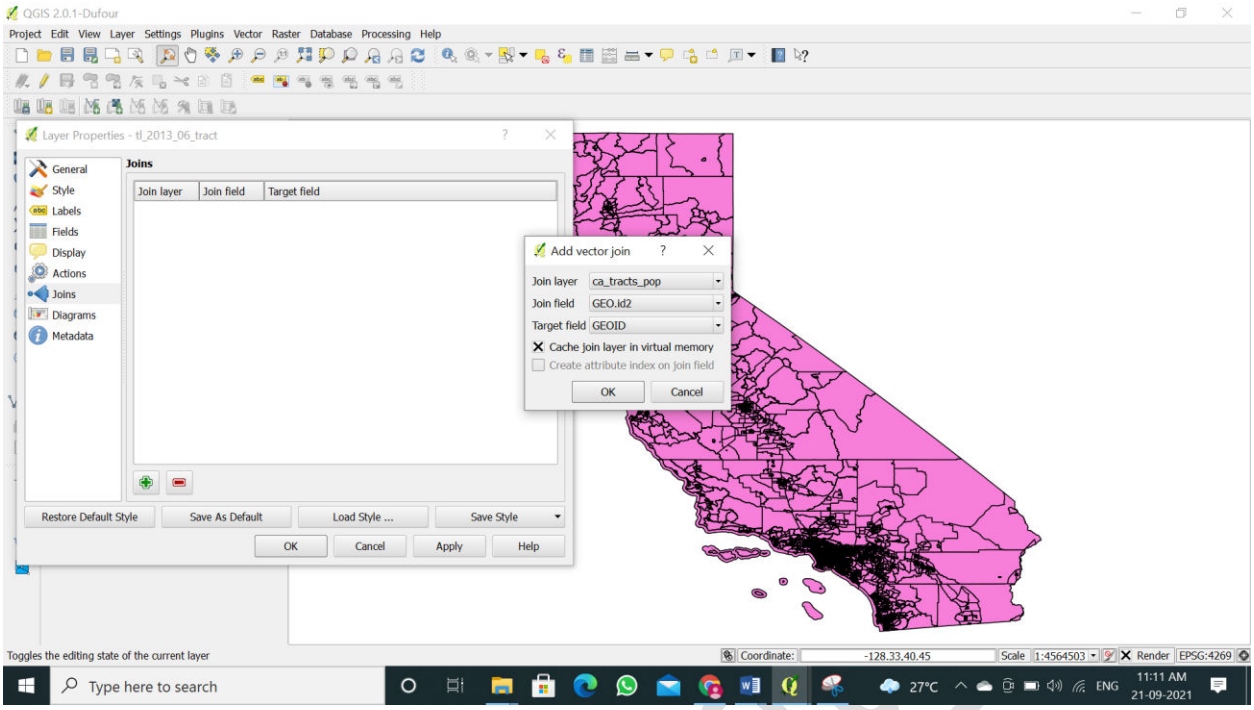


Step 8: In the Layer Properties dialog, select the Joins tab. Click on the + button at the bottom to create a new table join.

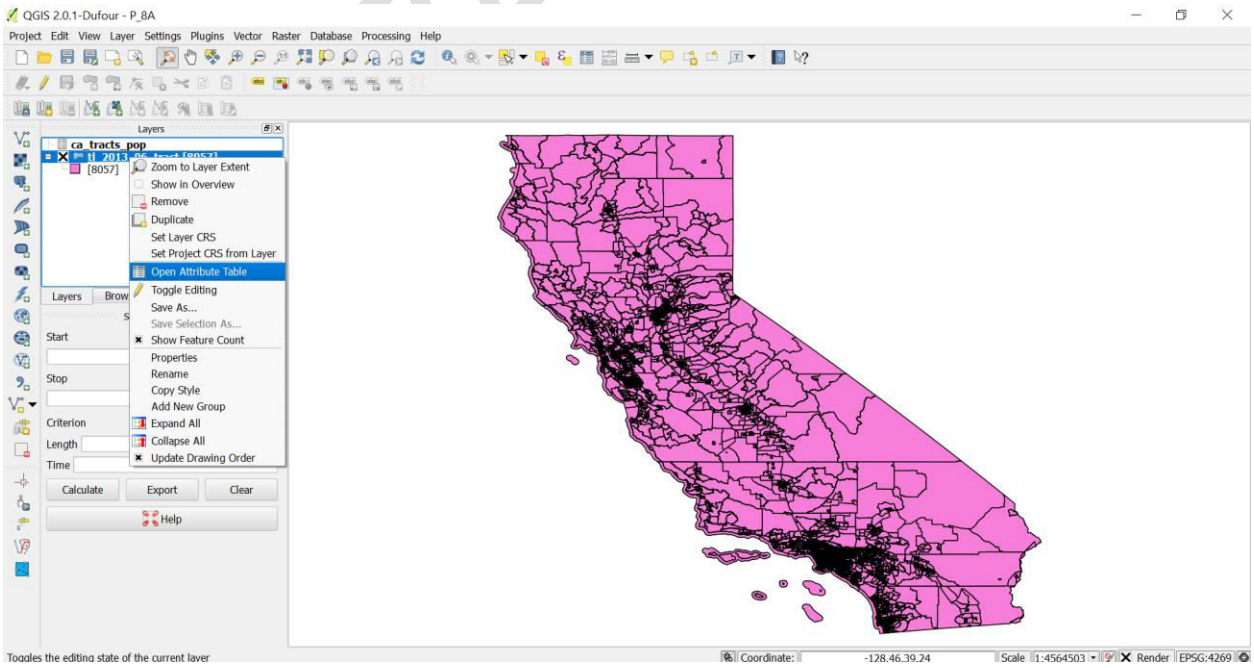


Step 9: In the Add vector join dialog, select ca_tracts_pop as the Join layer. Next we have to select the field with unique ids in both the shapefile and the CSV. Select GEO.id2 and GEOID as the Join field and Target field respectively. Click OK.

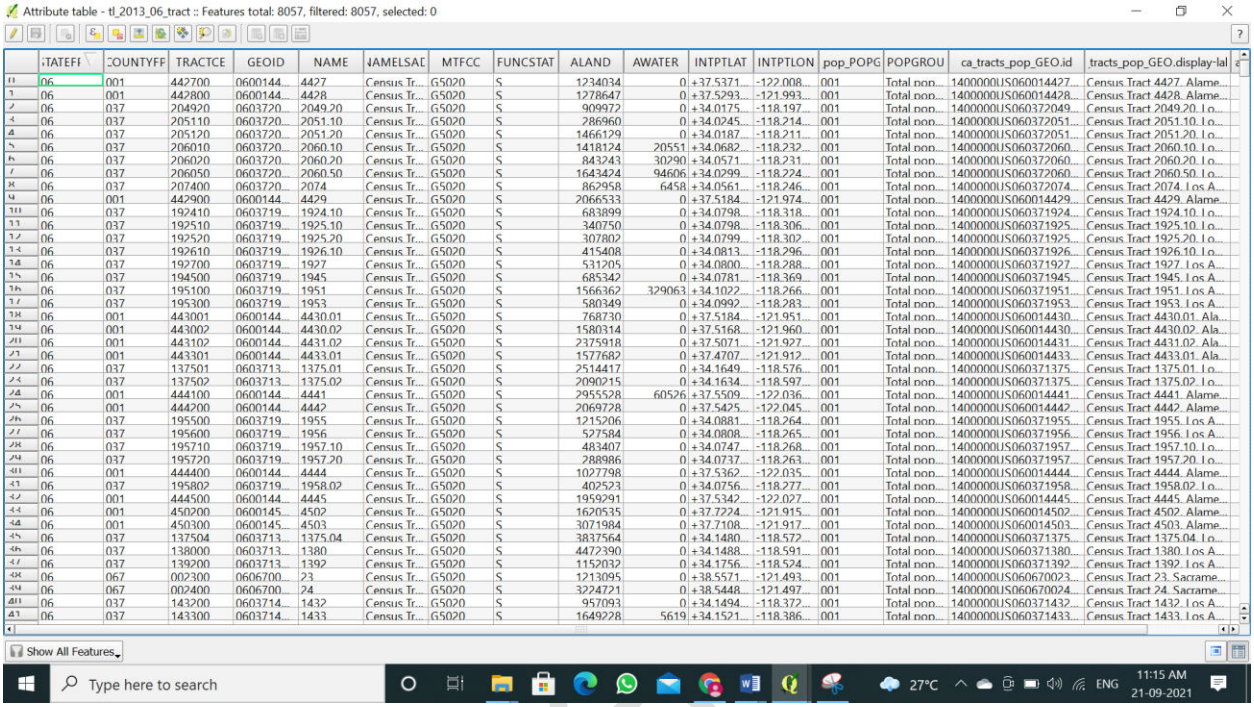




Step 10: Close the Layer Properties dialog and return to the main QGIS window. At this point, the fields from the CSV file are joined with the shapefile. Right-click on the tl_2013_06_tract layer and select Open Attribute Table.



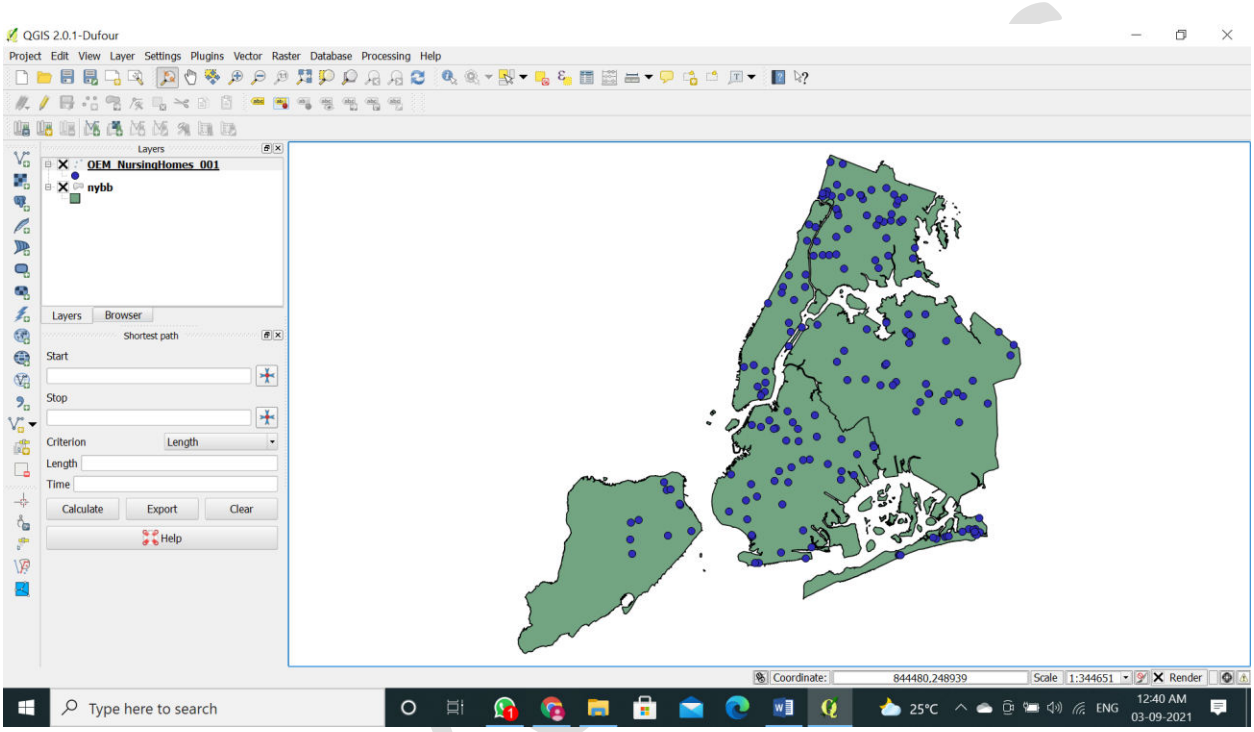
Step 11: You can now see a new set of fields, including ca_tracts_pop_D001 field added to each feature. Now you have access to the population value of each tract from the CSV file. Close the attribute table and return to the main QGIS window.



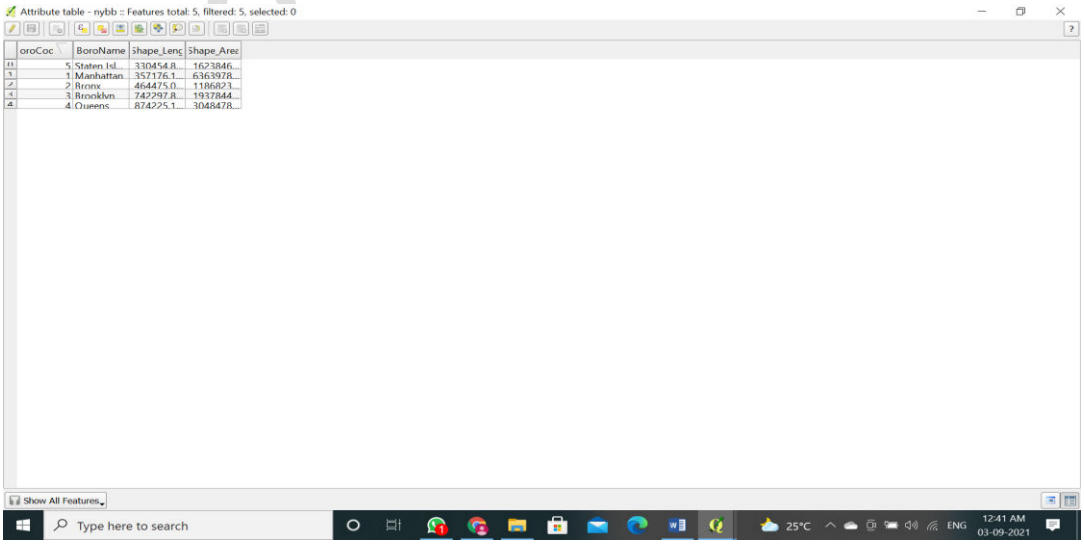
Practical 8B

Aim: Performing Spatial Joins

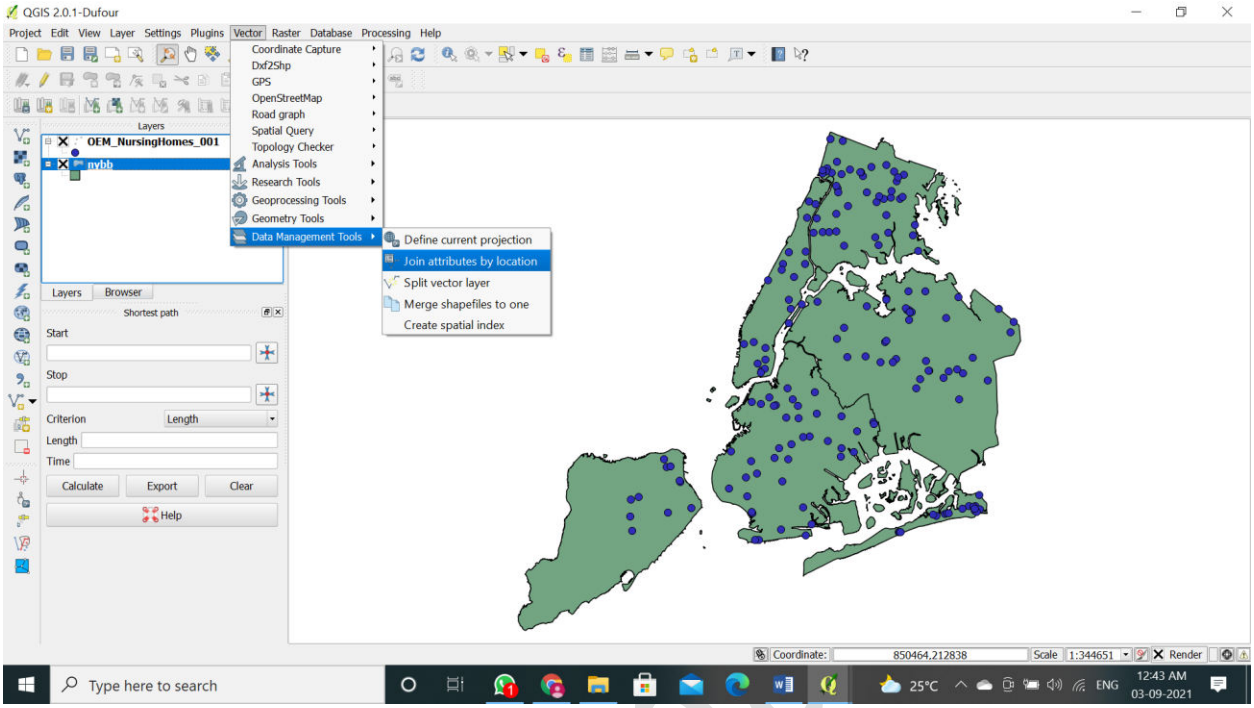
Step 1: Go to Layer → Add Layer → Add Vector Layer → Select nybb.shp" and OEM_NursingHomes_001.shp" from data folder.



