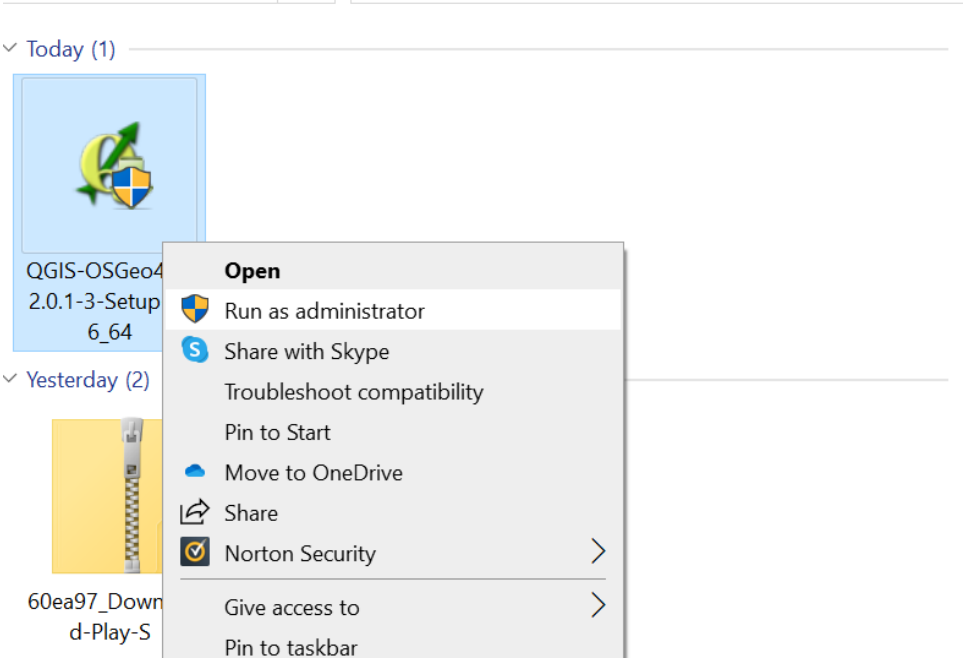
Practical - 0

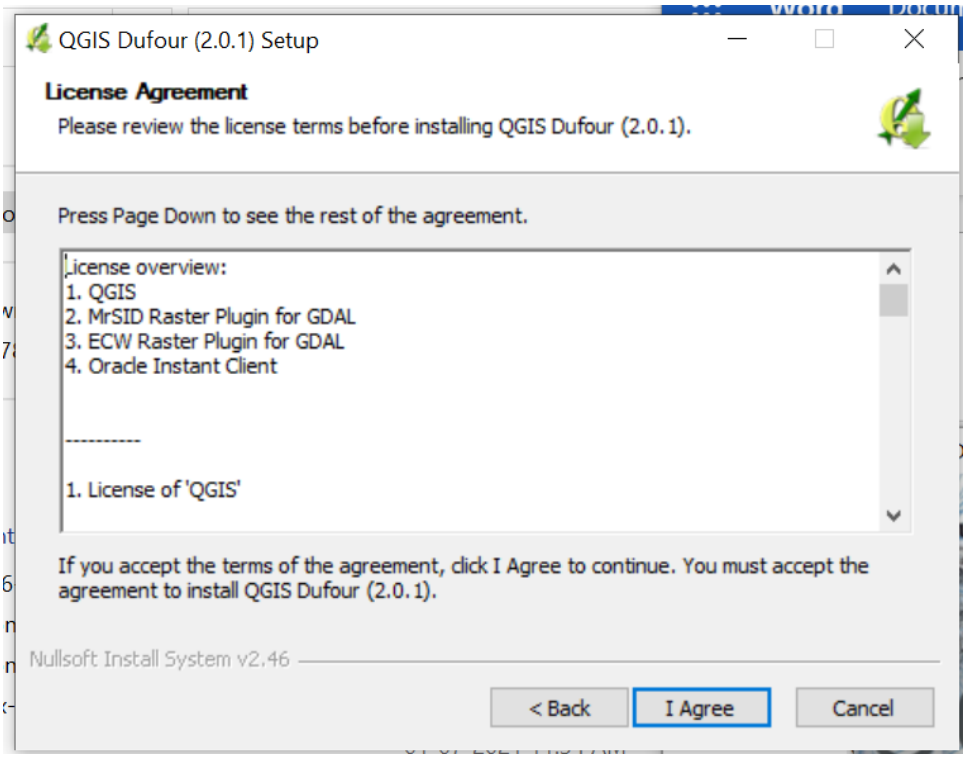
Aim: Installation of QGIS software

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

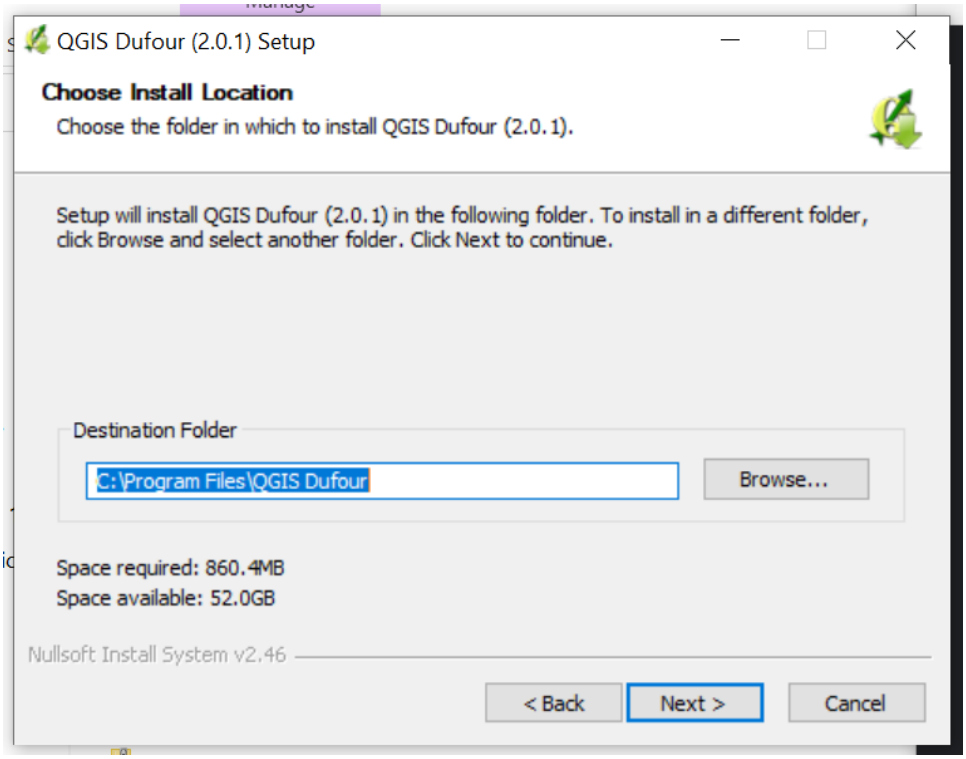


Step 2: Click Next

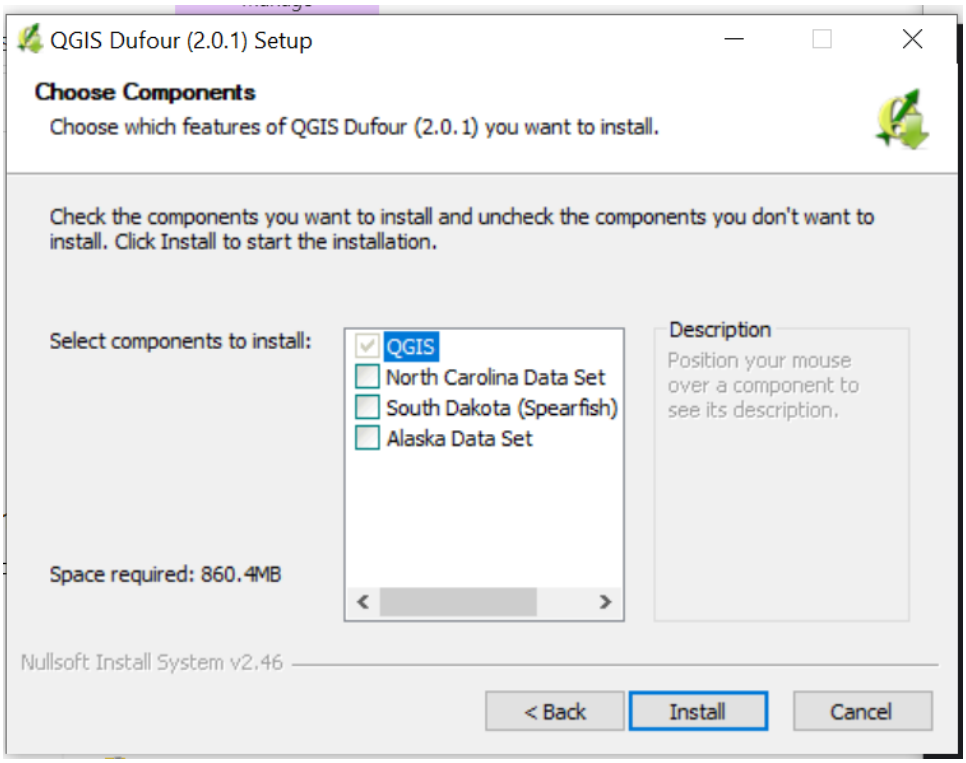
Step 3: Click on “I Agree”



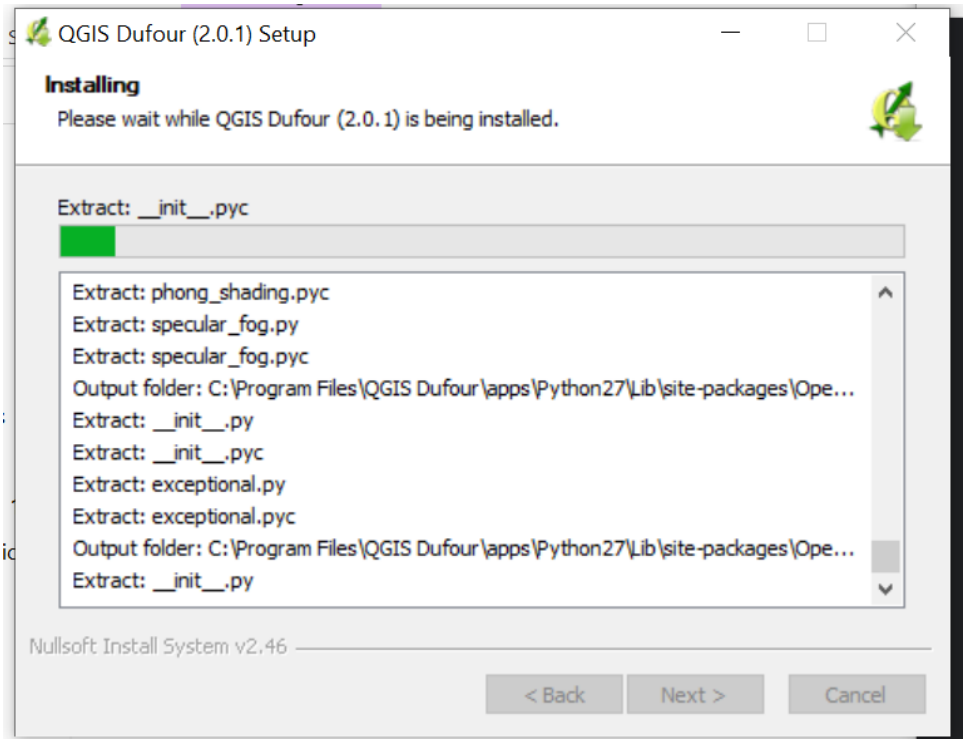
Step 4: Keep as it is or change the path according to your choice and select Next



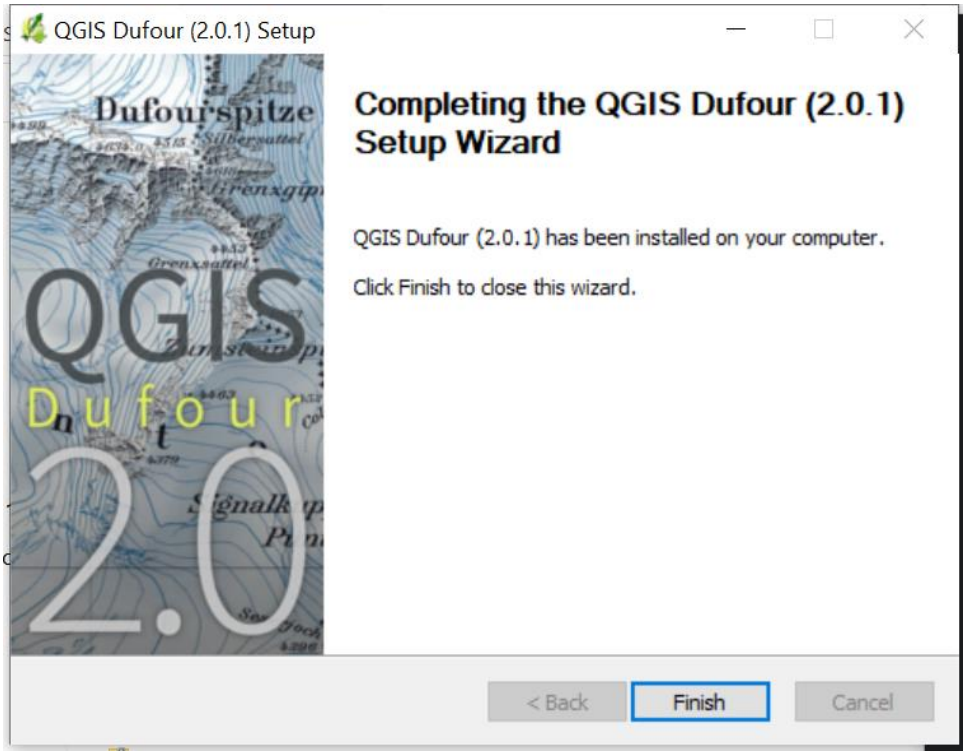
Step 5: Select as it is (default QGIS) and click Install