Step 2: Go to attribute table and observe the data. (Table before performing Join)



Step 3: Go to Vector → Data Management Tools → Join Attributes by Location



Step 4: Give following Parameters:

Input: nybb

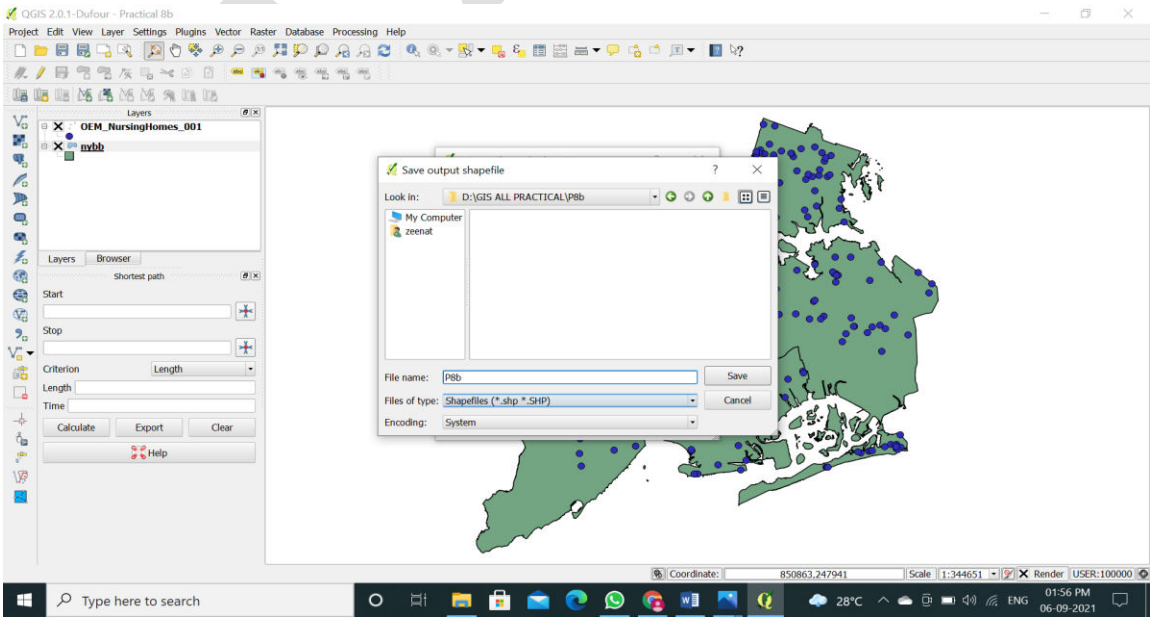
Join layer: OEM_NursingHomes_001

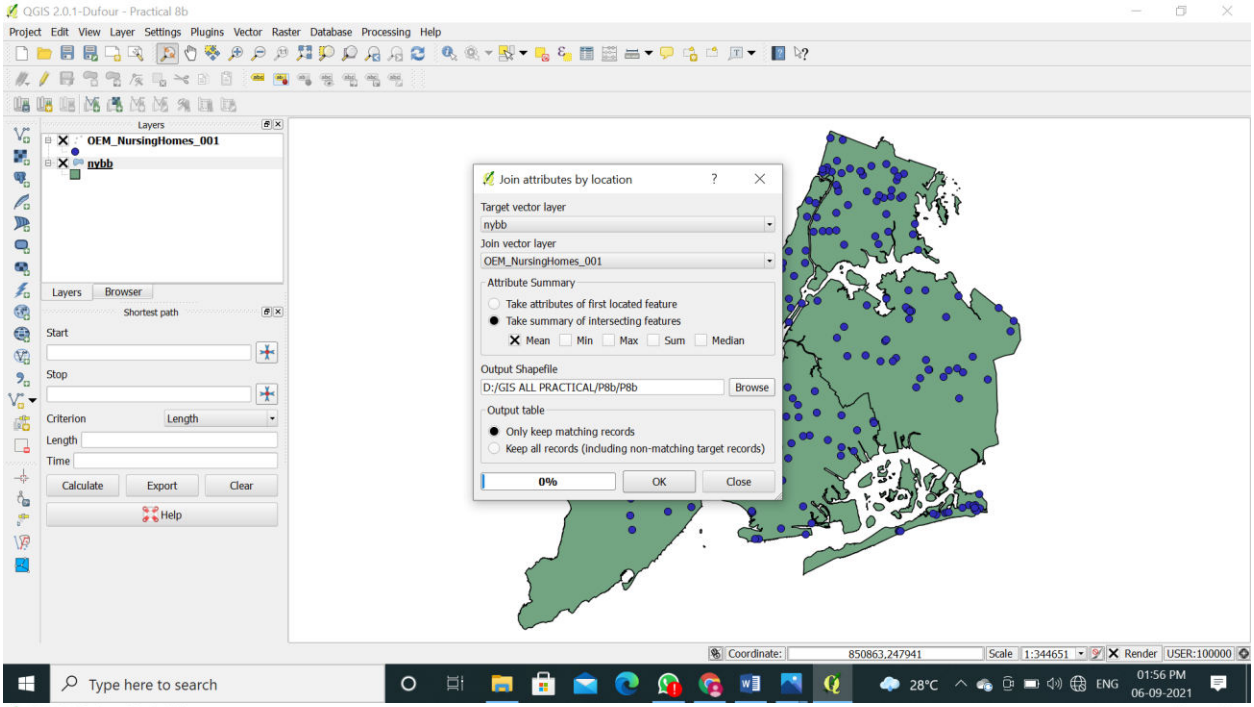
Geometric Predicate: intersects

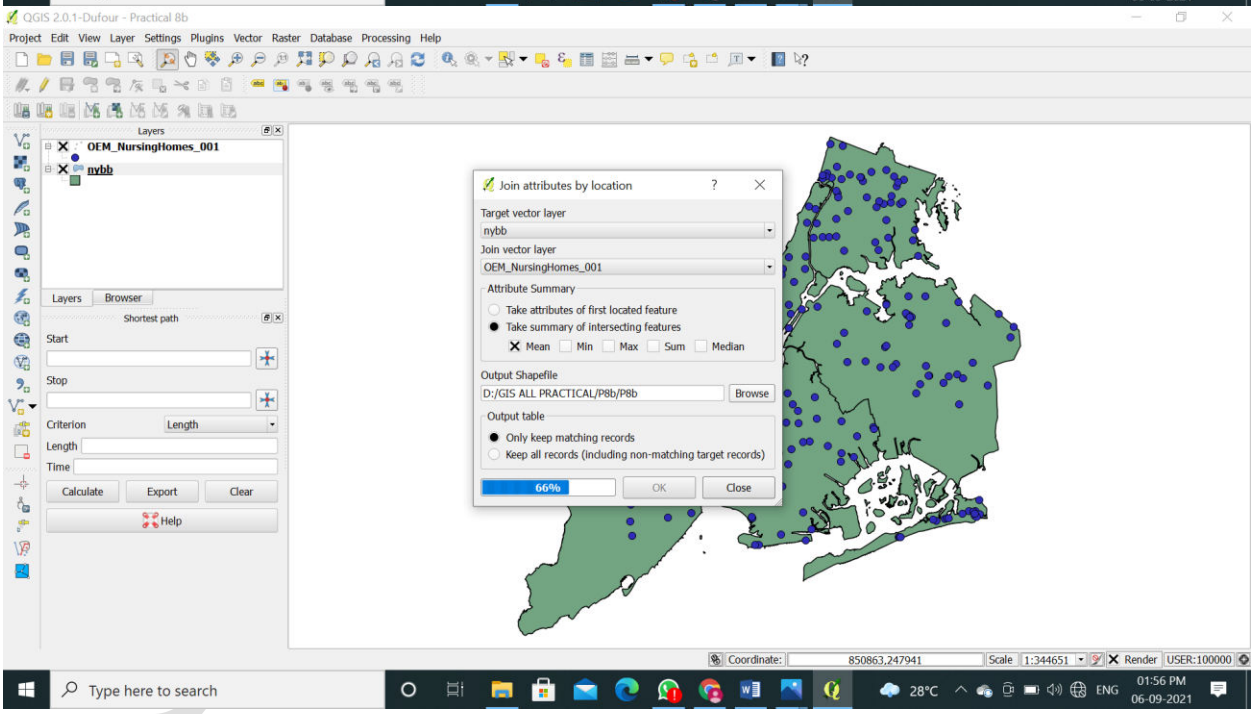
Fields to add: Click on Browse button Select all OK

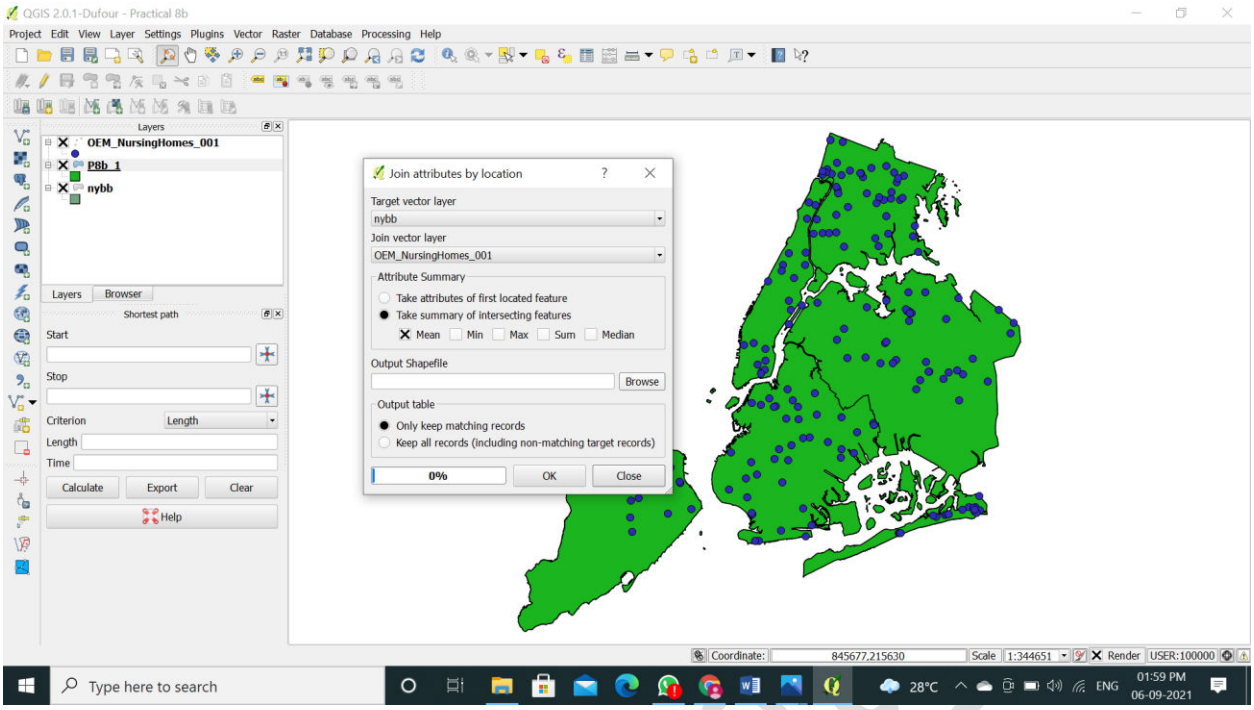
Join type: one to one

Joined layer: Click on browse button Save to file Filename(table_joins)

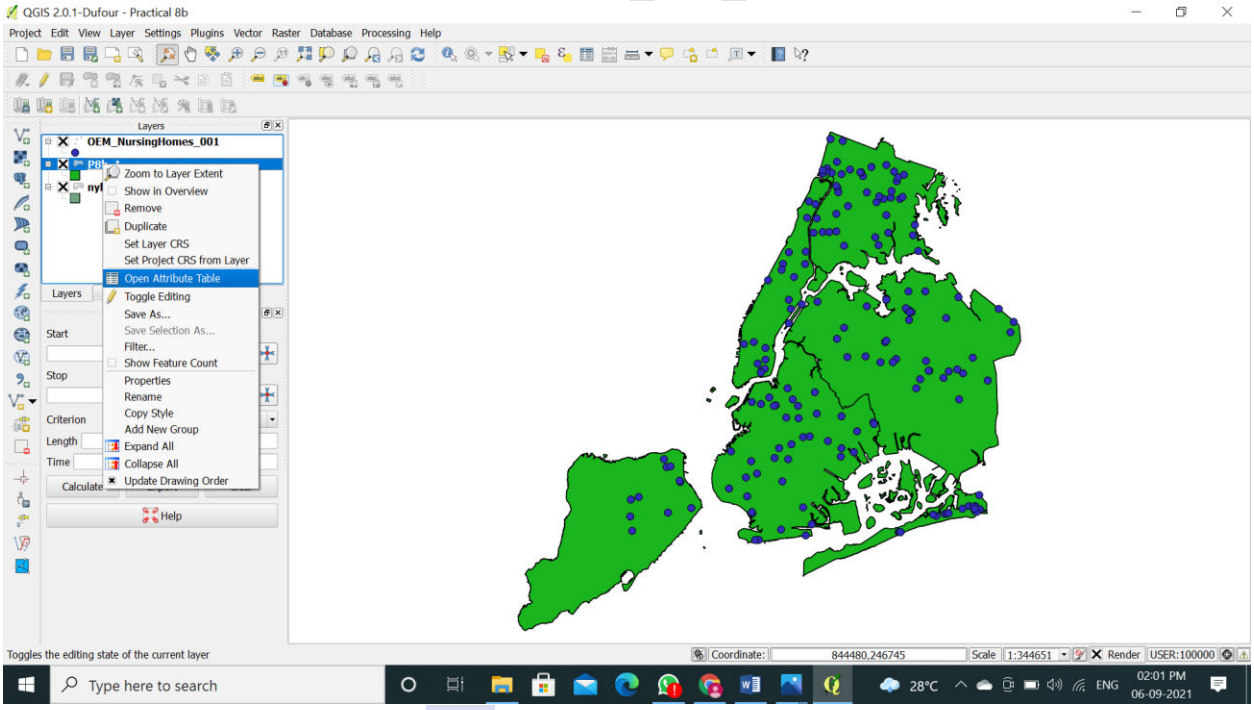



QGIS 2.0.1-Dufour - Practical 8b
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
OEM_NursingHomes_001
nybb
Layers Browser
Shortest path
Start
Stop
Criterion Length
Length
Time
Calculate Export Clear
Help
Join attributes by location
Target vector layer
nybb
Join vector layer
OEM_NursingHomes_001
Attribute Summary
Take attributes of first located feature
Take summary of intersecting features
Mean Min Max Sum Median
Output Shapefile
D:/GIS ALL PRACTICAL/P8b/P8b
Browse
Output table
Only keep matching records
Keep all records (including non-matching target records)
0%
OK
Close
Coordinate: 850863,247941
Scale 1:344651
Render
USER:100000
Type here to search
28°C
ENG
01:56 PM
06-09-2021


QGIS 2.0.1-Dufour - Practical 8b
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
OEM_NursingHomes_001
nybb
Layers Browser
Shortest path
Start
Stop
Criterion Length
Length
Time
Calculate Export Clear
Help
Join attributes by location
Target vector layer
nybb
Join vector layer
OEM_NursingHomes_001
Attribute Summary
Take attributes of first located feature
Take summary of intersecting features
Mean Min Max Sum Median
Output Shapefile
D:/GIS ALL PRACTICAL/P8b/P8b
Browse
Output table
Only keep matching records
Keep all records (including non-matching target records)
66%
OK
Close
Coordinate: 850863,247941
Scale 1:344651
Render
USER:100000
Type here to search
28°C
ENG
01:56 PM
06-09-2021

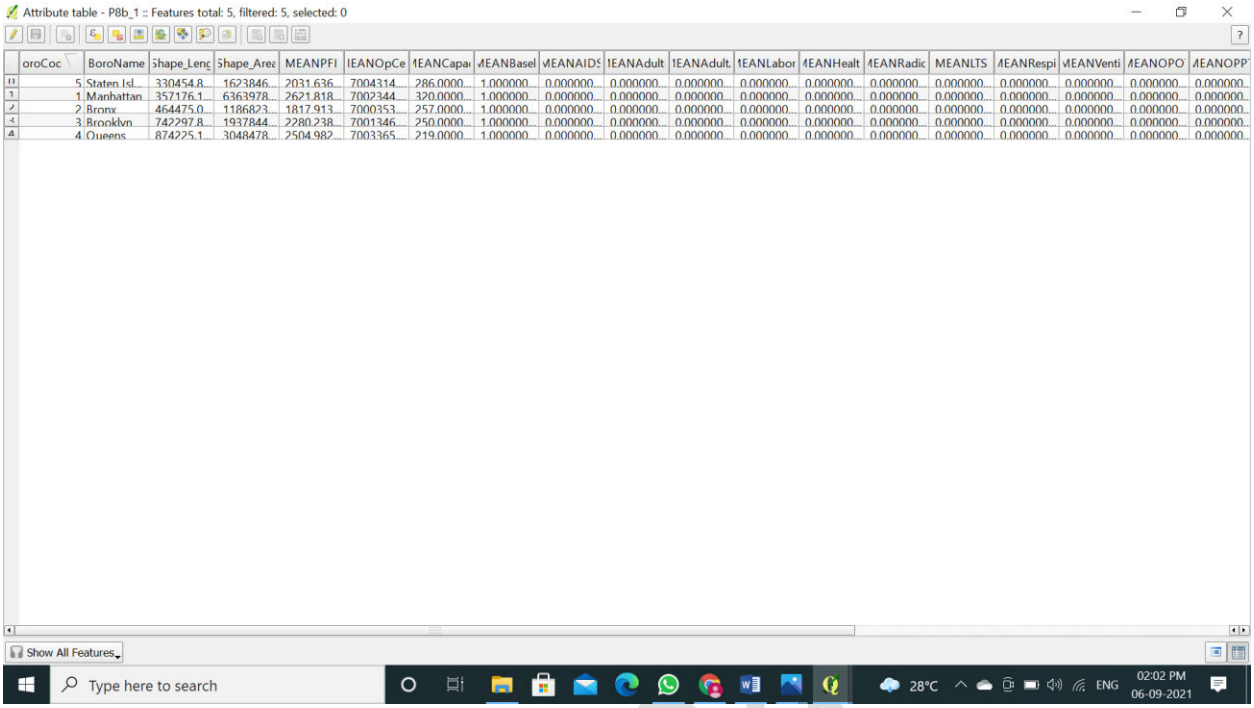


Step 5: Open attribute table AFTER JOIN



Step 6: Use the Identify Feature  Button to select a region to view join data on map Layer.

Step 7: Output

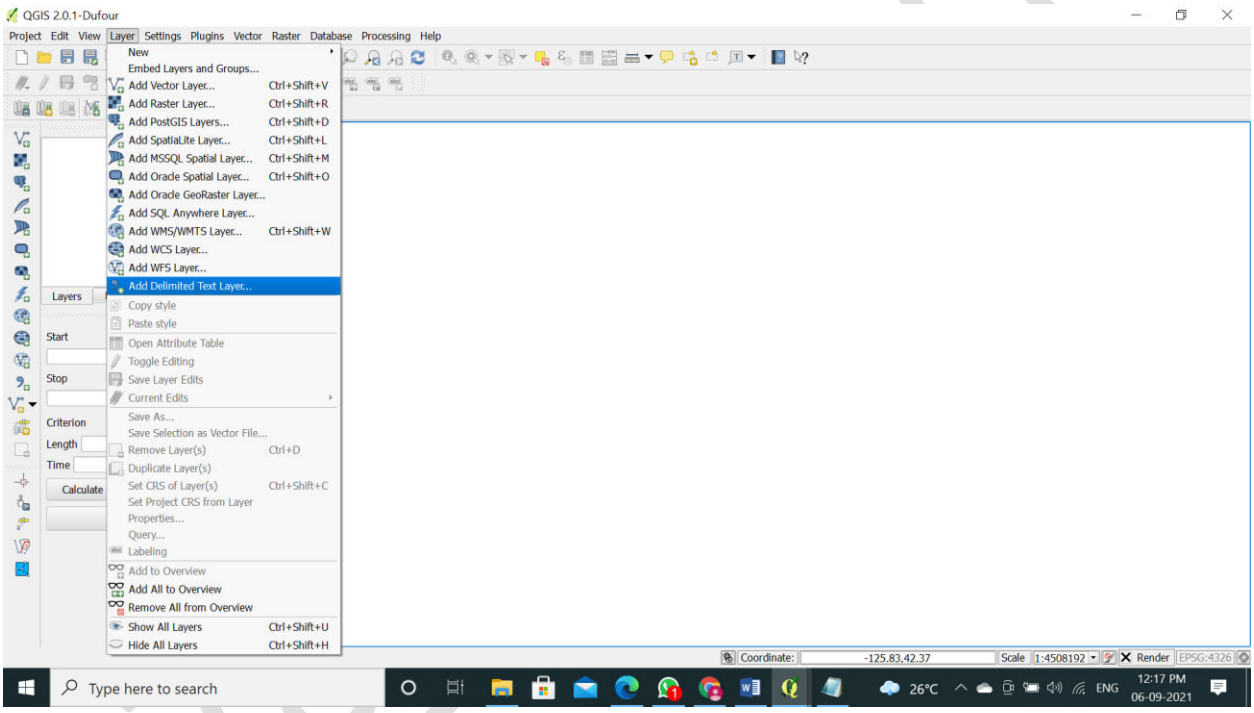


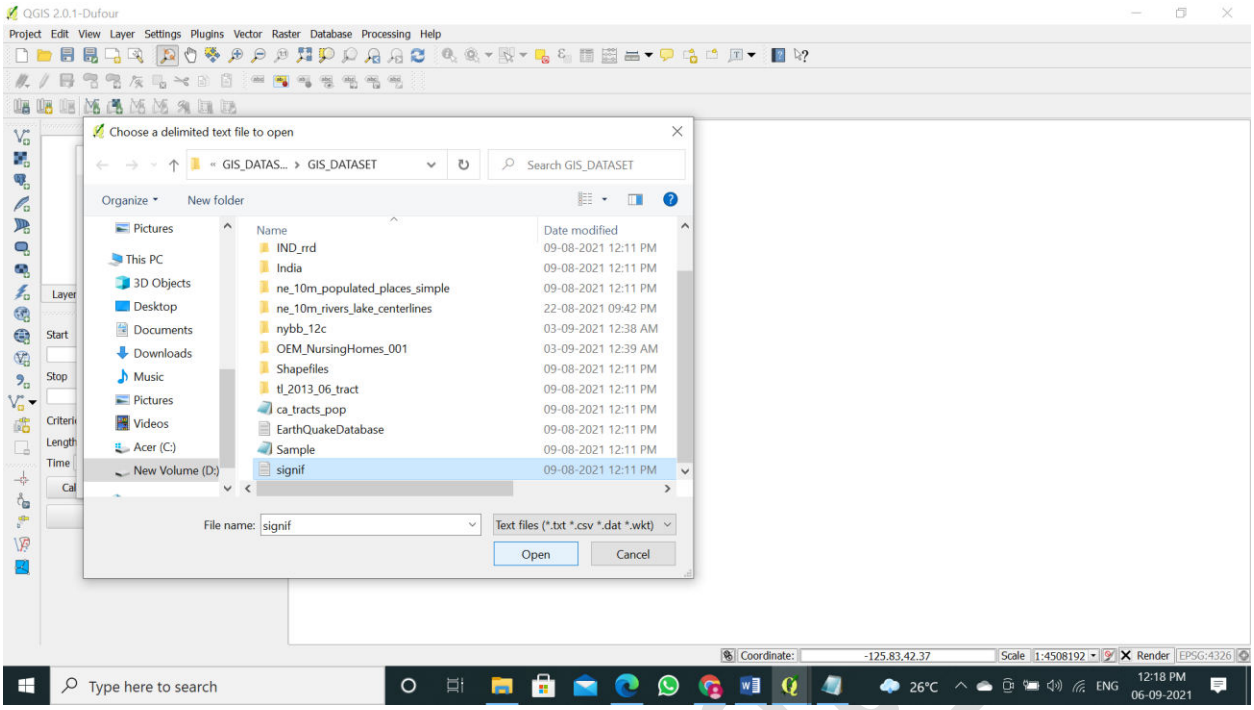
Practical 8C

Aim: Performing Nearest Neighbour Analysis

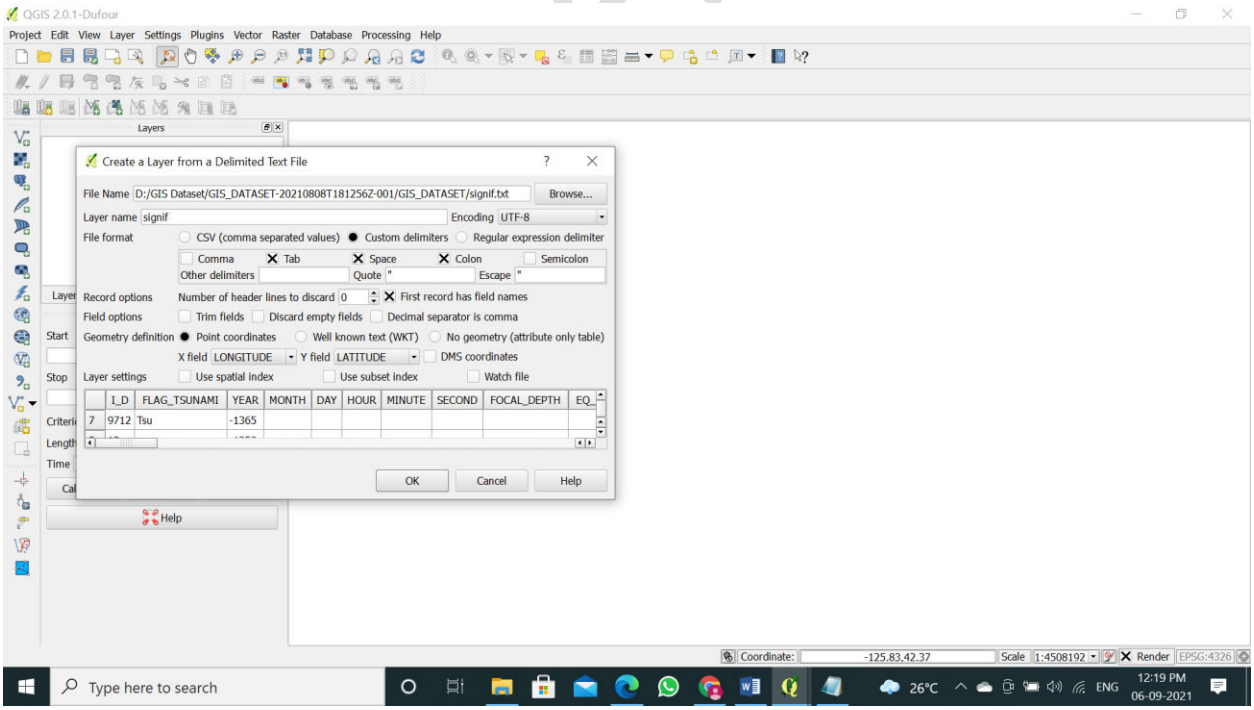
GIS is very useful in analyzing spatial relationship between features. One such analysis is finding out which features are closest to a given feature. QGIS has a tool called Distance Matrix which helps with such analysis. In this tutorial, we will use 2 datasets and find out which points from one layer are closest to which point from the second layer.

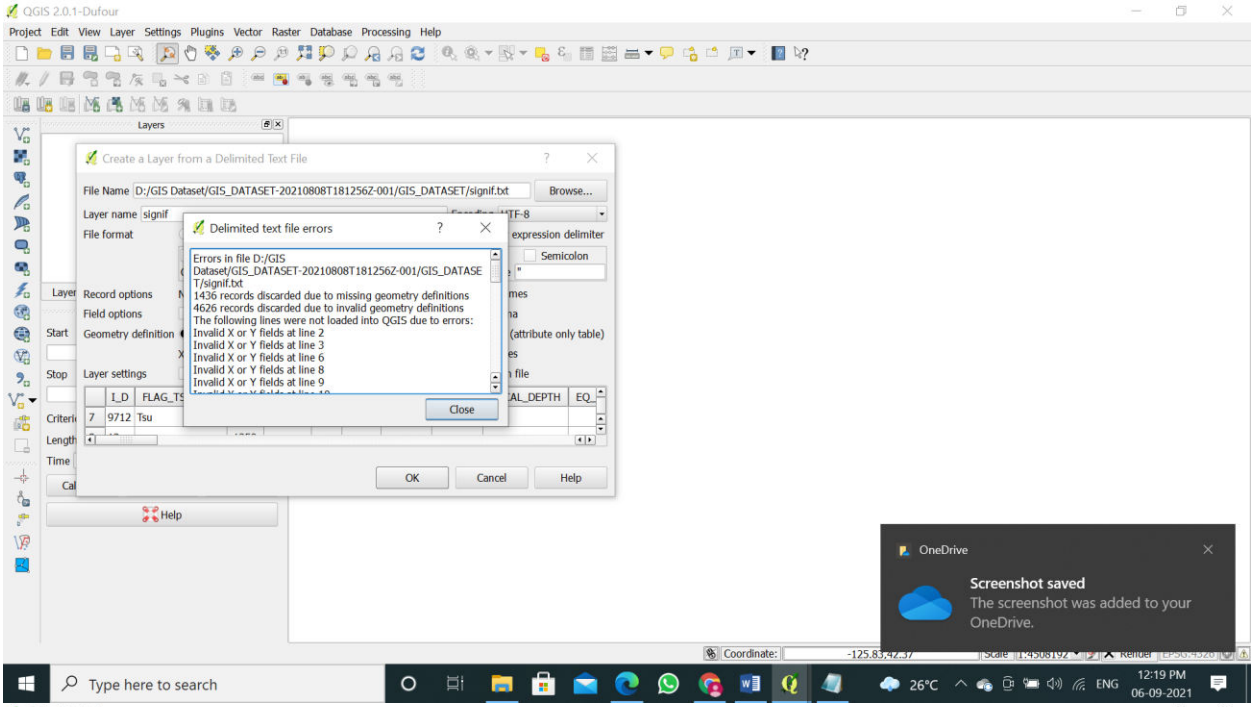
Step 1: Open Layer Add Layer Add Delimited Text Layer and browse to the downloaded signif.txt file.