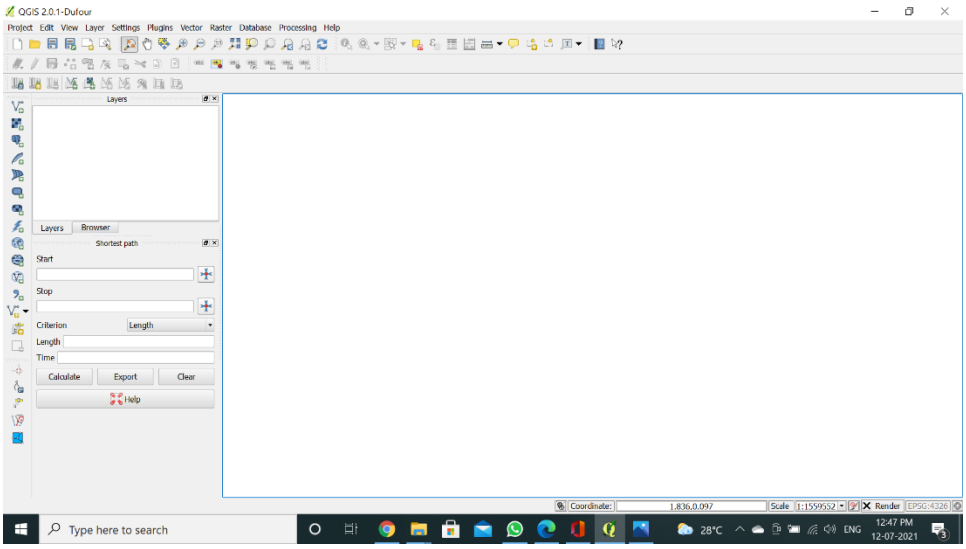
Step 6: Wait for the installation



Step 7: Click Finish



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

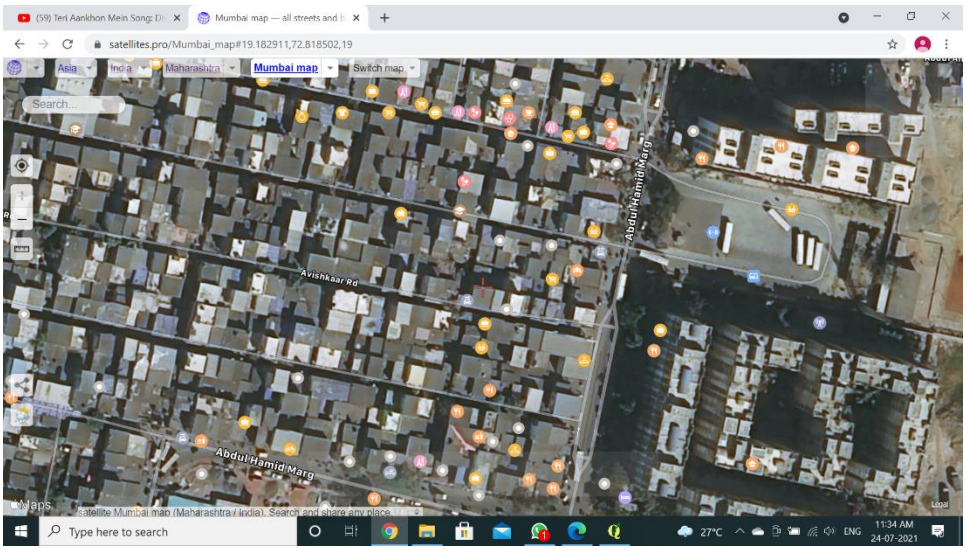


Practical 1

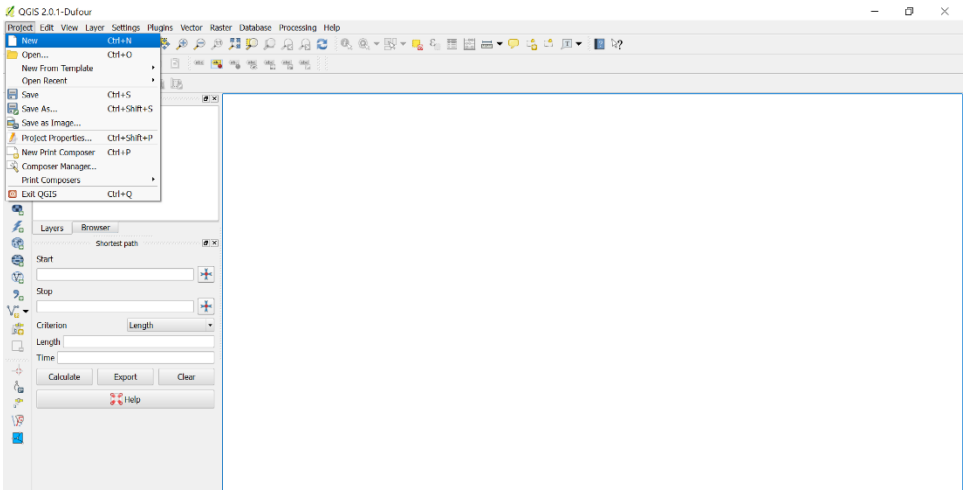
Aim: Creating and Managing Vector

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”



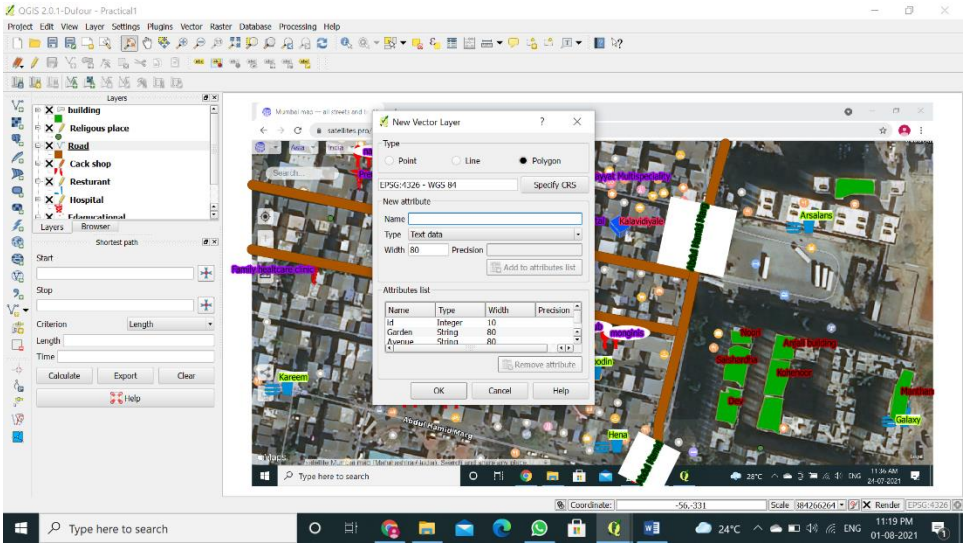
Step 3: Open QGIS Desktop, create a new project, save it with proper name

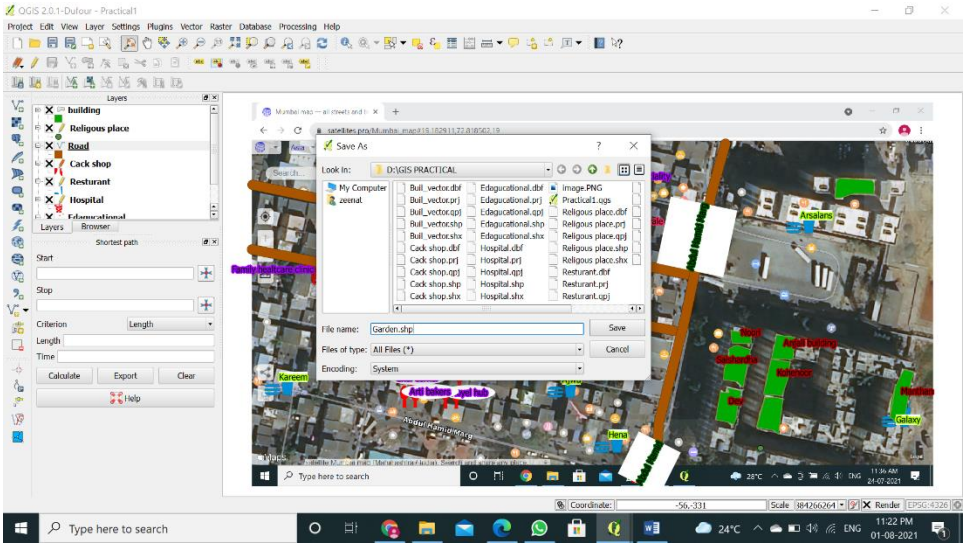


Step 4: Go to layers--> Add Raster Layer --> Browse to the image created in Step2 and select, and open that image.

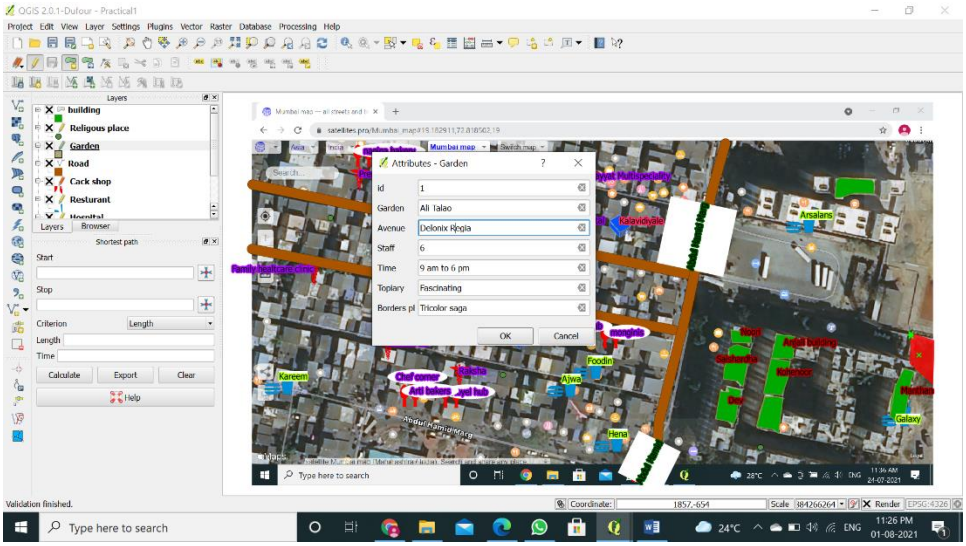
Step 5: Go to Layer--> New--> New shapefile layer

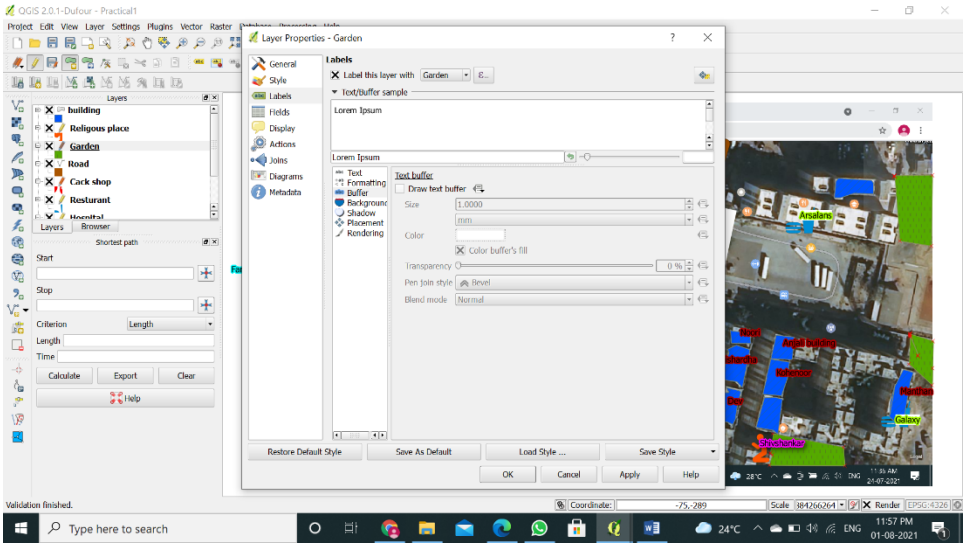
Step 6: Create a polygone layer with name “garden.shp” and give appropriate attributes and save in the respetive forlder.