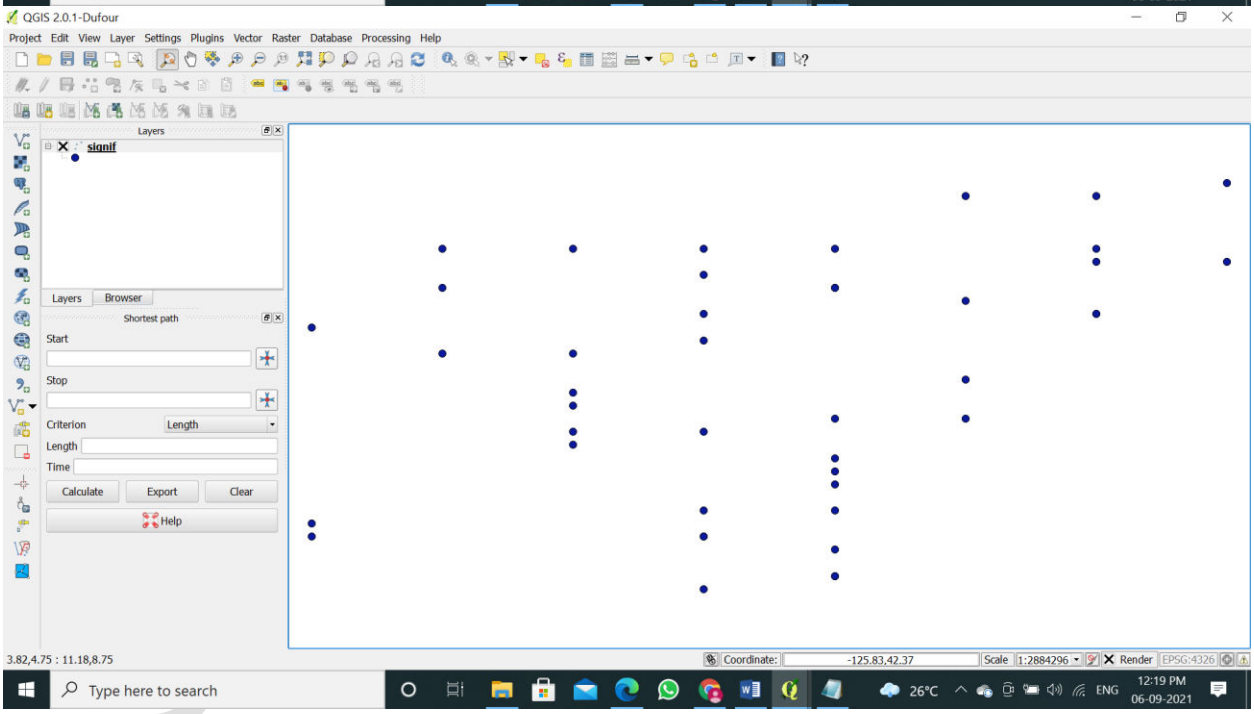


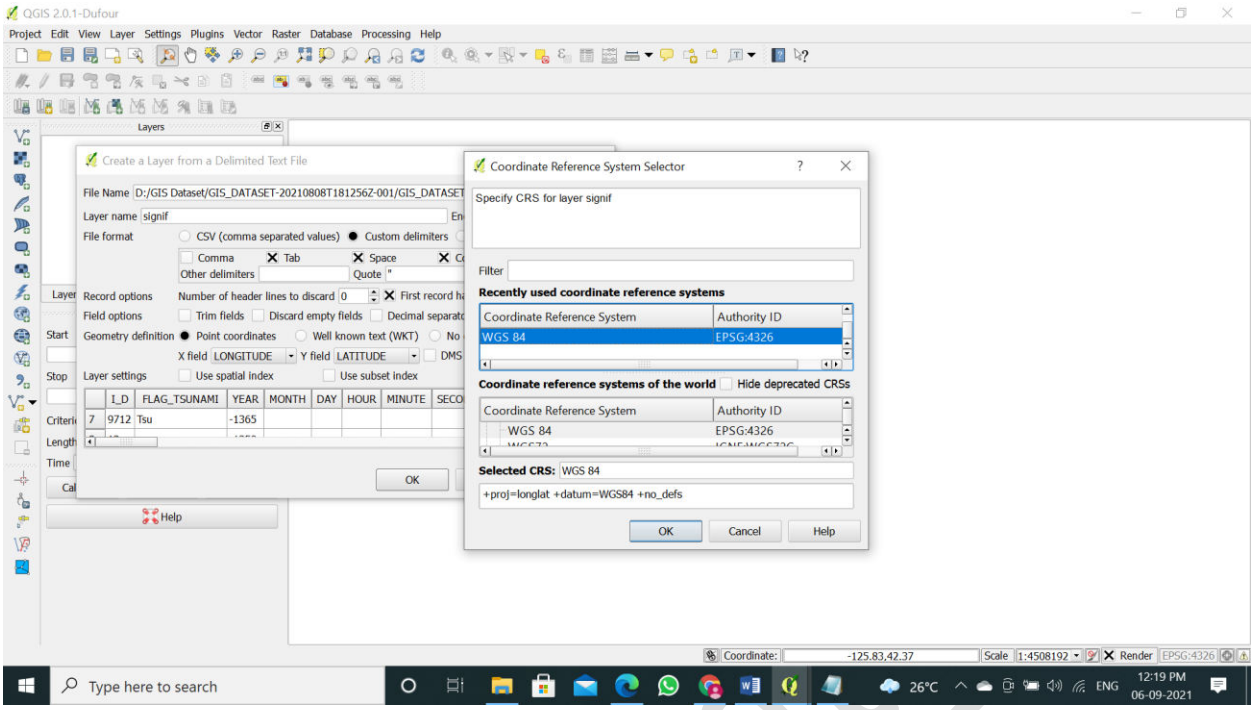


Step 2: Since this is a tab-delimited file, choose Tab as the File format. The X field and Y field would be auto-populated. Click OK.



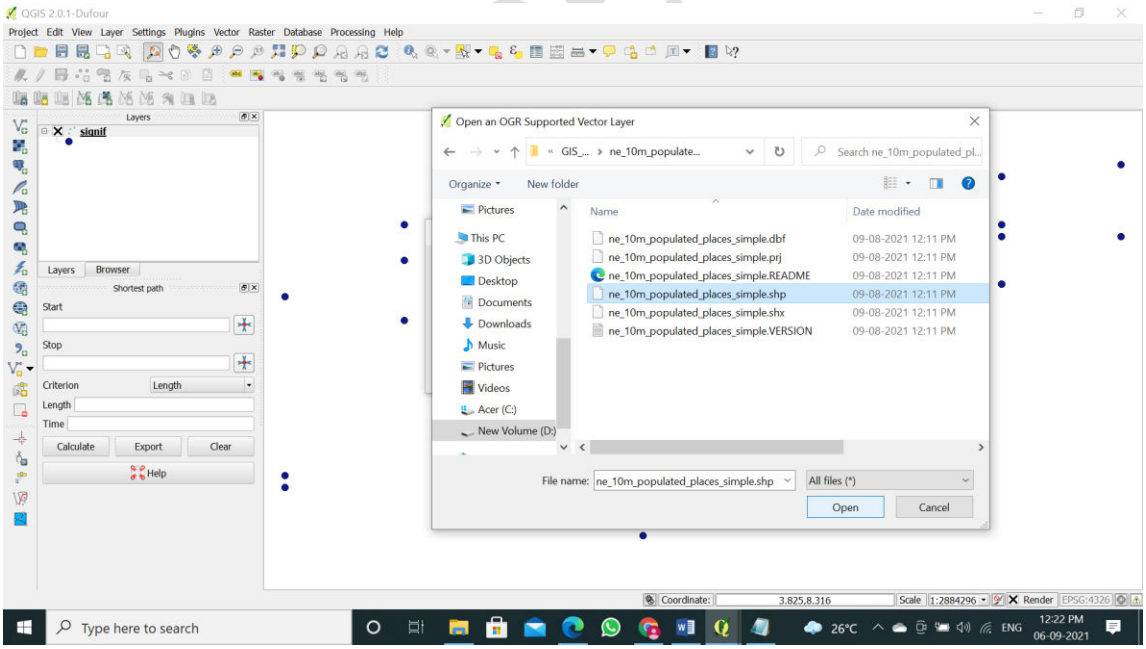

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
Create a Layer from a Delimited Text File
File Name D:/GIS Dataset/GIS_DATASET-20210808T181256Z-001/GIS_DATASET/signif.txt
Browse...
Layer name signif
File format
Record options
Field options
Geometry definition
Layer settings
Delimited text file errors
Errors in file D:/GIS Dataset/GIS_DATASET-20210808T181256Z-001/GIS_DATASET/signif.txt
1436 records discarded due to missing geometry definitions
4626 records discarded due to invalid geometry definitions
The following lines were not loaded into QGIS due to errors:
Invalid X or Y fields at line 2
Invalid X or Y fields at line 3
Invalid X or Y fields at line 6
Invalid X or Y fields at line 8
Invalid X or Y fields at line 9
Close
OK
Cancel
Help
OneDrive
Screenshot saved
The screenshot was added to your OneDrive.
Type here to search
26°C
ENG
12:19 PM
06-09-2021

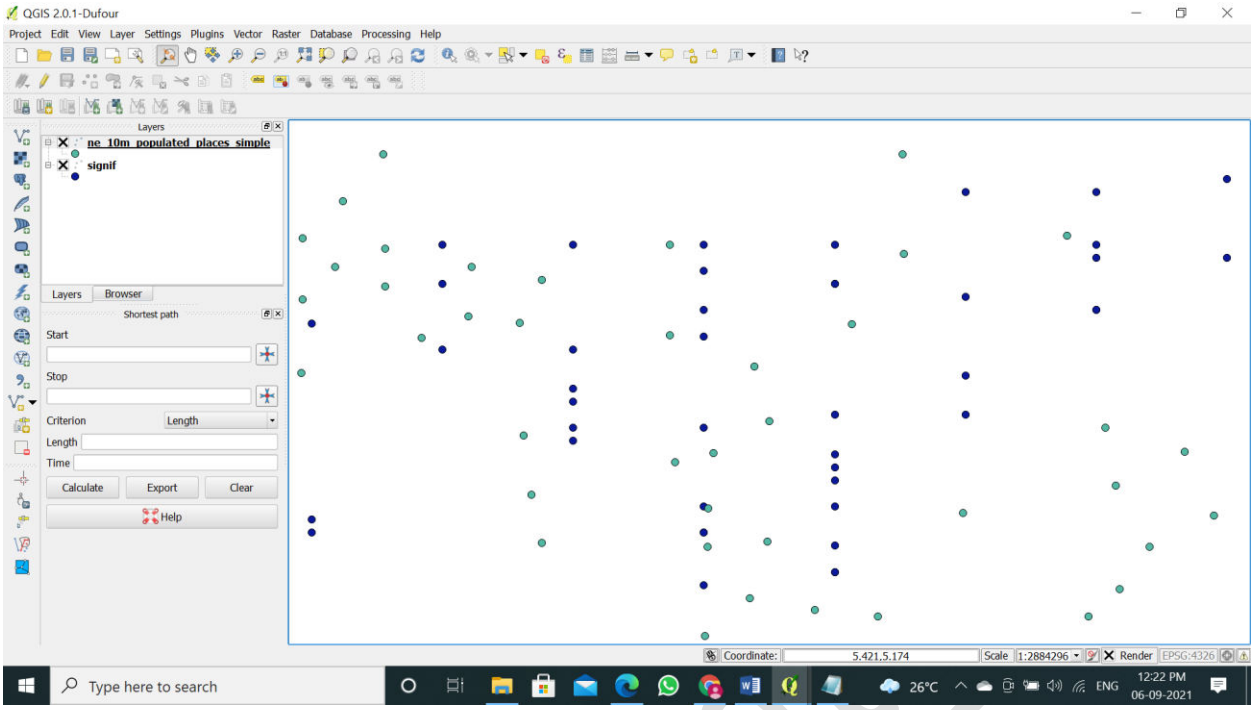

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
signif
Layers
Browser
Shortest path
Start
Stop
Criterion
Length
Length
Time
Calculate
Export
Clear
Help
3.82,4.75 : 11.18,8.75
Coordinate:
-125.83,42.37
Scale
1:2884296
Render
EPSG:4326
Type here to search
26°C
ENG
12:19 PM
06-09-2021



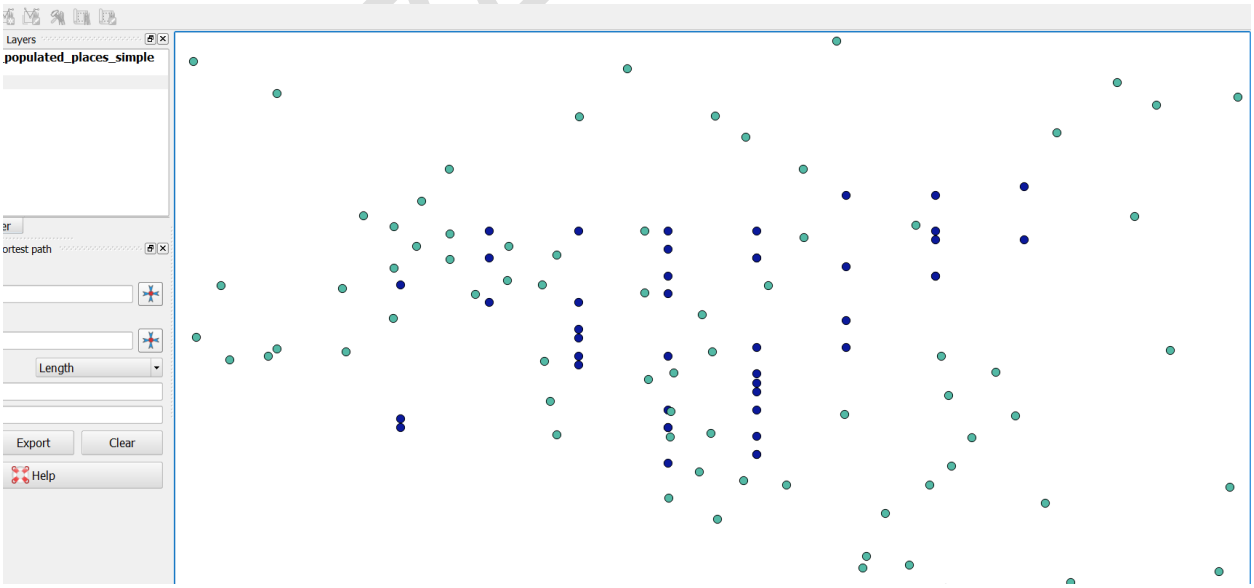
Step 3: Go to Layer Add Layer Add Vector Layer.

Step 4: Browse to the downloaded ne_10m_populated_places_simple.zip file and click Open.

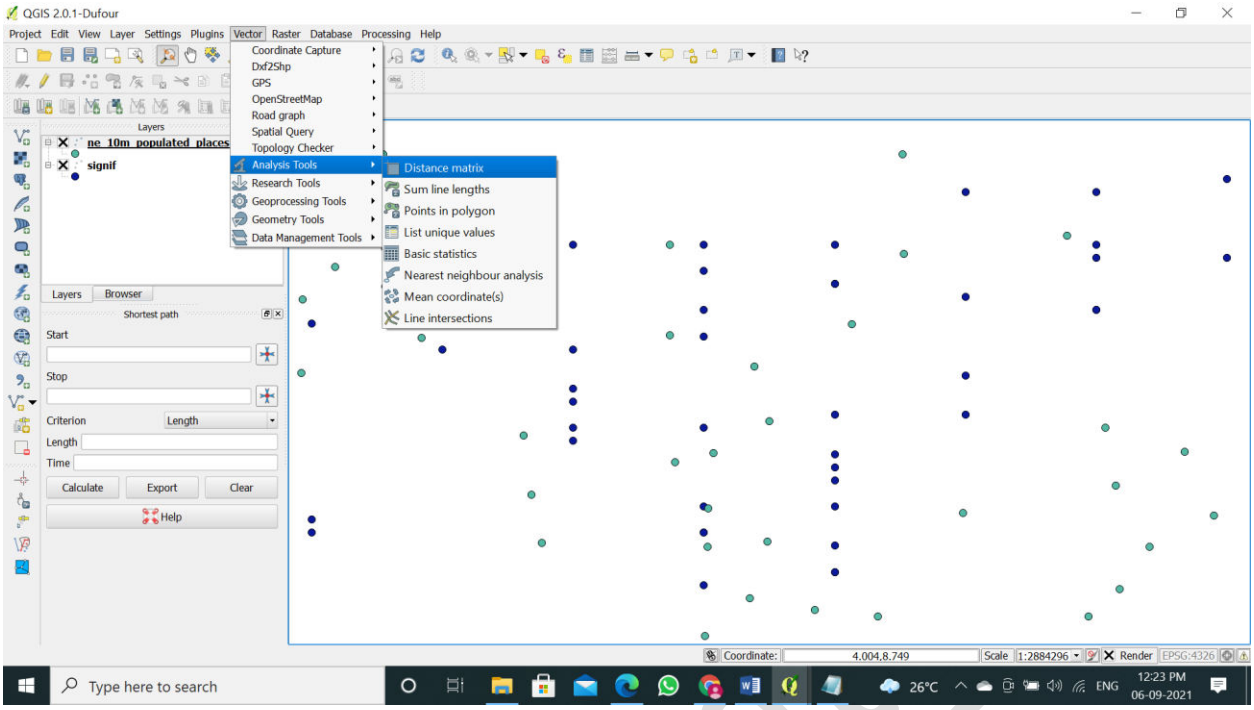




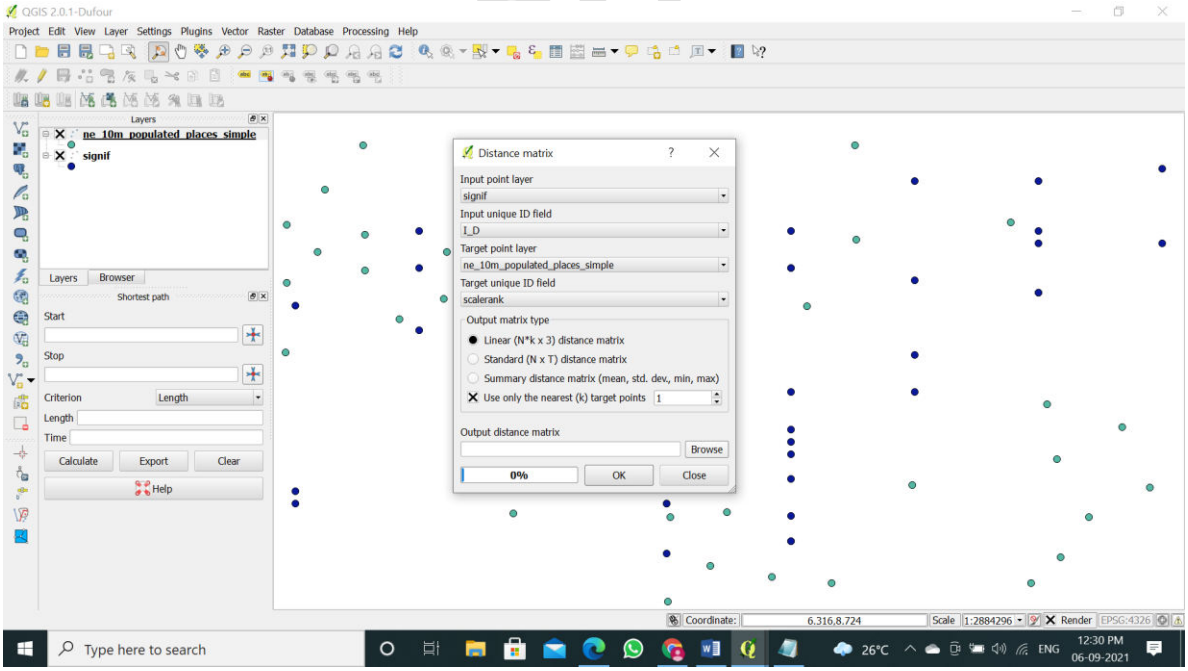
Step 5: Zoom around and explore both the datasets. Each purple point represents the location of a significant earthquake and each blue point represents the location of a populated place. We need a way to find out the nearest point from the populated places layer for each of the points in the earthquake layer

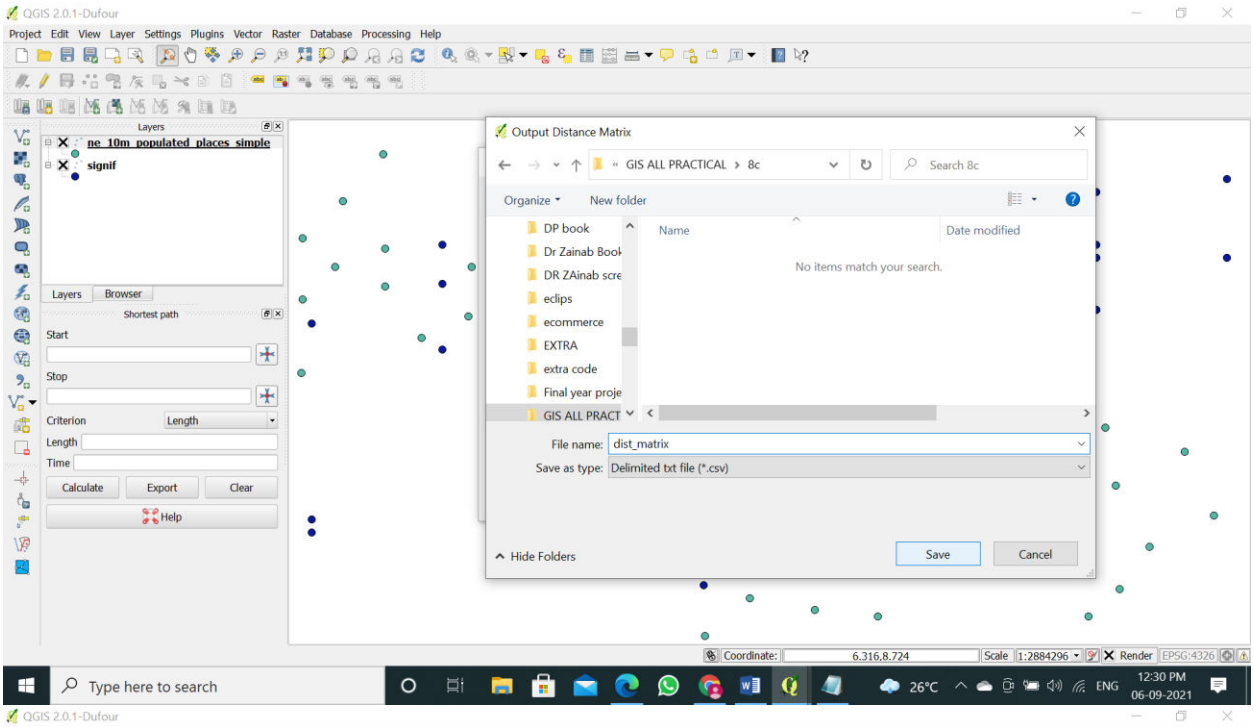


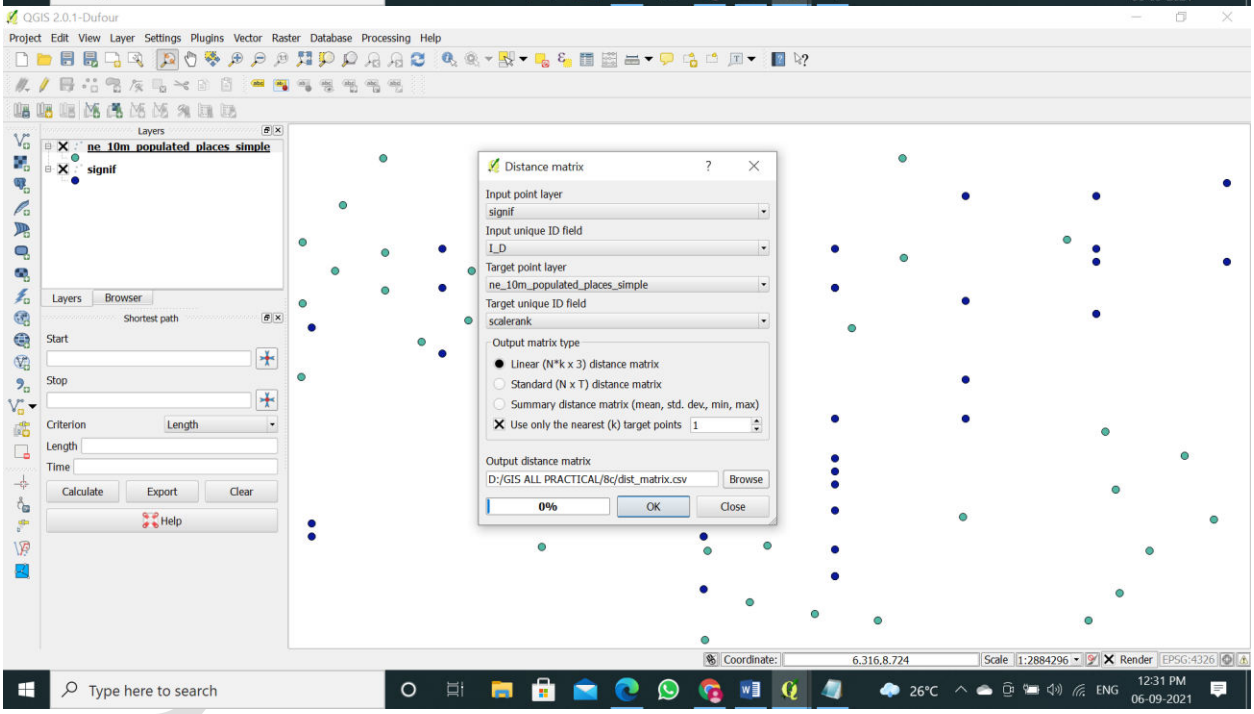
Step 6: Go to Vector Analysis Tools Distance Matrix

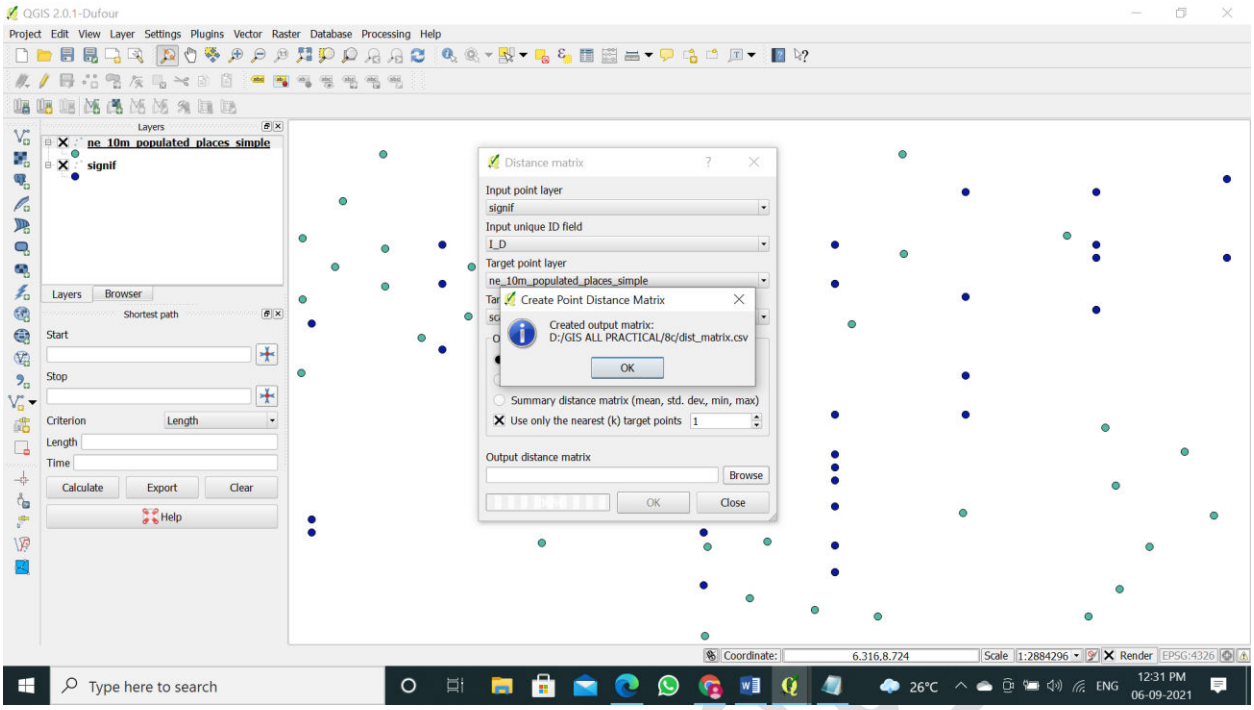


Step 7: Here select the earthquake layer signif as the Input point layer and the populated places ne_10m_populated_places_simple as the target layer. You also need to select a unique field from each of these layers which is how your results will be displayed. In this analysis, we are looking to get only 1 nearest point, so check the Use only the nearest(k) target points, and enter 1. Name your output file matrix.csv, and click OK. Once the processing finishes, click Close.