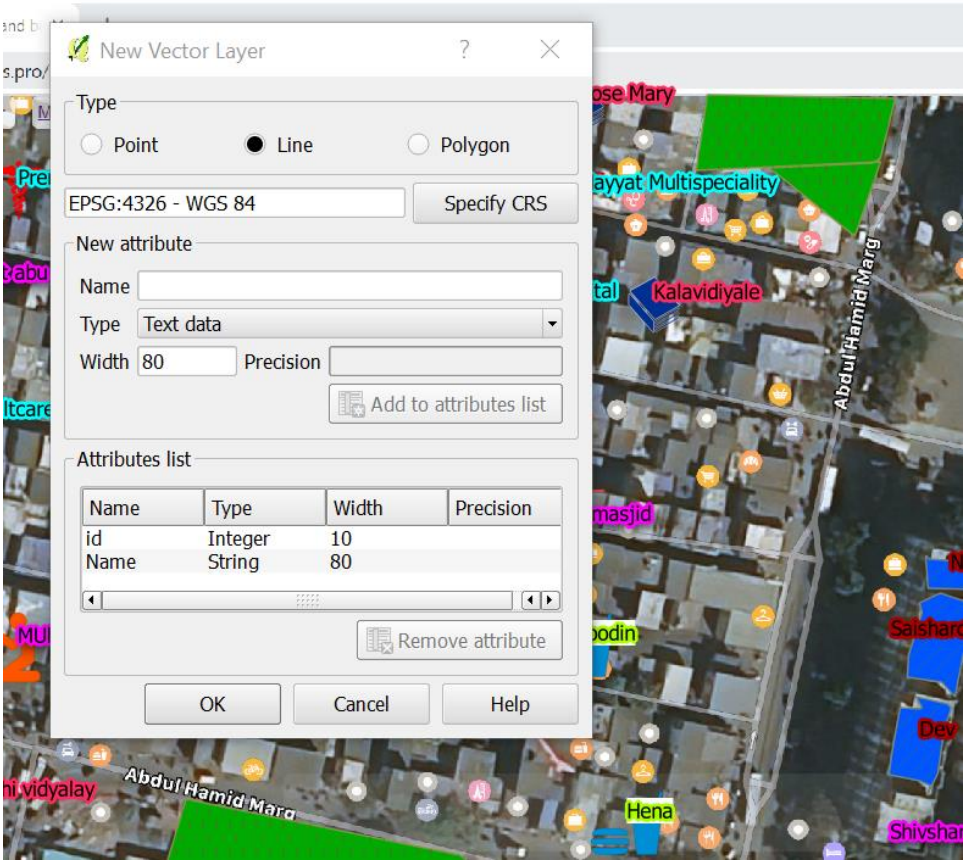


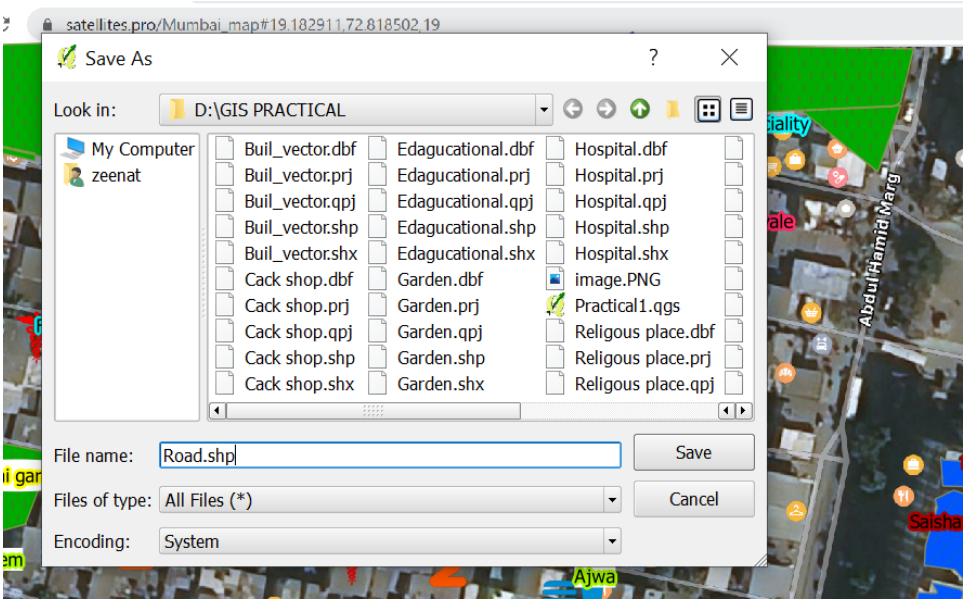
Step 7 Click on the garden layers created click on the TOGGLE EDITING BUTTON click on ADD FEATURES and start with DIGITIZATION process of each garden (Using the left button we start with the process we plot the sample points and using right button we stop the process)



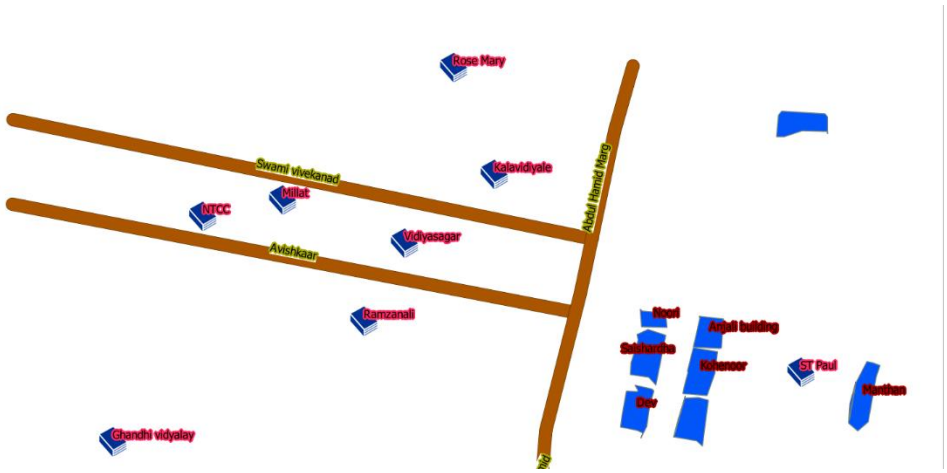


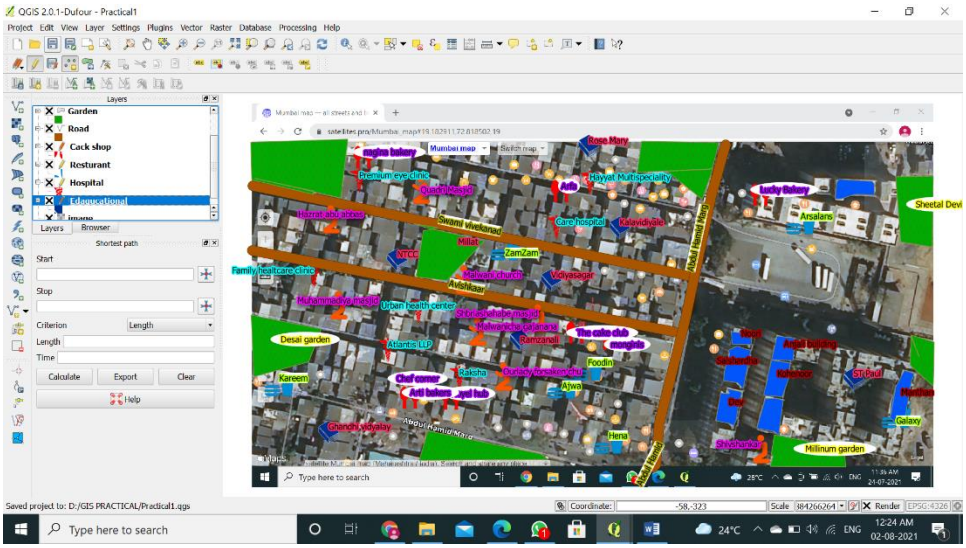
Step 8 Create a Line layer with name “road.shp”and give appropriate attributes and save in respective folder.





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


Rose Mary
Swami vivekanad
Kalavidyale
Millat
NTCC
Abdul Hamid Marg
Vidyasagar
Avishkaar
Ramzanali
Nisal
Anjali building
Satsharcha
Kohenoor
ST Paul
Dev
Ghandhi vidyalay


QGIS 2.0.1-Dufour - Practical1
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
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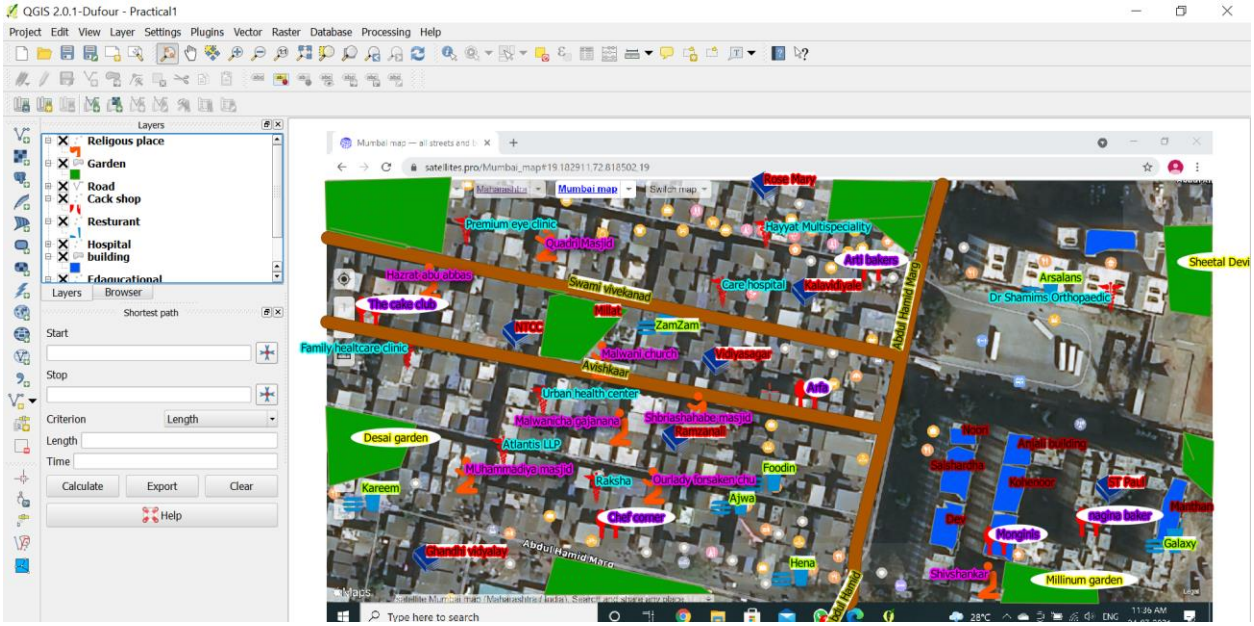
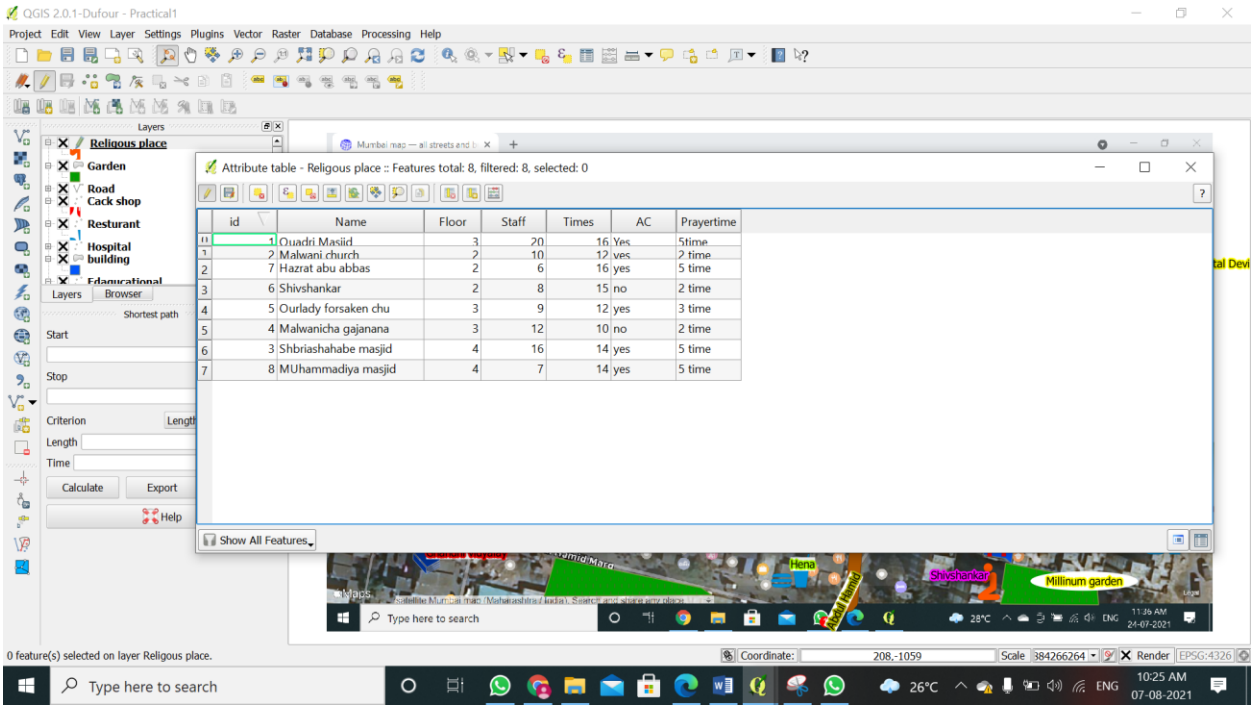
Practical 2