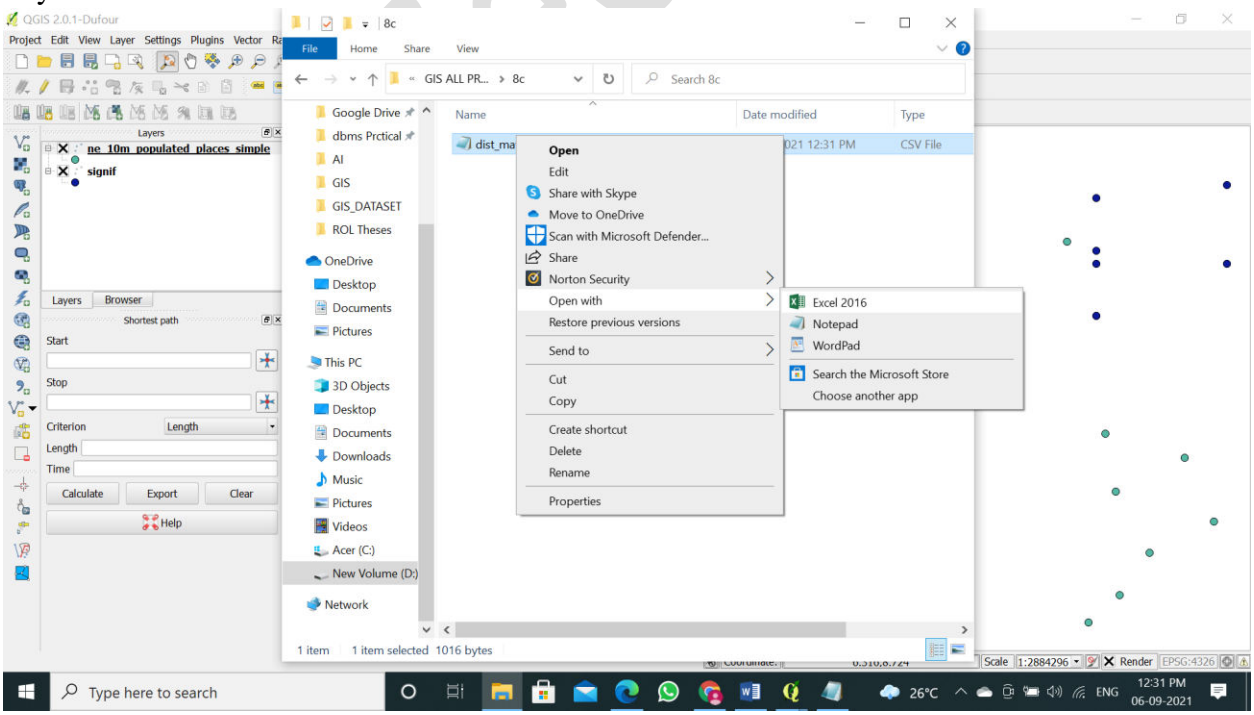


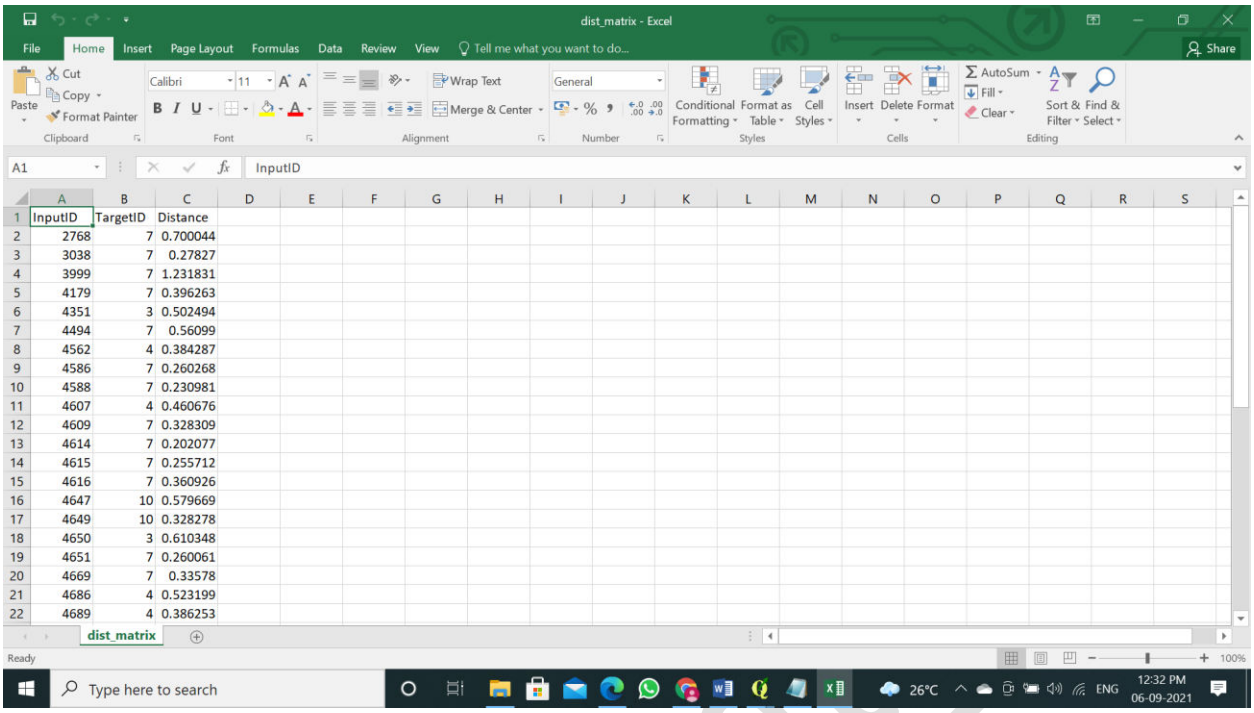

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
ne_10m_populated_places_simple
signif
Layers Browser
Shortest path
Start
Stop
Criterion Length
Length
Time
Calculate Export Clear
Help
Output Distance Matrix
GIS ALL PRACTICAL › 8c
Search 8c
Organize New folder
DP book
Dr Zainab Book
DR ZAinab scre
eclips
ecommerce
EXTRA
extra code
Final year proje
GIS ALL PRACT
Name
Date modified
No items match your search.
File name: dist_matrix
Save as type: Delimited txt file (*.csv)
Hide Folders
Save
Cancel
Coordinate: 6.316,8.724
Scale 1:2884296
Render
EPSG:4326
Type here to search
26°C
ENG
12:30 PM
06-09-2021


QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
ne_10m_populated_places_simple
signif
Layers Browser
Shortest path
Start
Stop
Criterion Length
Length
Time
Calculate Export Clear
Help
Distance matrix
Input point layer
signif
Input unique ID field
I_D
Target point layer
ne_10m_populated_places_simple
Target unique ID field
scalerank
Output matrix type
Linear (N*k x 3) distance matrix
Standard (N x T) distance matrix
Summary distance matrix (mean, std. dev., min, max)
Use only the nearest (k) target points
1
Output distance matrix
D:/GIS ALL PRACTICAL/8c/dist_matrix.csv
Browse
0%
OK
Close
Coordinate: 6.316,8.724
Scale 1:2884296
Render
EPSG:4326
Type here to search
26°C
ENG
12:31 PM
06-09-2021

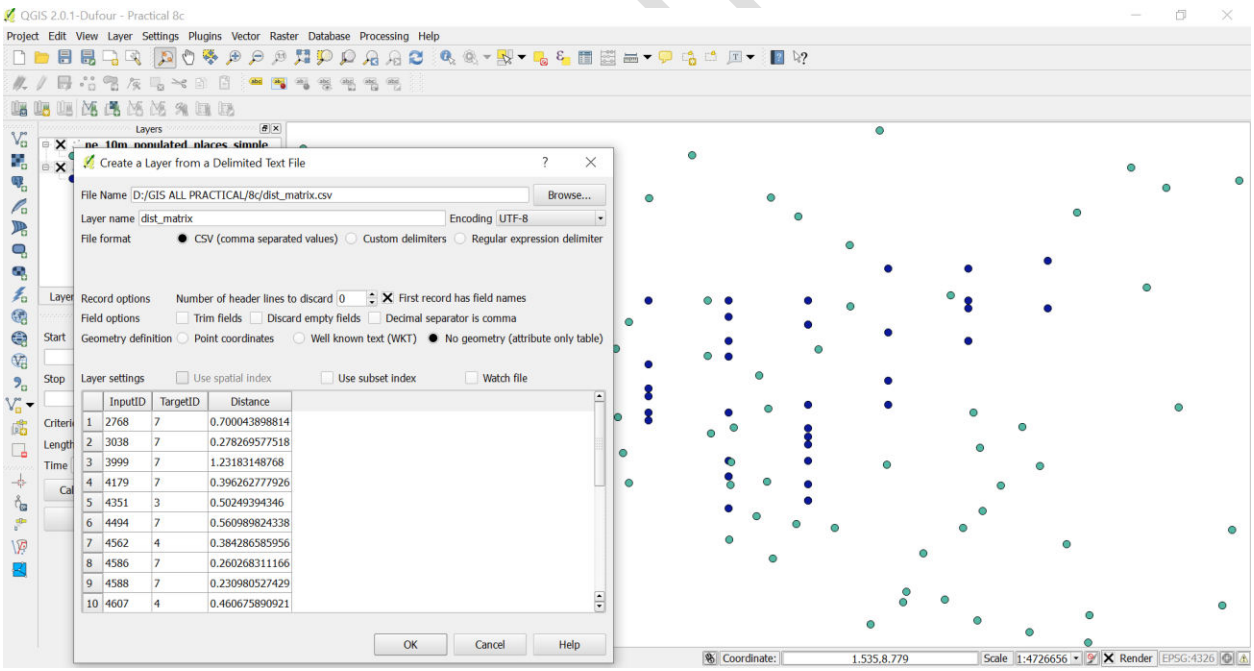


Step 8: Once the processing finishes, click the Close button in the Distance Matrix dialog. You can now view the matrix.csv file in Notepad or any text editor. QGIS can import CSV files as well, so we will add it to QGIS and view it there. Go to Layer Add Layer Add Delimited Text Layer....

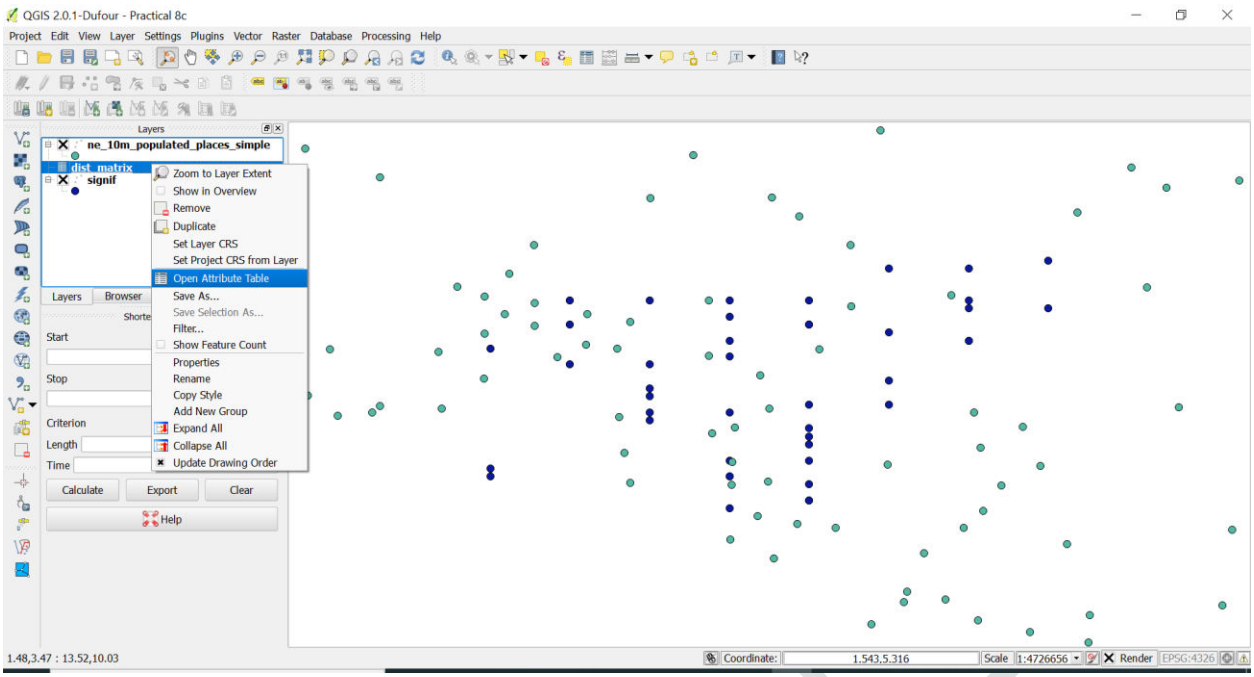




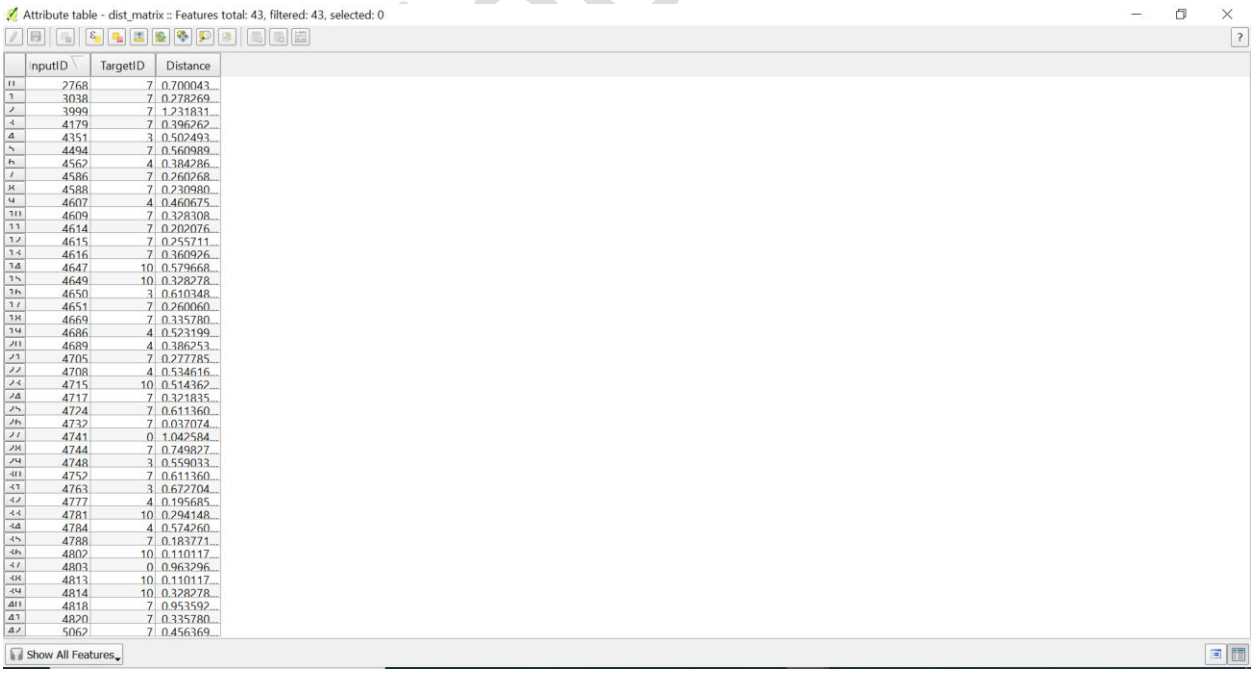
Step 9: Browse to the newly created matrix.csv file. Since this file is just text columns, select No geometry (attribute only table) as the Geometry definition. Click OK.



Step 10: You will see the CSV file loaded as a table. Right-click on the table layer and select Open Attribute Table.



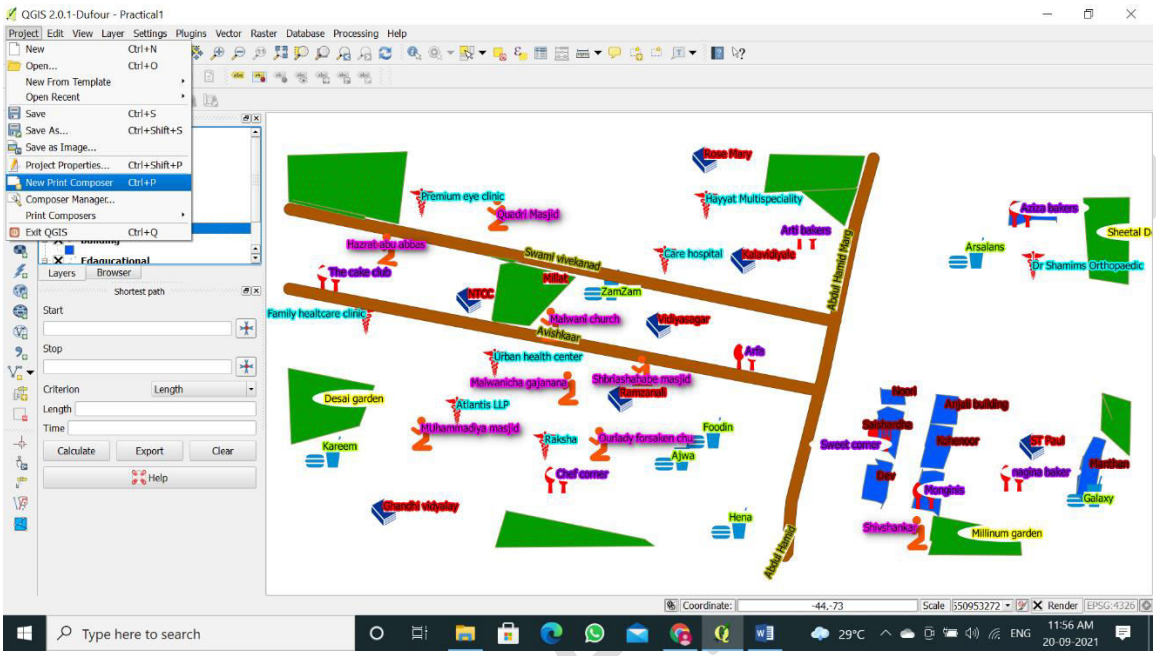
Step 11: Now you will be able to see the content of our results. The InputID field contains the field name from the Earthquake layer. The TargetID field contains the name of the feature from the Populated Places layer that was the closest to the earthquake point. The Distance field is the distance between the 2 points.



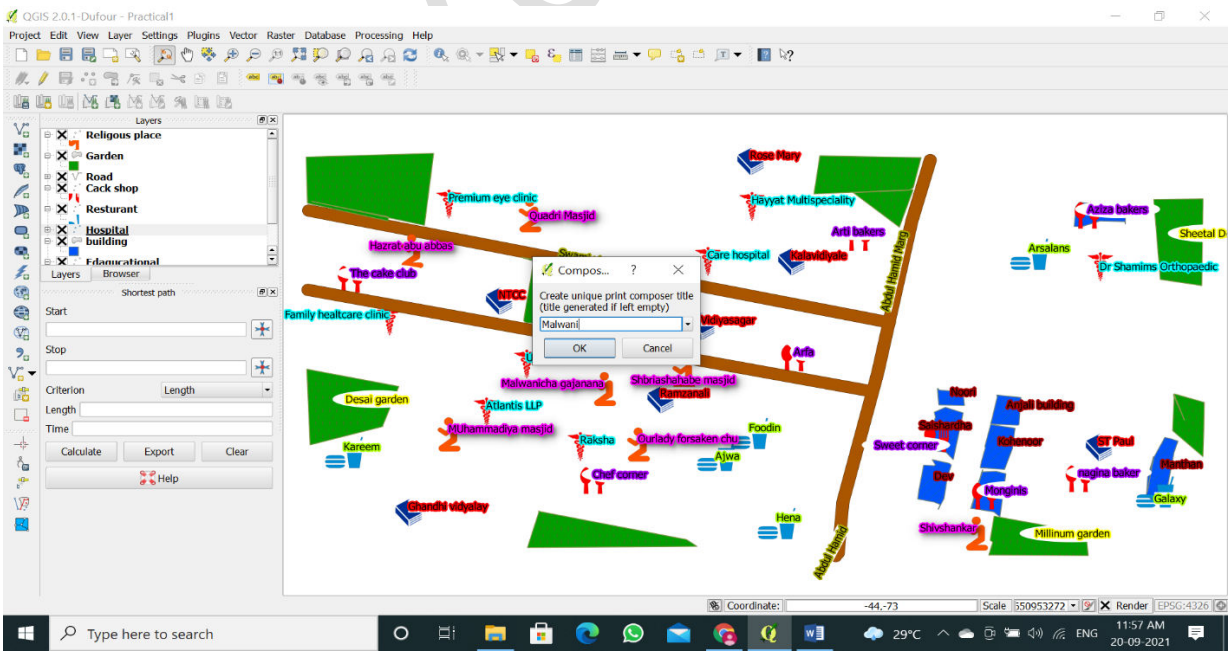
Practical No 9

Aim: Automating Map Creation with Print Composer Atlas

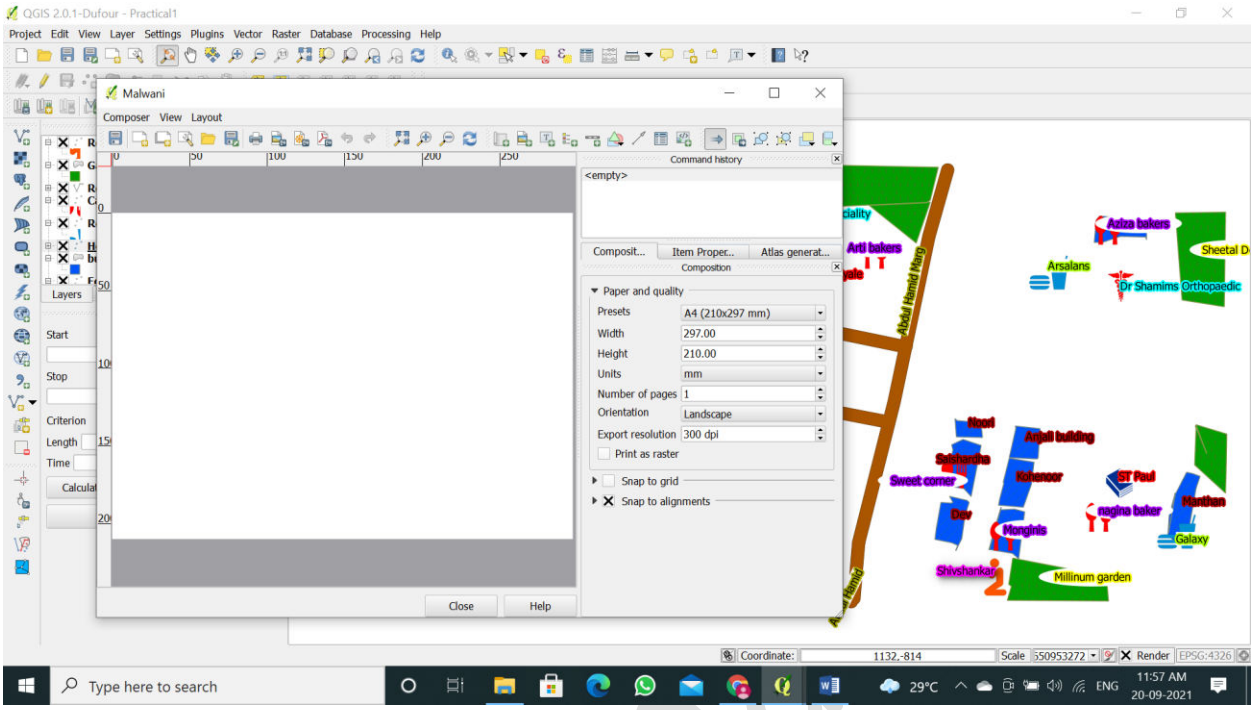
Step 1: Click on Project → New Print Composer in the Toolbar.



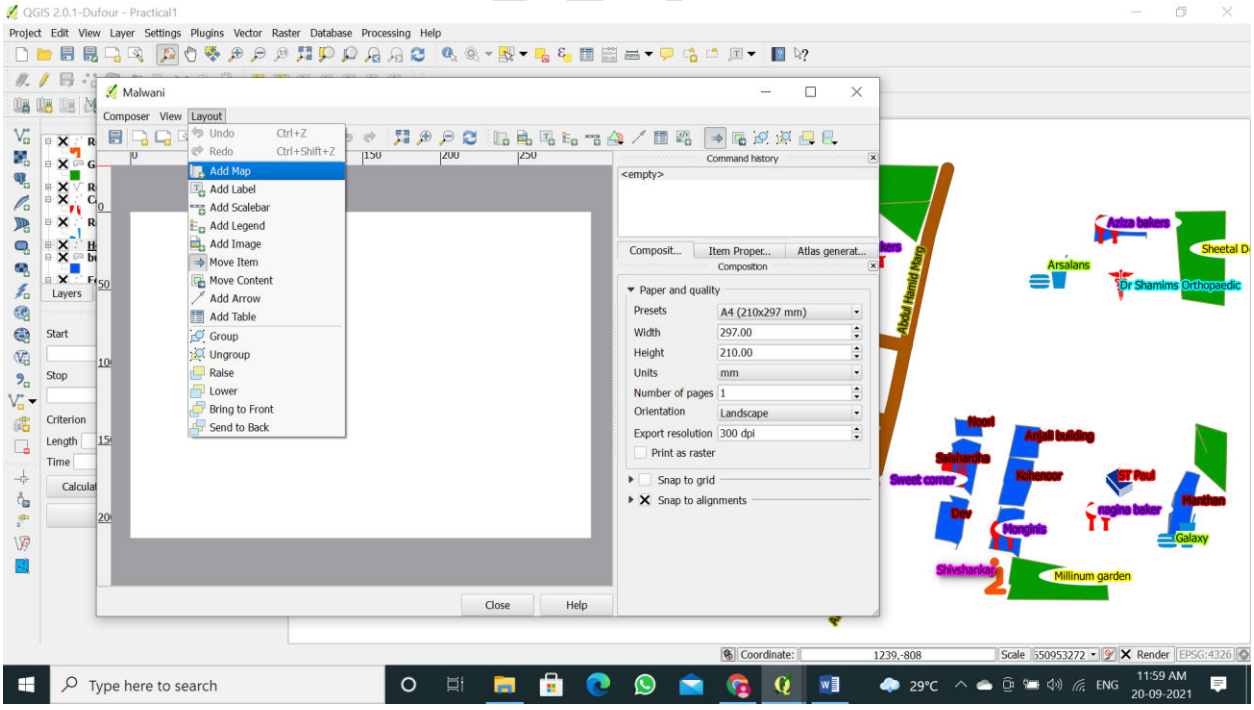
Step 2: Composer Title Dialog box will appear and select the layer the project that you want to create as map.



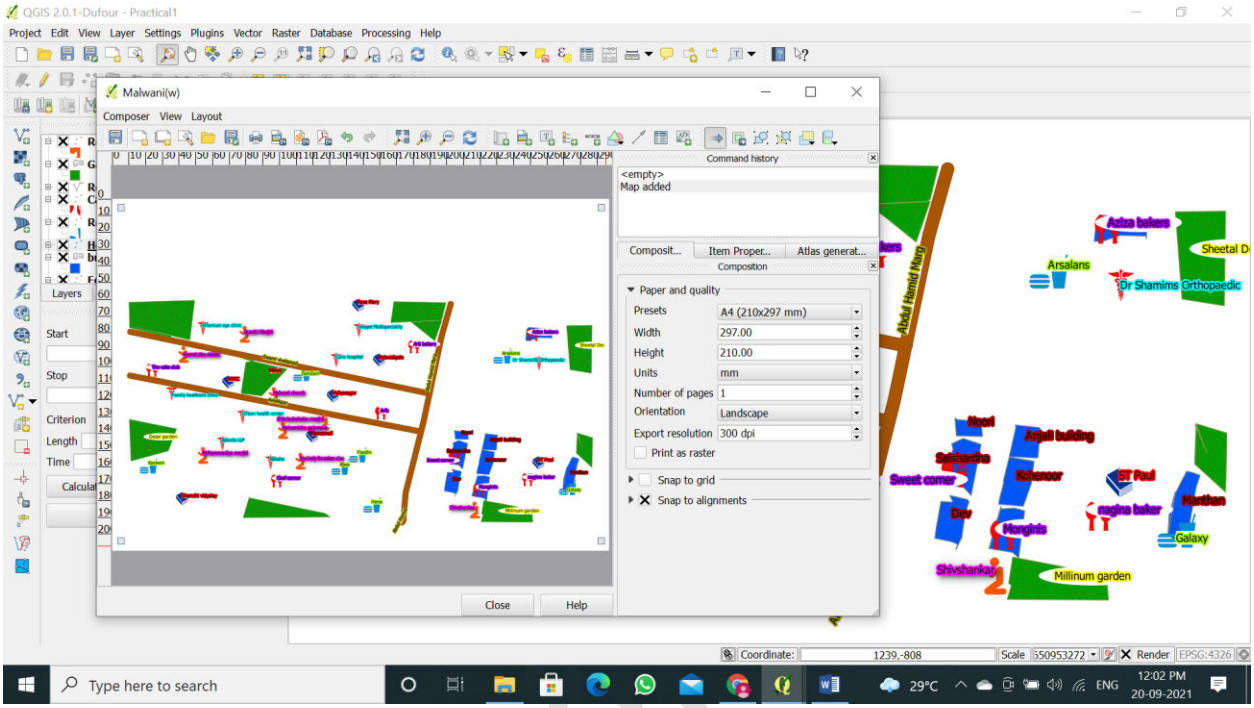
Step 3: The New Composer window will appear as shown below

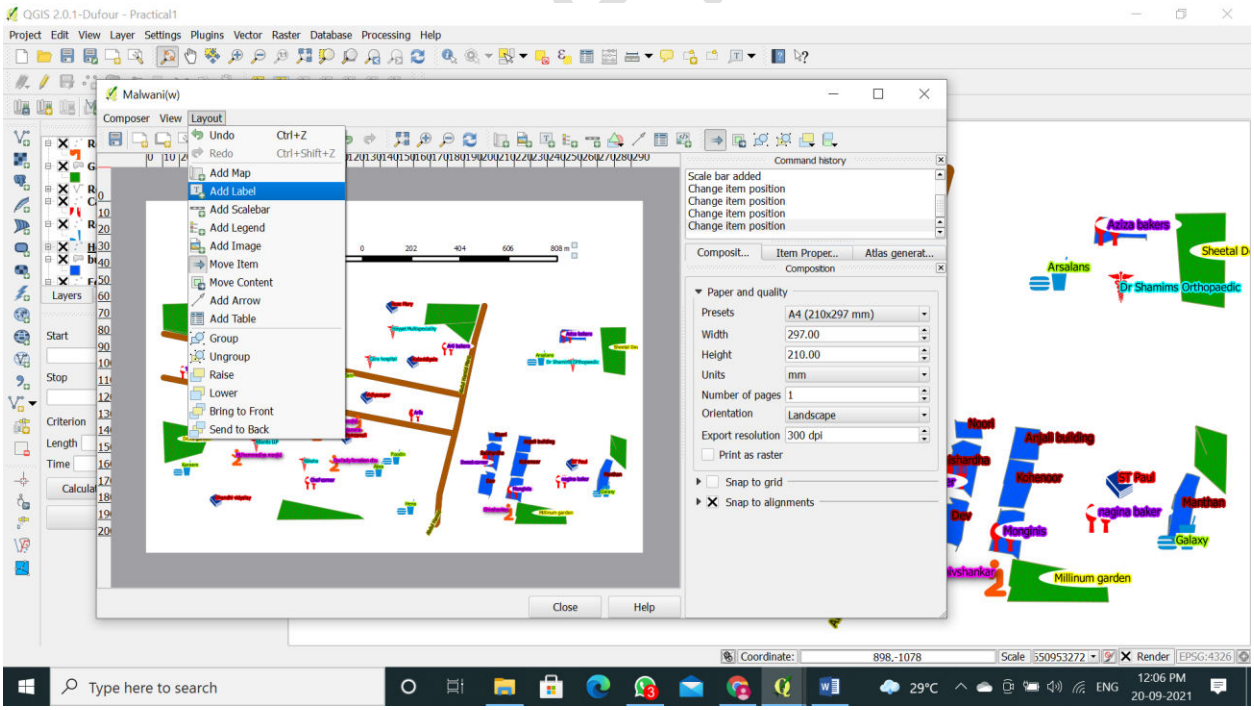


Step 4: Click on Layout → Add Map to import the vector layer from your selected project.

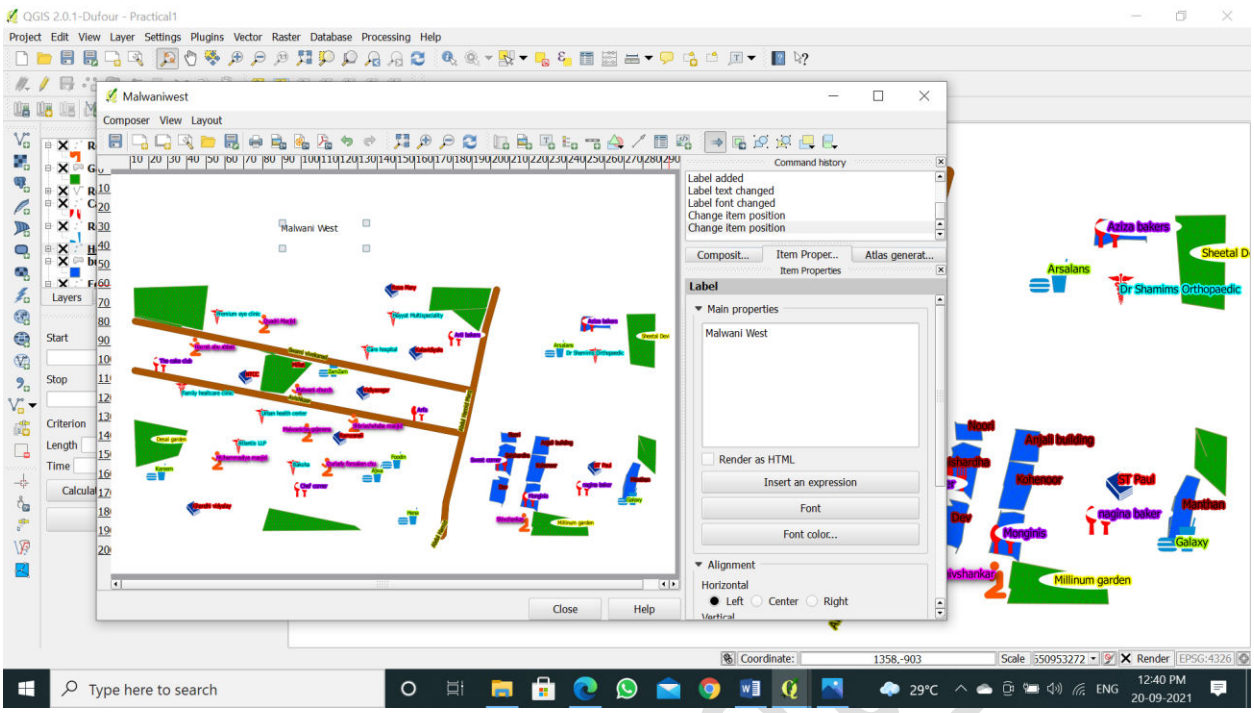


Step 5: The Vector Layer will be imported to your canvas. Click on Layout → Add Label to add text on to the map.