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

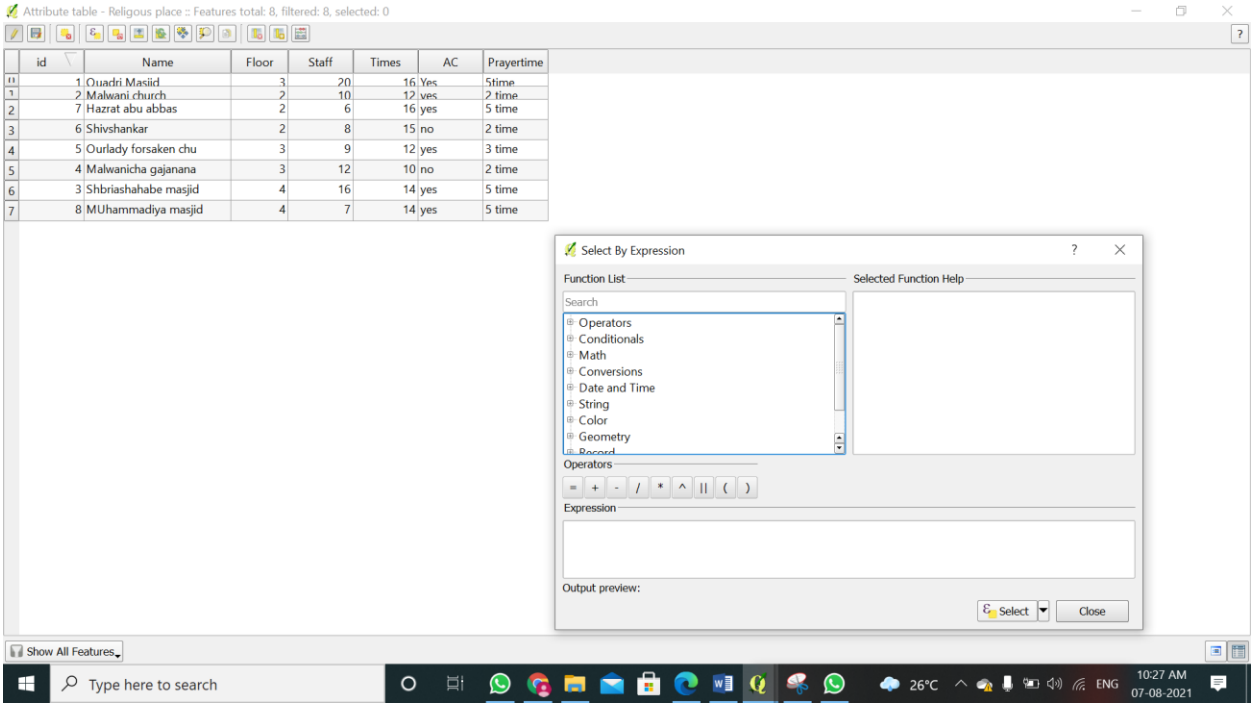
Step 1: Open the map created



Step 2: Go to Attribute Table of any layer.

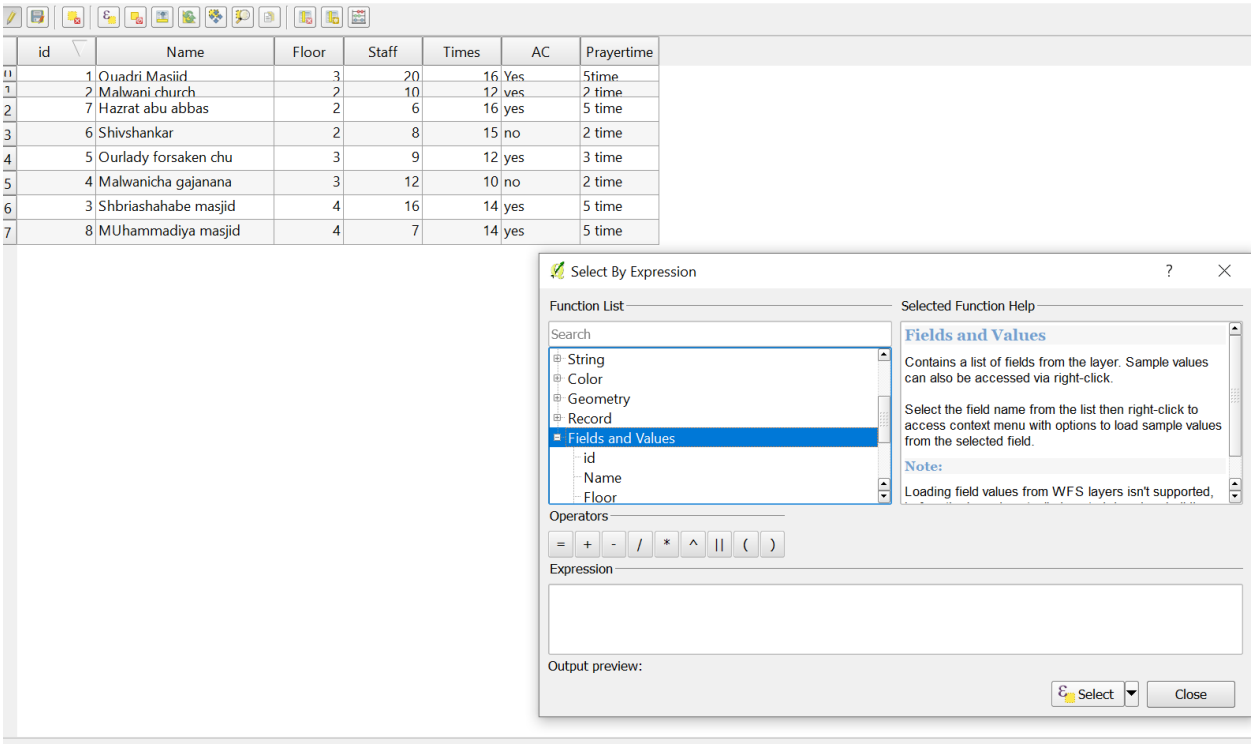


Step 3: Turn on Toggle Editing and Click on Select feature using expressive button.



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

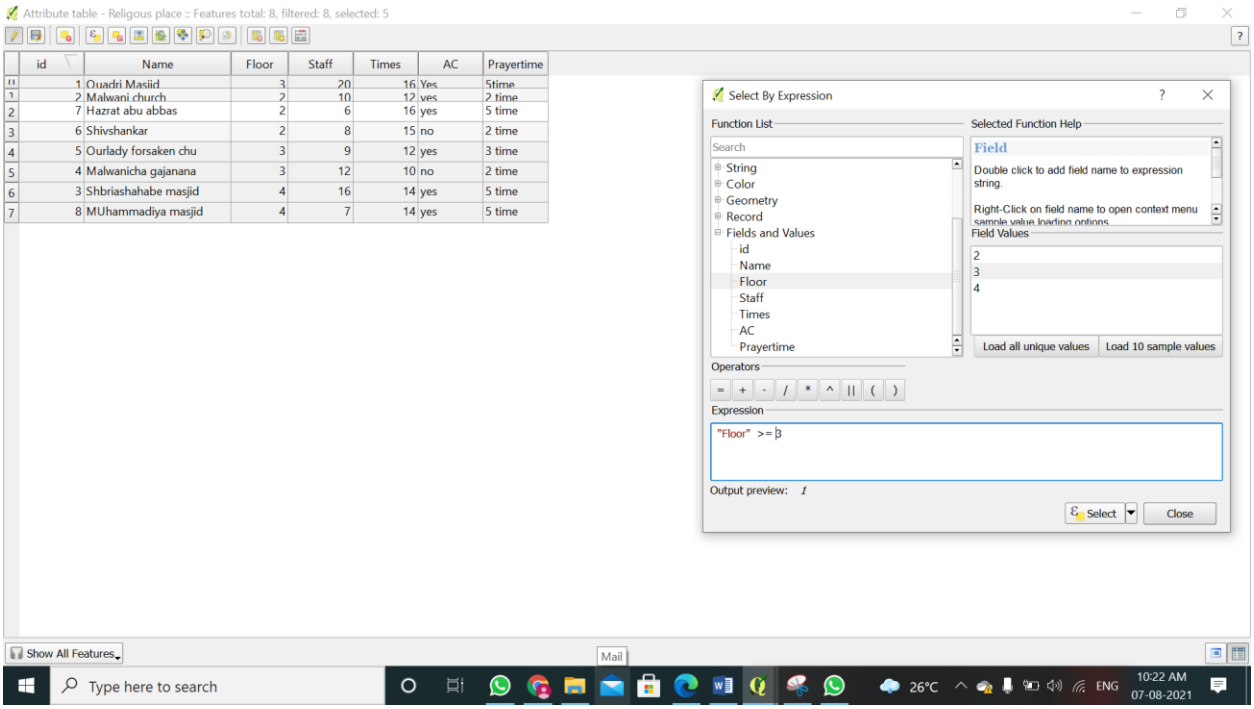
Step 4: Expand the Fields and Value option in dialogue box that appears and double click on the Field name on which query needs to be fired.



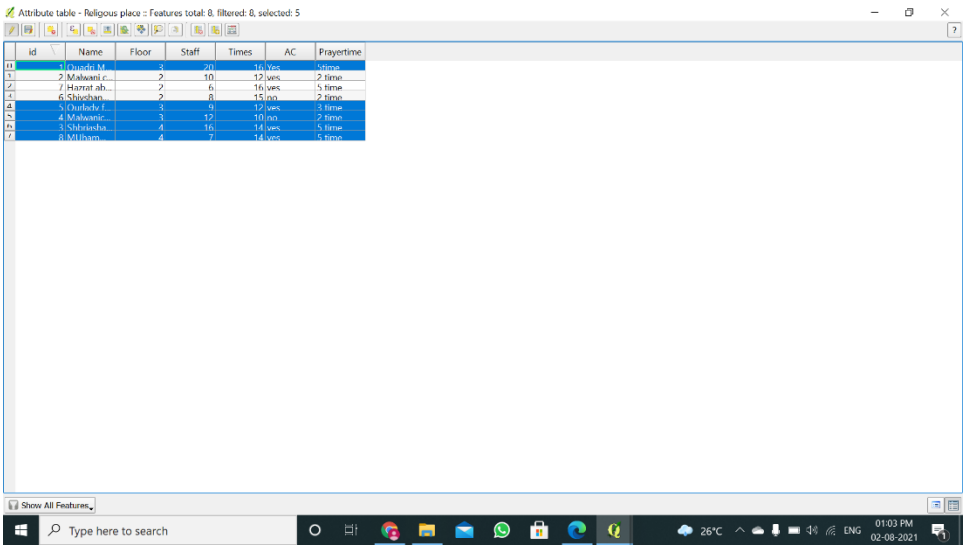
id	Name	Floor	Staff	Times	AC	Prayertime
1	Quadri Masiid	3	20	16	Yes	5time
2	Malwani church	2	10	12	yes	2 time
7	Hazrat abu abbas	2	6	16	yes	5 time
6	Shivshankar	2	8	15	no	2 time
5	Ourlady forsaken chu	3	9	12	yes	3 time
4	Malwanicha gajanana	3	12	10	no	2 time
3	Shbriashahabe masjid	4	16	14	yes	5 time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

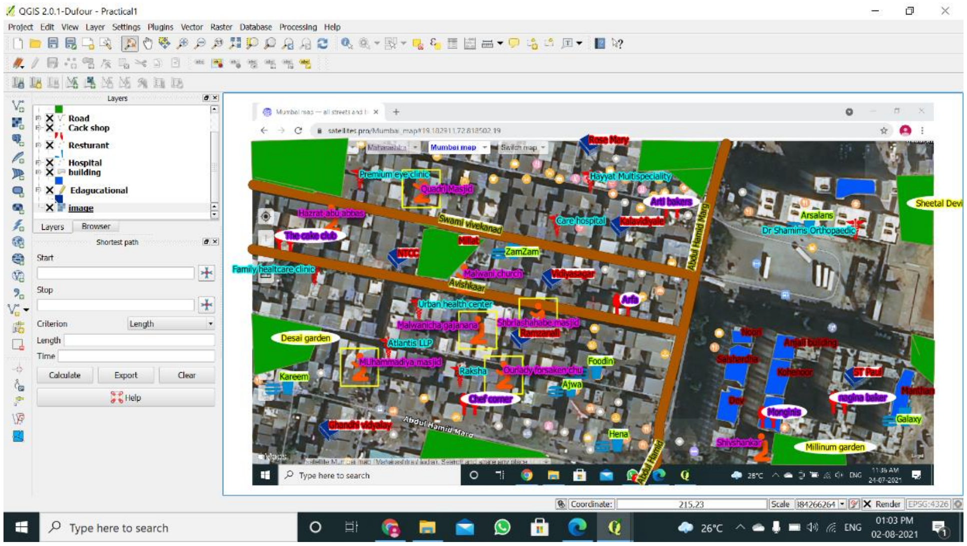
Step 5: After adding Field Name operator like=>,< and so on can be added depending on the query that needs to be fired.

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



Step 7: Click on SELECT Button.




QGIS 2.0.1-Dufour - Practical1
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
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Hospital
building
Edagucational
image
Layers
Browser
Shortest path
Start
Stop
Criterion
Length
Length
Time
Calculate
Export
Clear
Help
Mumbai map
Premium eye clinic
Quadri Masjid
Hazrat abu abbas
Swami vivekanad
The cake club
Family healtcare clinic
Avishkaar
Urban health center
Malwanicha gajanana
Desai garden
Atlantis LLP
MUhammadiya masjid
Kareem
Raksha
Chef corner
Ghandhi vidyalay
Abdul Hamid Marg
Hayyat Multispeciality
Care hospital
Arti bakers
Arsalans
Sheetal Devi
Dr Shamims Orthopaedic
ZamZam
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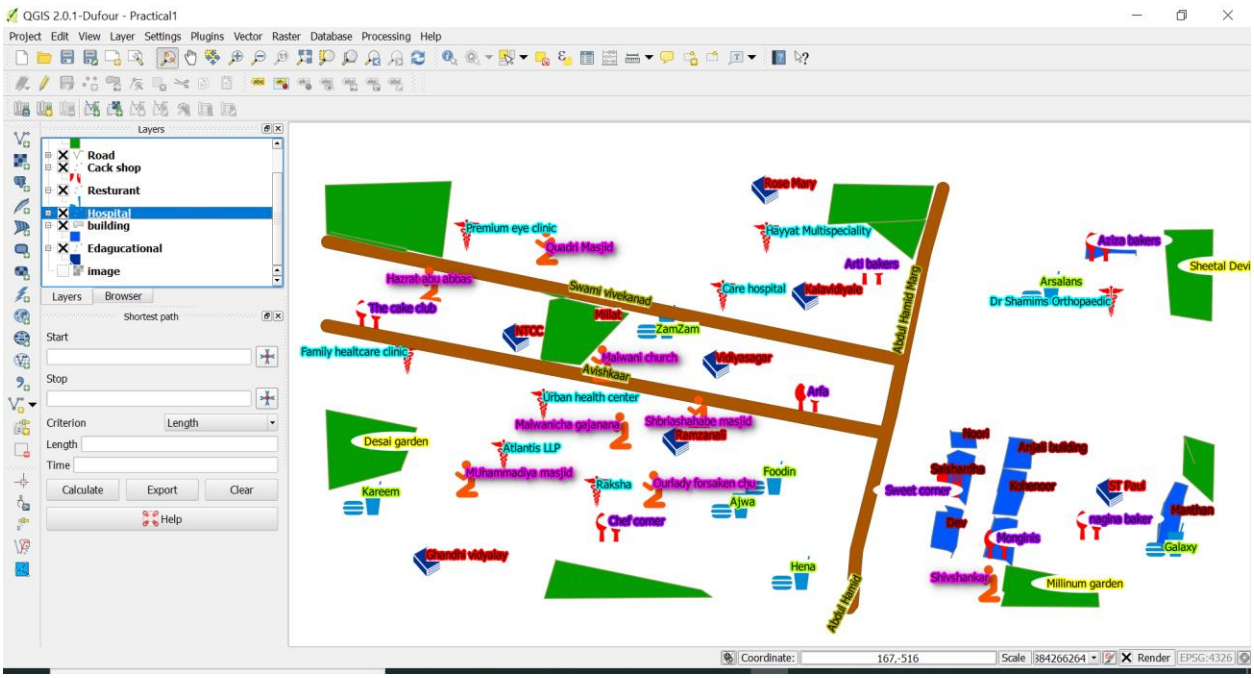
02-08-2021

Practical 3

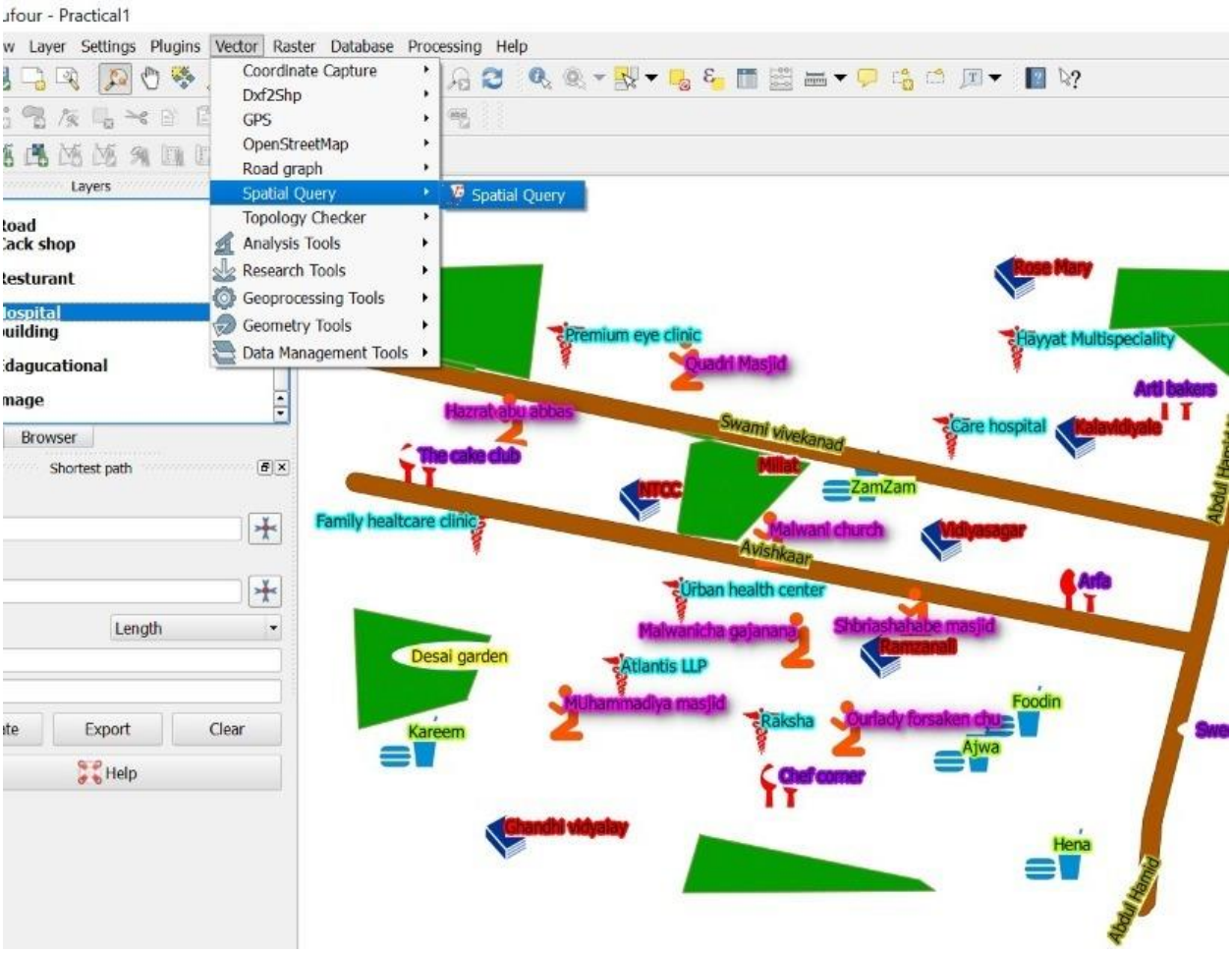
Aim: Performing Spatial Queries on the map created in Practical 1 and existing data.

FIRING QUERIES ON MAP CREATED IN PRACTICAL 1

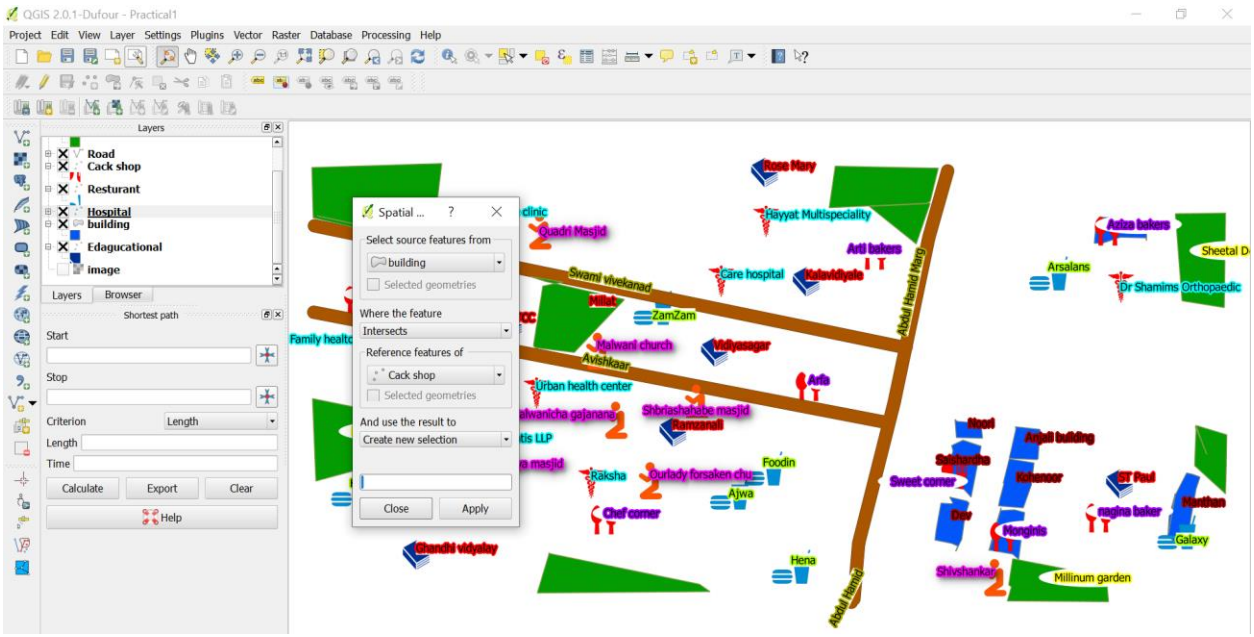
Step 1: Open the map Created in Practical 1.



Step 2: Click on Vector □ Spatial Query □ Spatial Query.

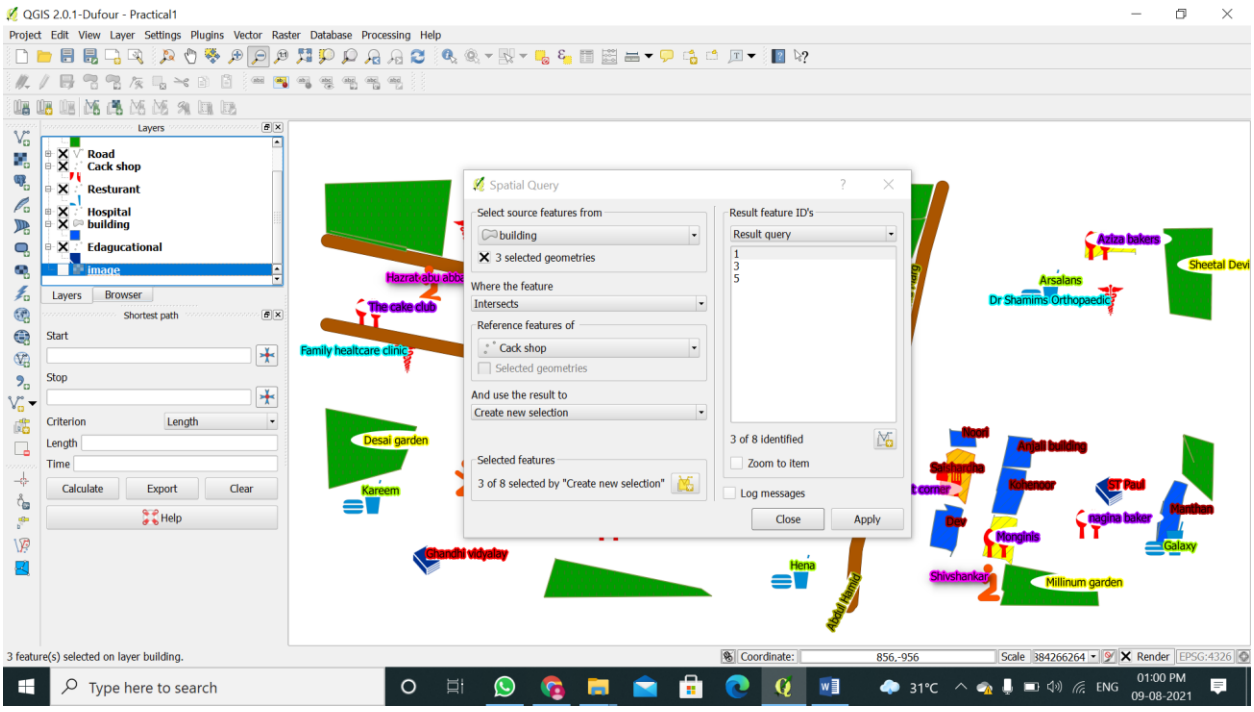


Step 3: On the Spatial Query Window, Select the input layer 1, the relationship and the input layer 2 and Click on “Apply”.