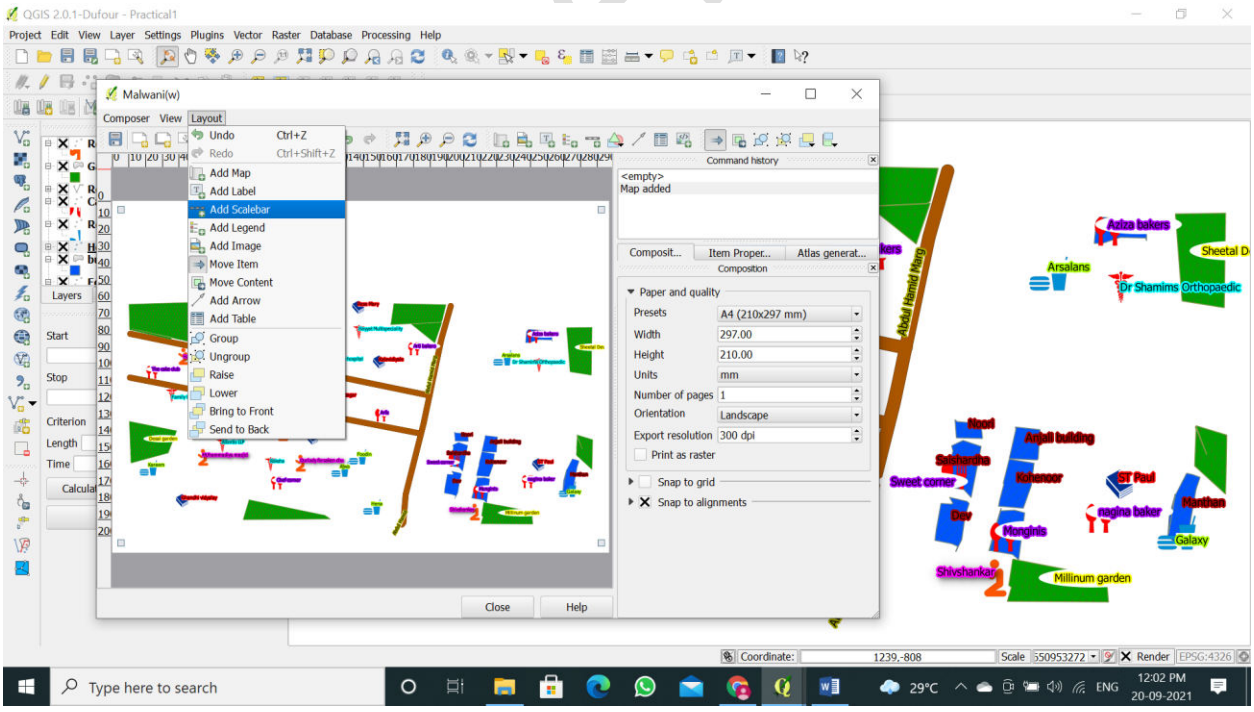


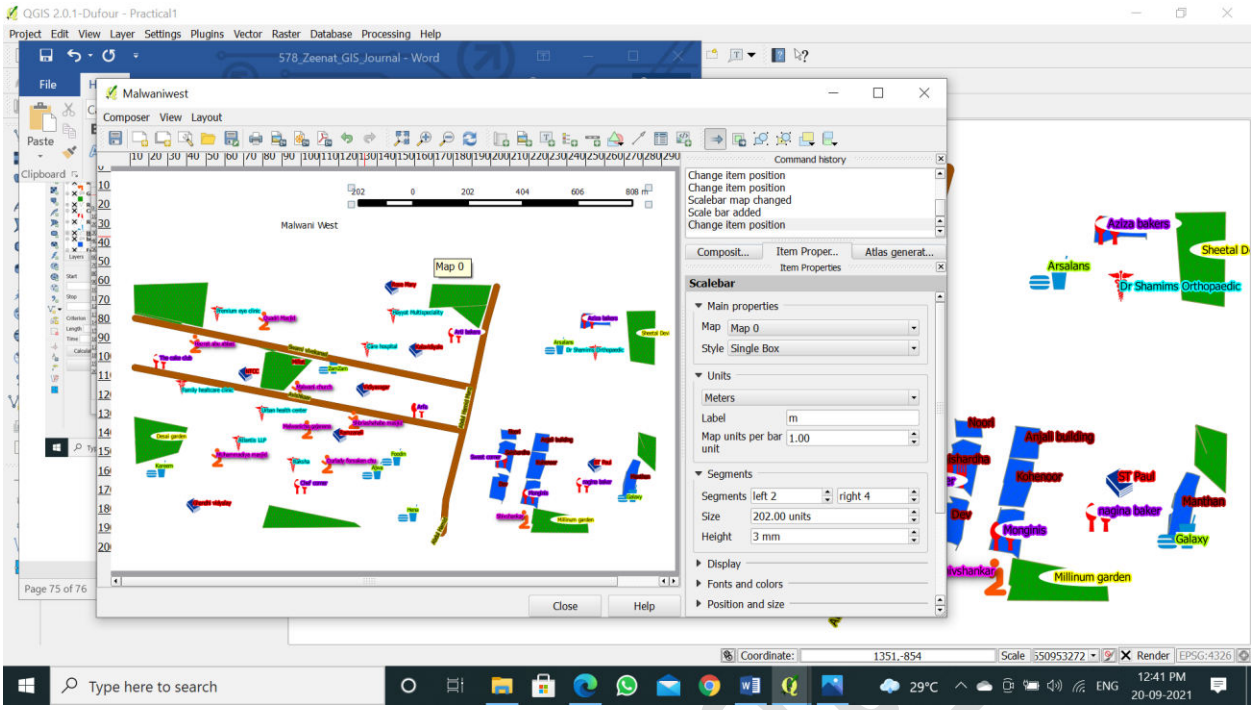


Step 6: A Textbox will appear on the canvas. Type appropriate text in it.

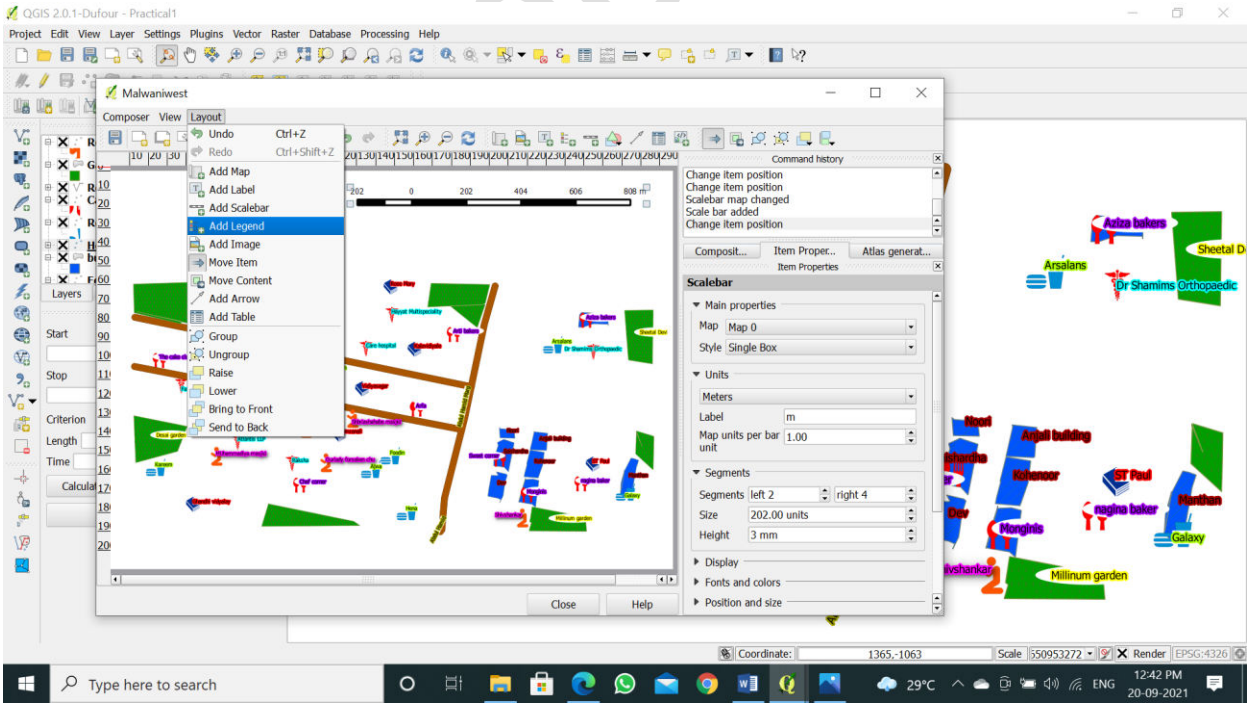


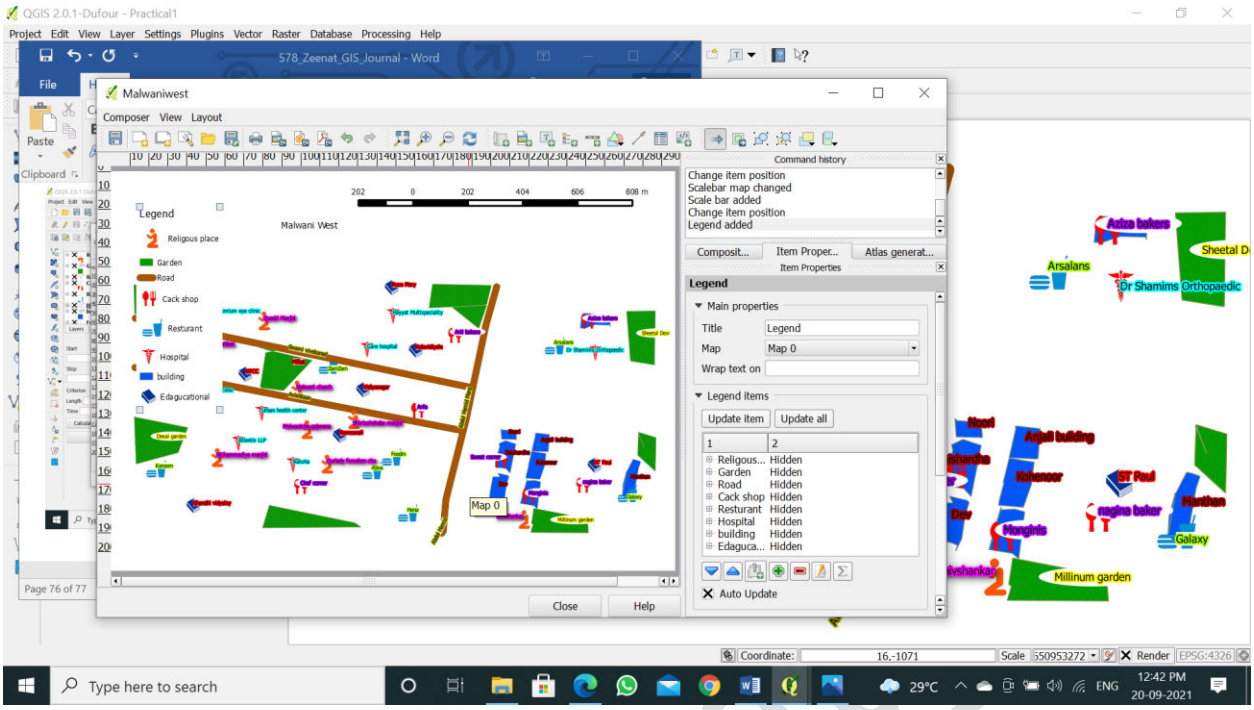
Step 7: Click on Layout → Add Scalebar. This will add a Map Scale on to you Map Canvas as shown below.



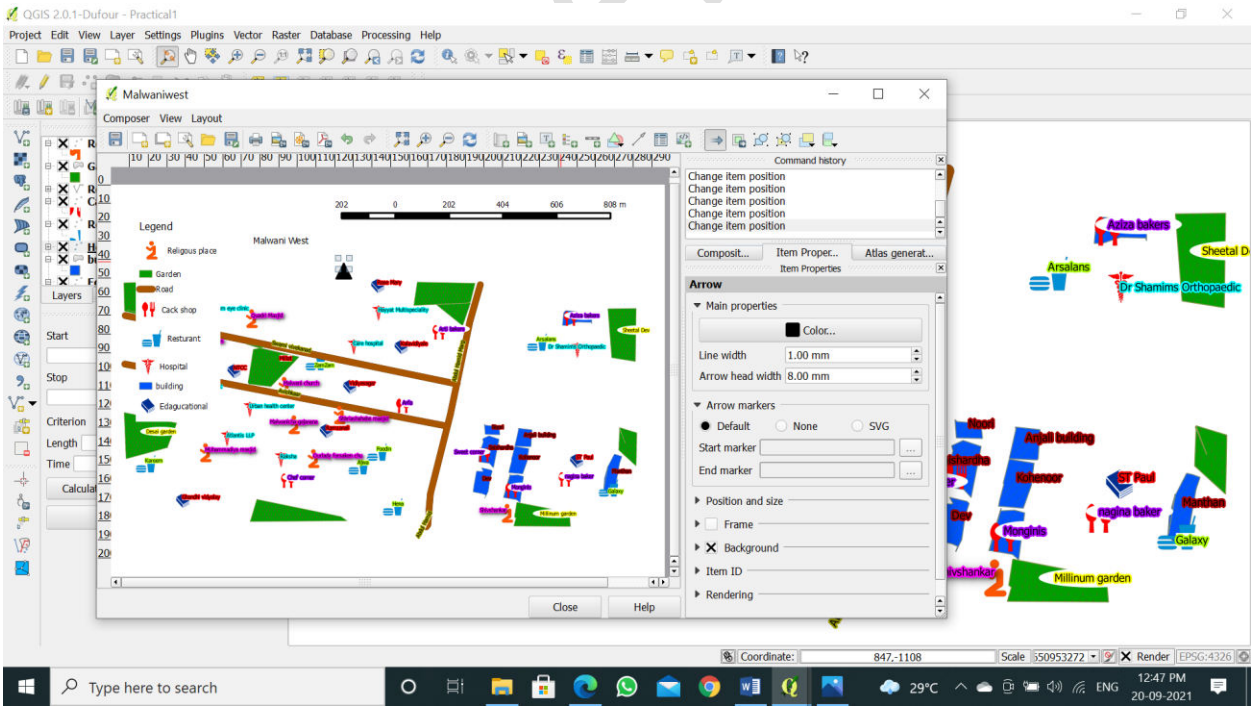


Step 8: Now click on Layout → Add Legend to add Map Content into Map Canvas. This will automatically import the contents from the QGIS project you selected which it shows in the Layout Panel.





Step 9: Now Click on Layout → Add Arrow. This will add the North pointing arrow that we see in every map



Step 10: Now save the map by Clicking on Save icon or by Ctrl + S in .png format which will look like as the below image