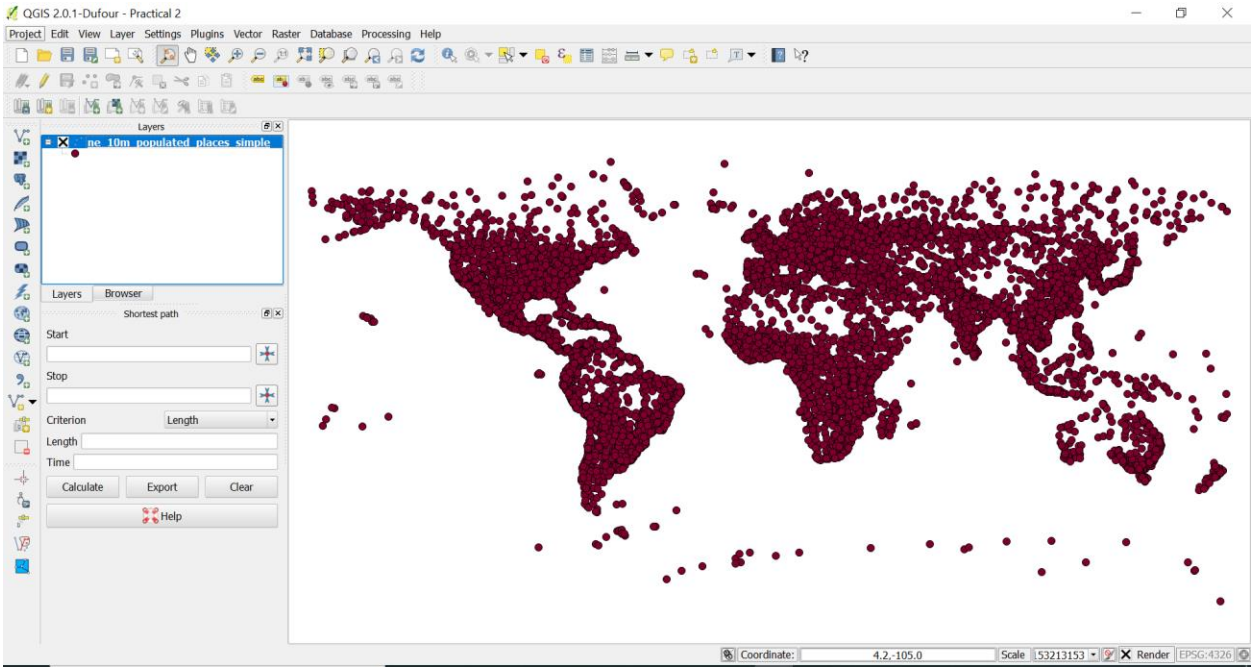
Step 4: Result will be highlighted Yellow coloured box in the map

(Fire minimum 5 queries)

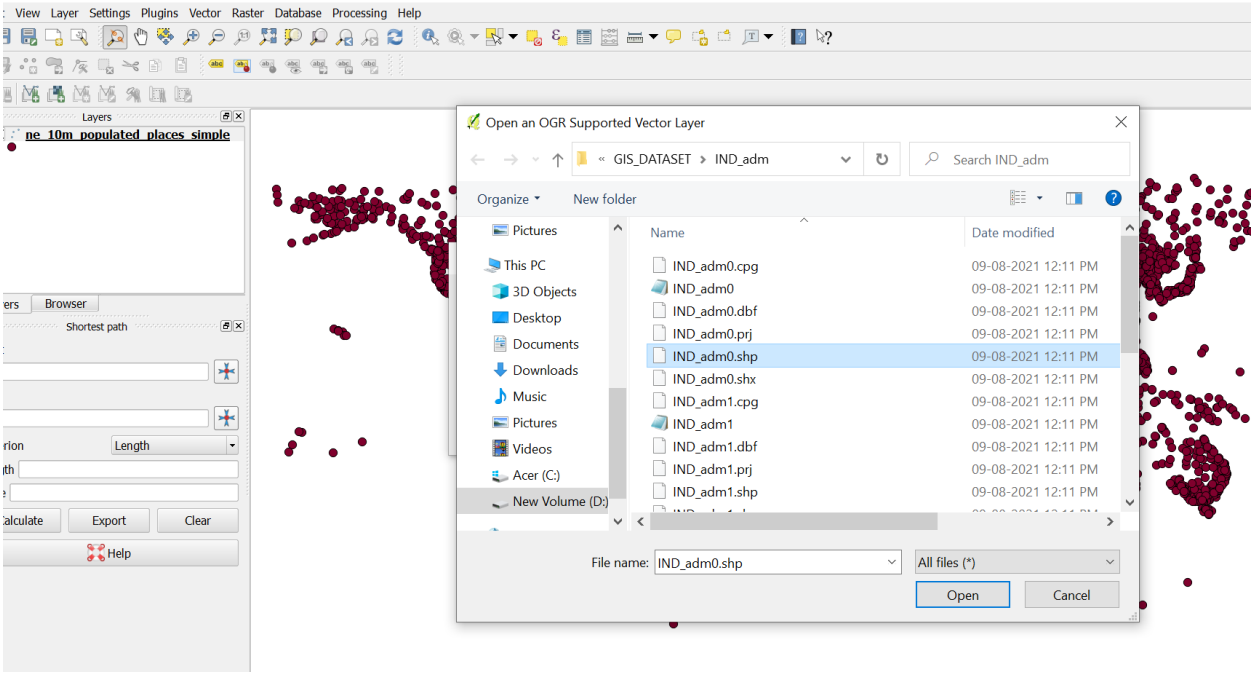


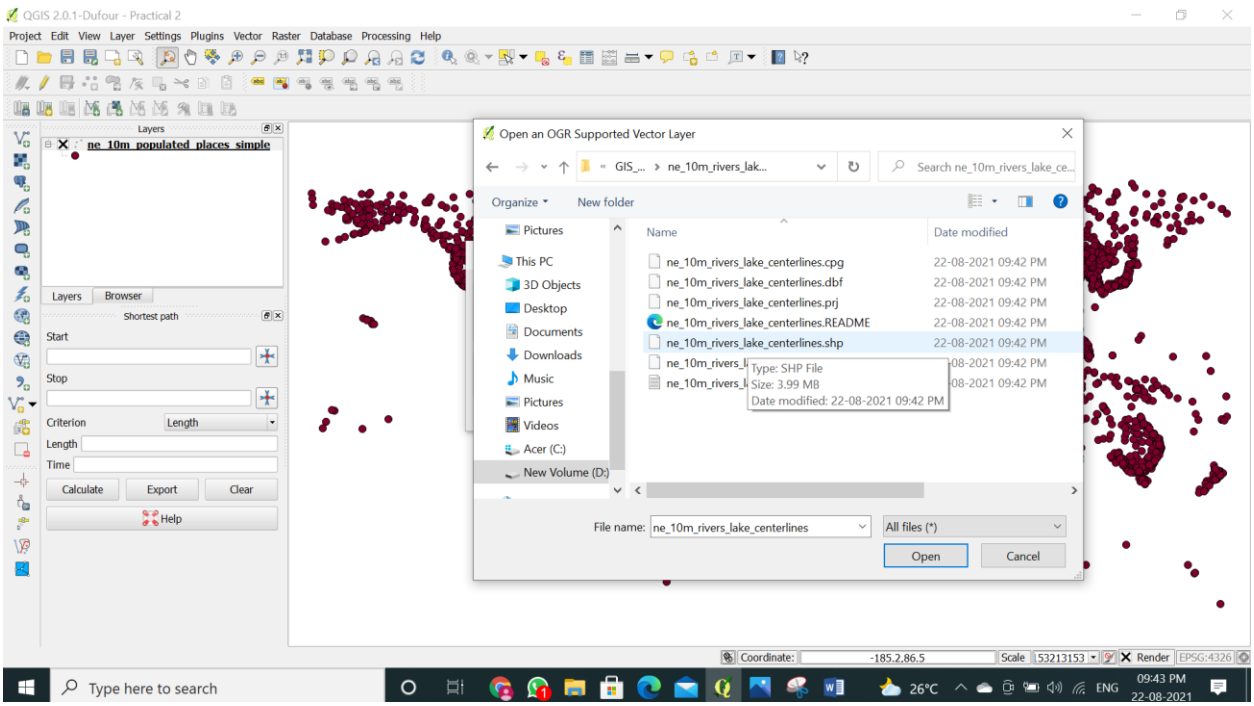
FIRING QUERIES ON EXISTING DATA SET

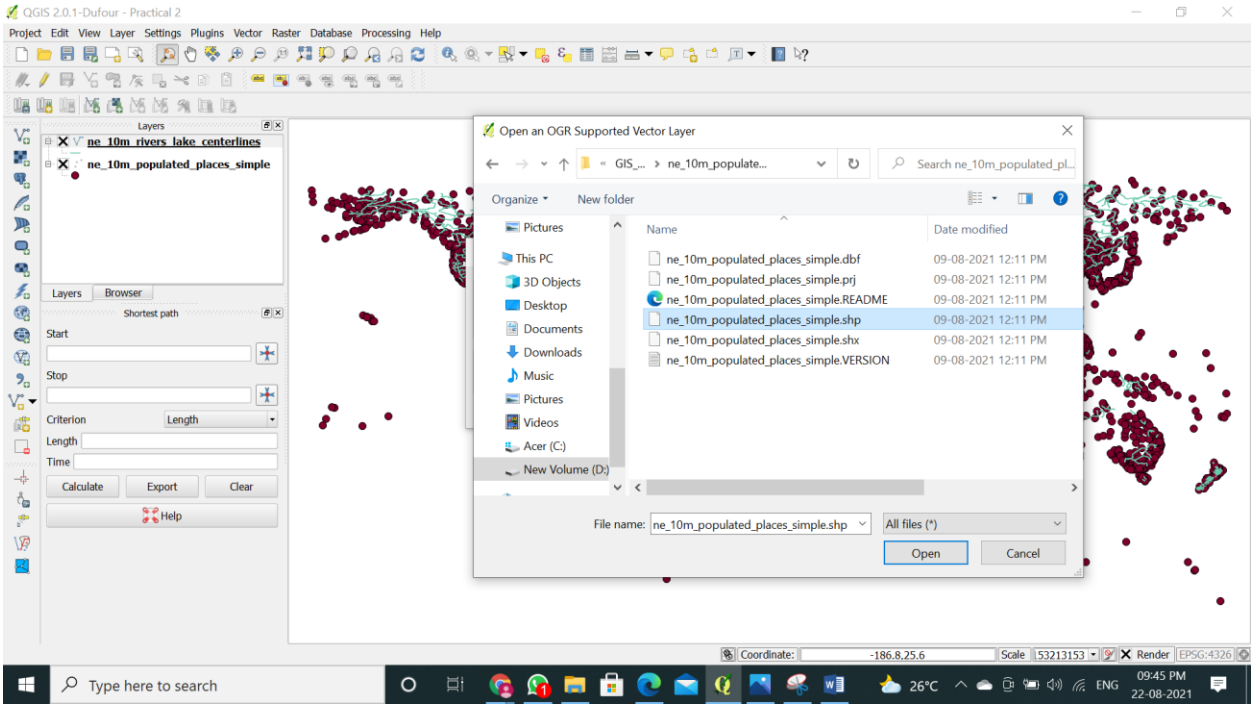
Step 1: Open the map.



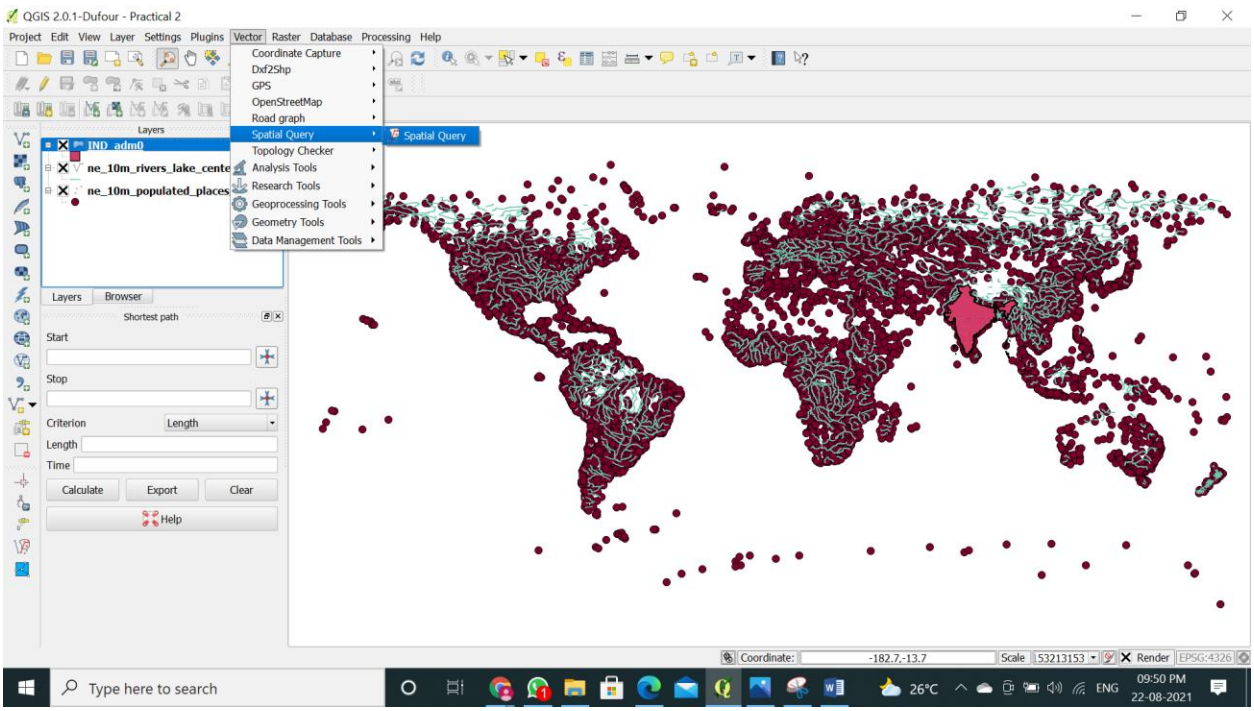
Step 2: Click on layer select “add vector layer” browse and select “IND_adm0.shp”, “ne_10m_rivers_lake_centerlines” and “ne_10m_populated_places_simple”.



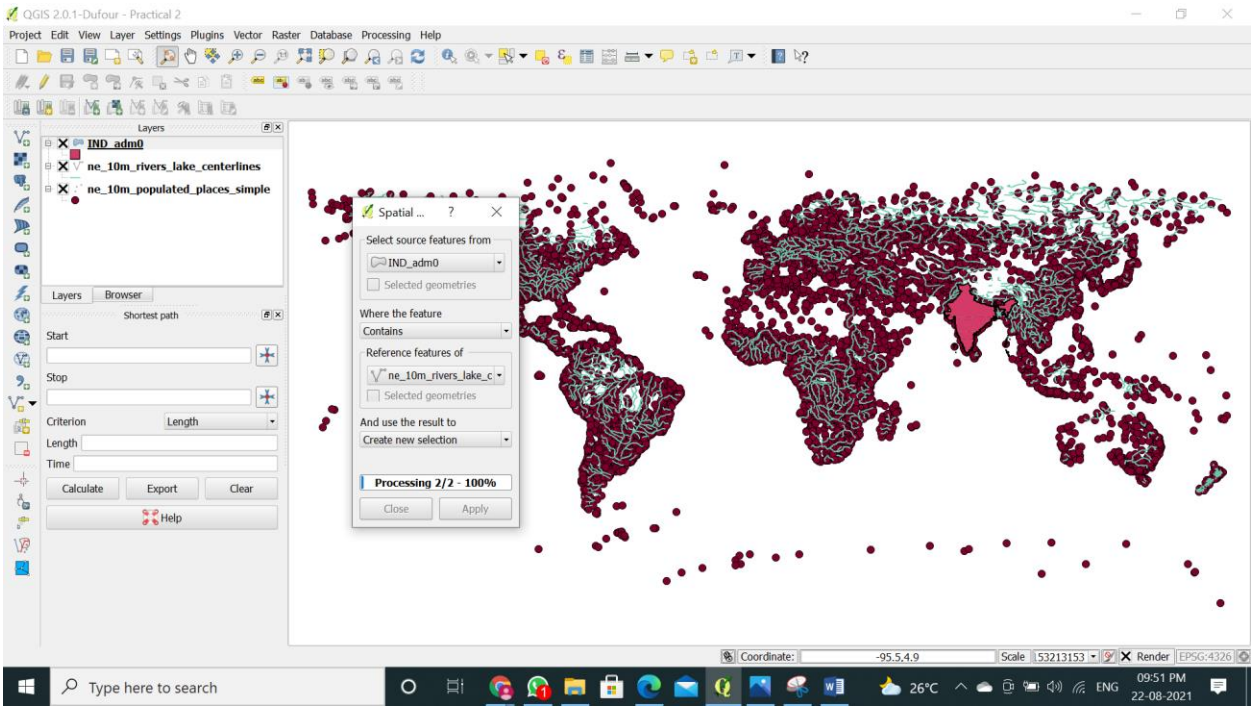




Step 3: Step 2: Click on Vector □ Spatial Query □ Spatial Query.

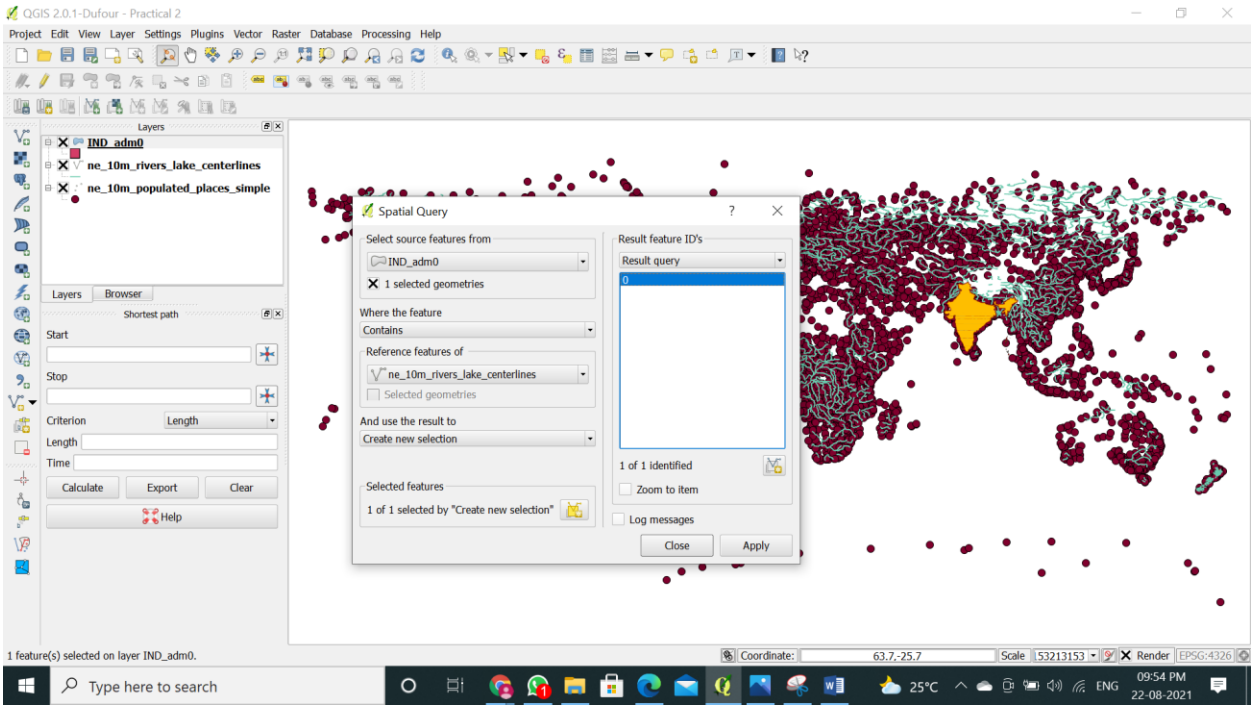


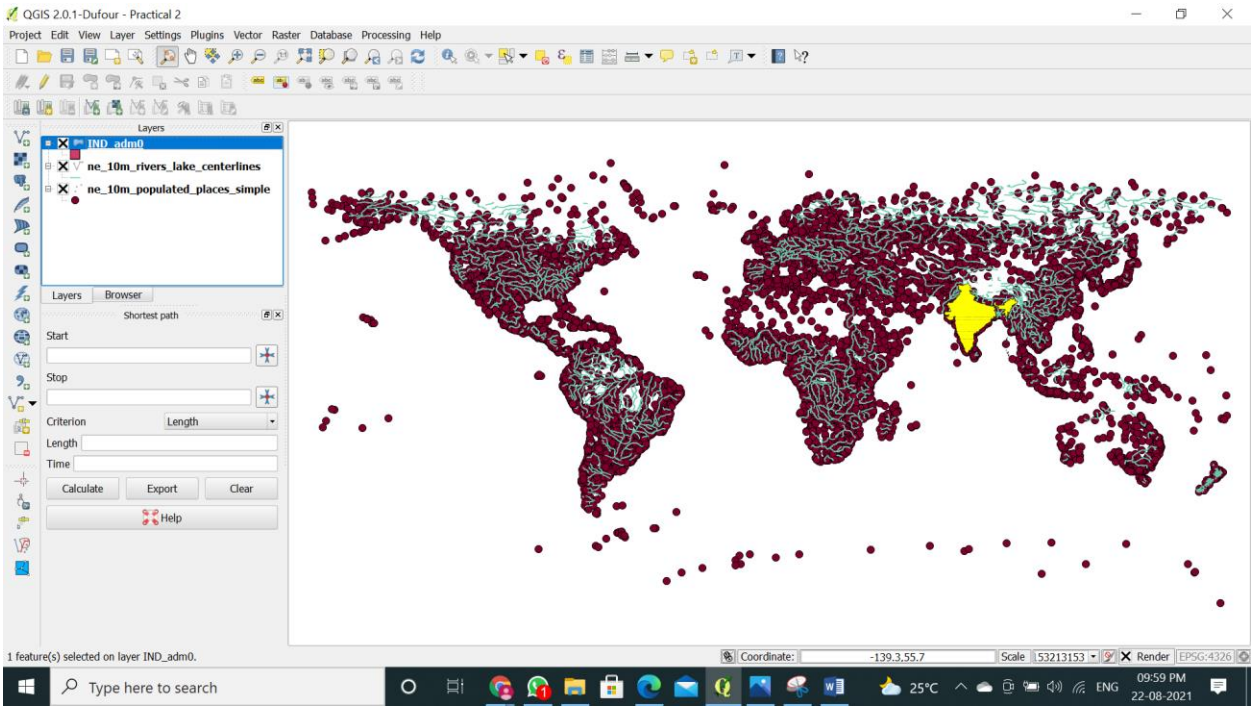
Step 4: On the Spatial Query Window, Select the input layer 1, the relationship and the input layer 2 and Click on “Apply”.



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.

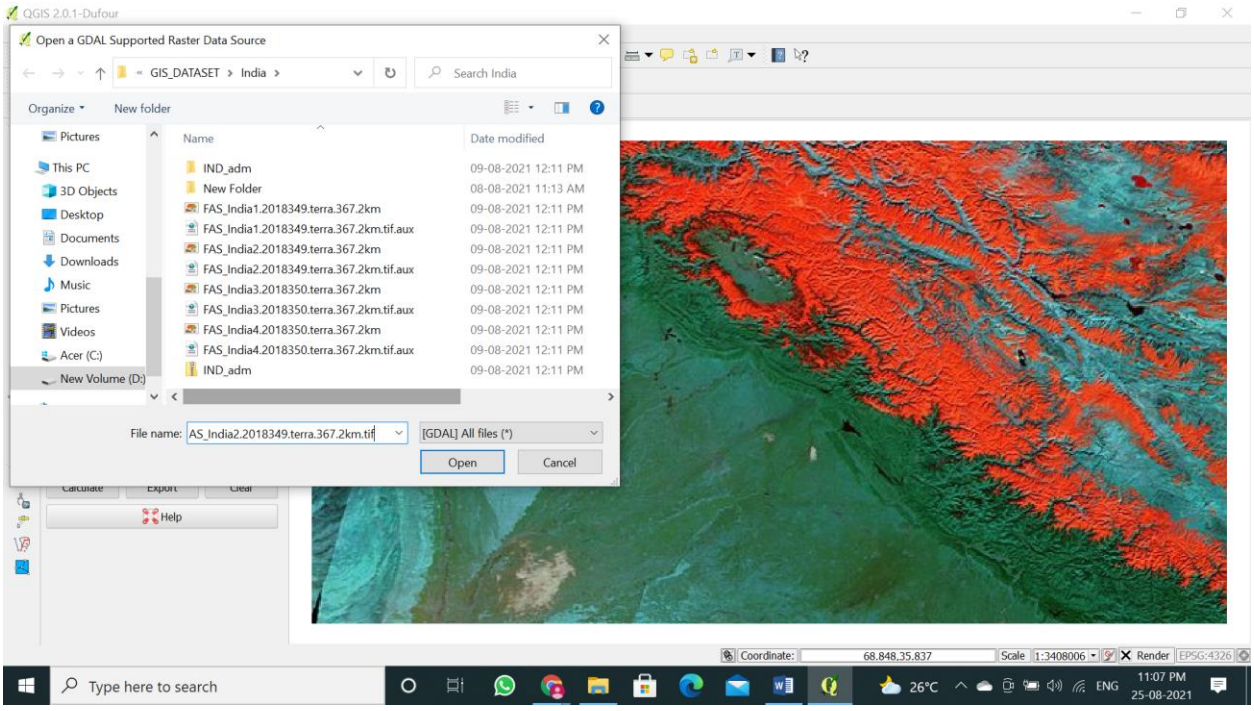
Select the following ".tif" raster images for India from data folder.

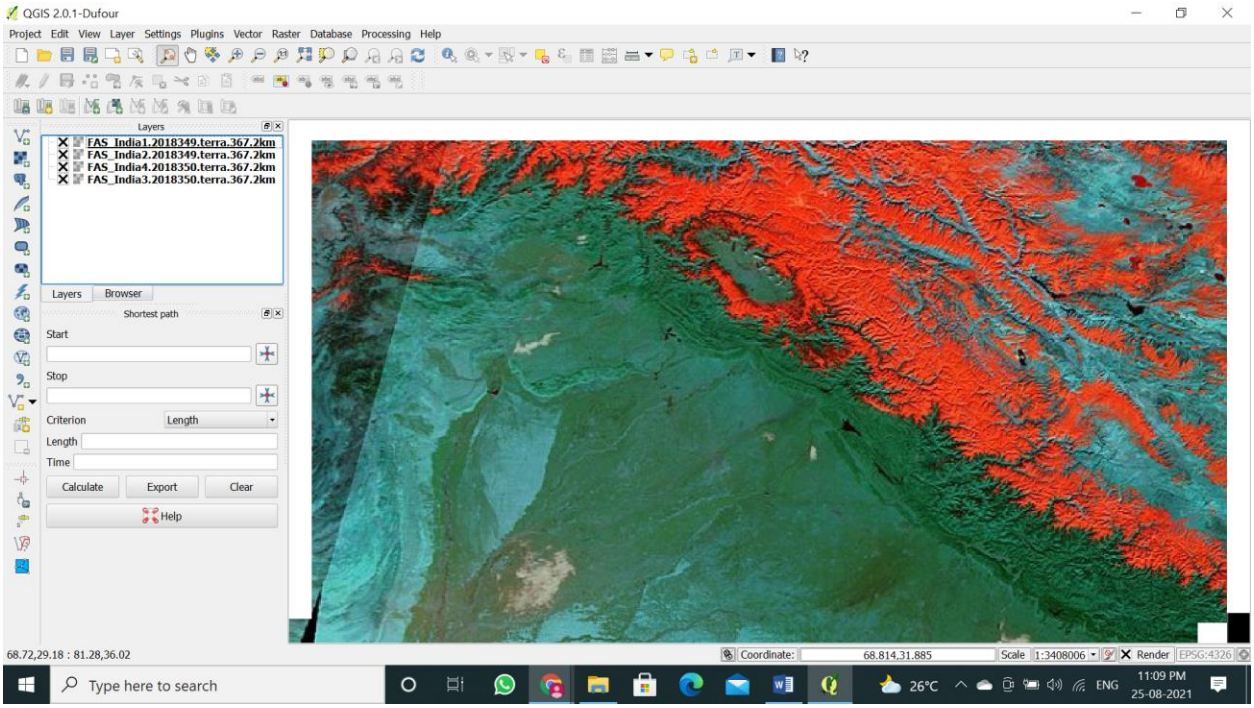
FAS_India1.2018349.terra.367.2km.tif

FAS_India2.2018349.terra.367.2km.tif

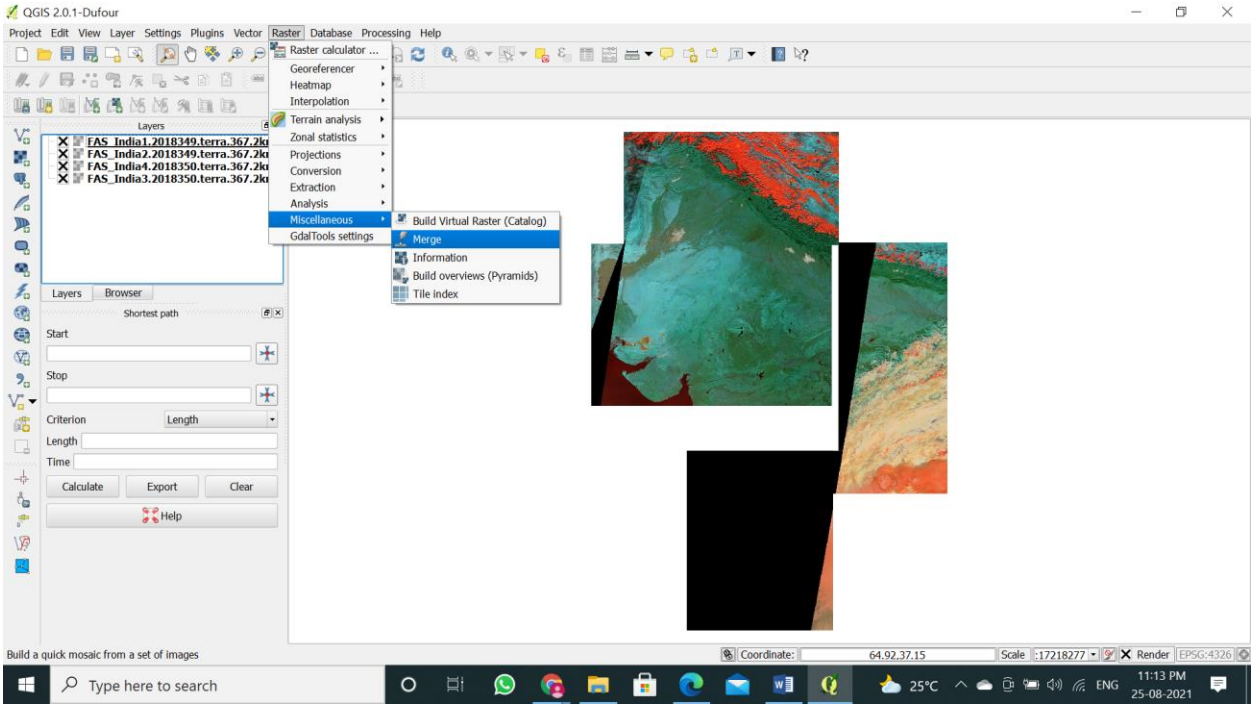
FAS_India3.2018349.terra.367.2km.tif

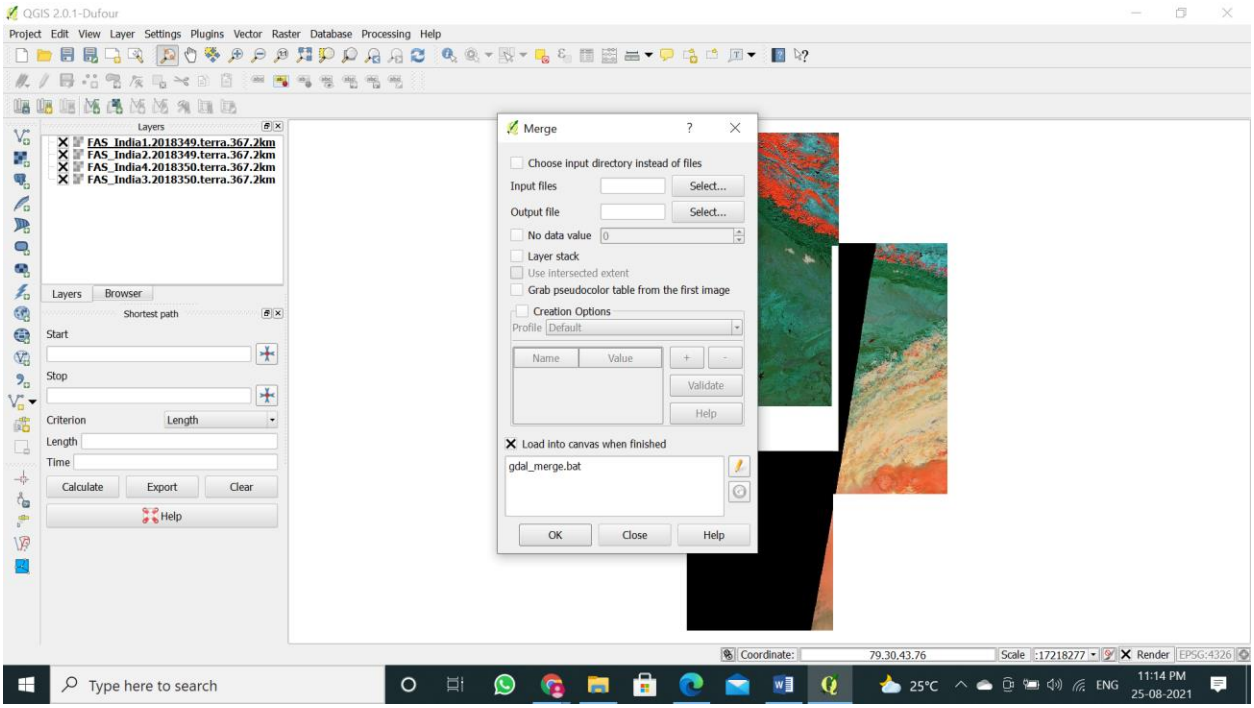
FAS_India4.2018349.terra.367.2km.tif





Step 2: Go to Raster → Miscellaneous → Merge



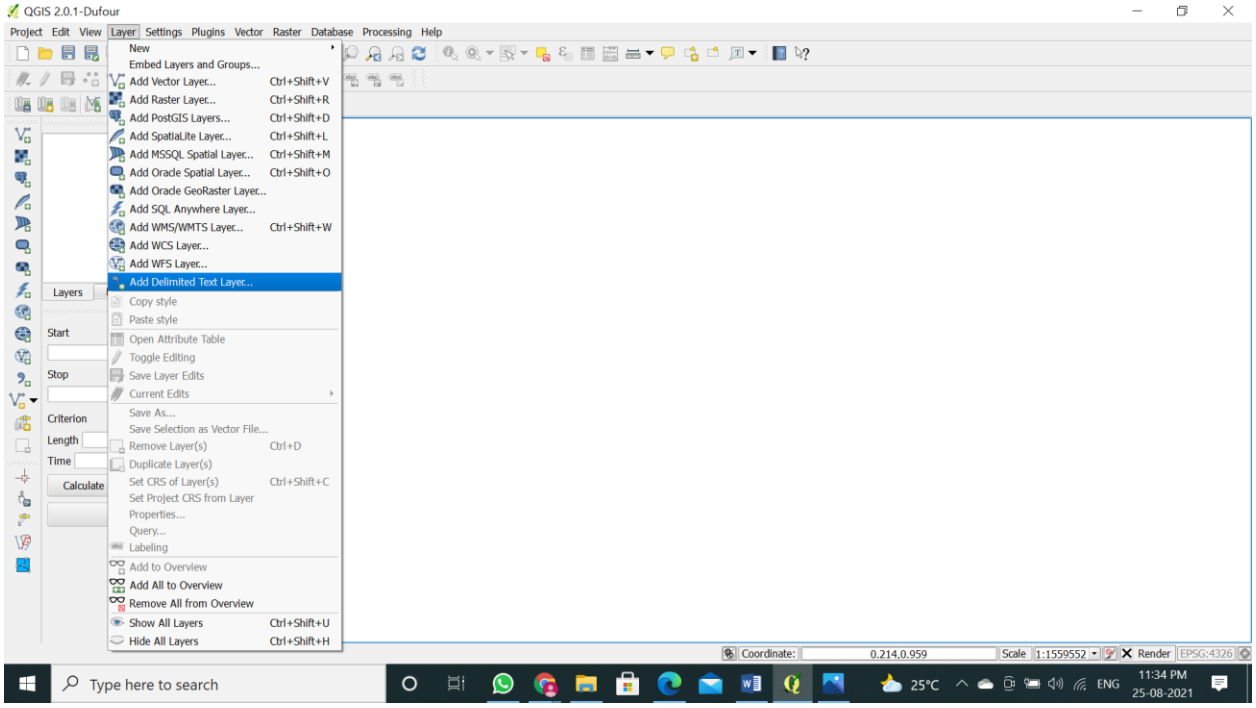


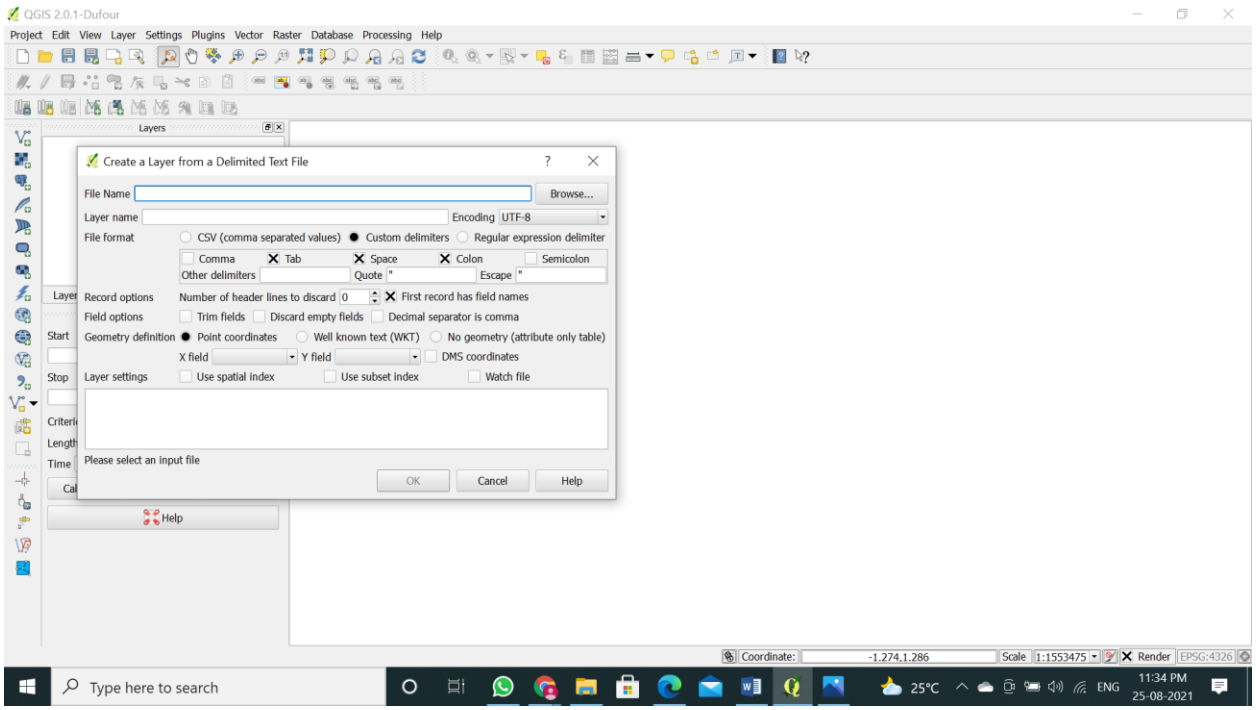
In the Merge dialog window, Click on Select of Input Files □ Select all layers and Press OK.

Practical 5

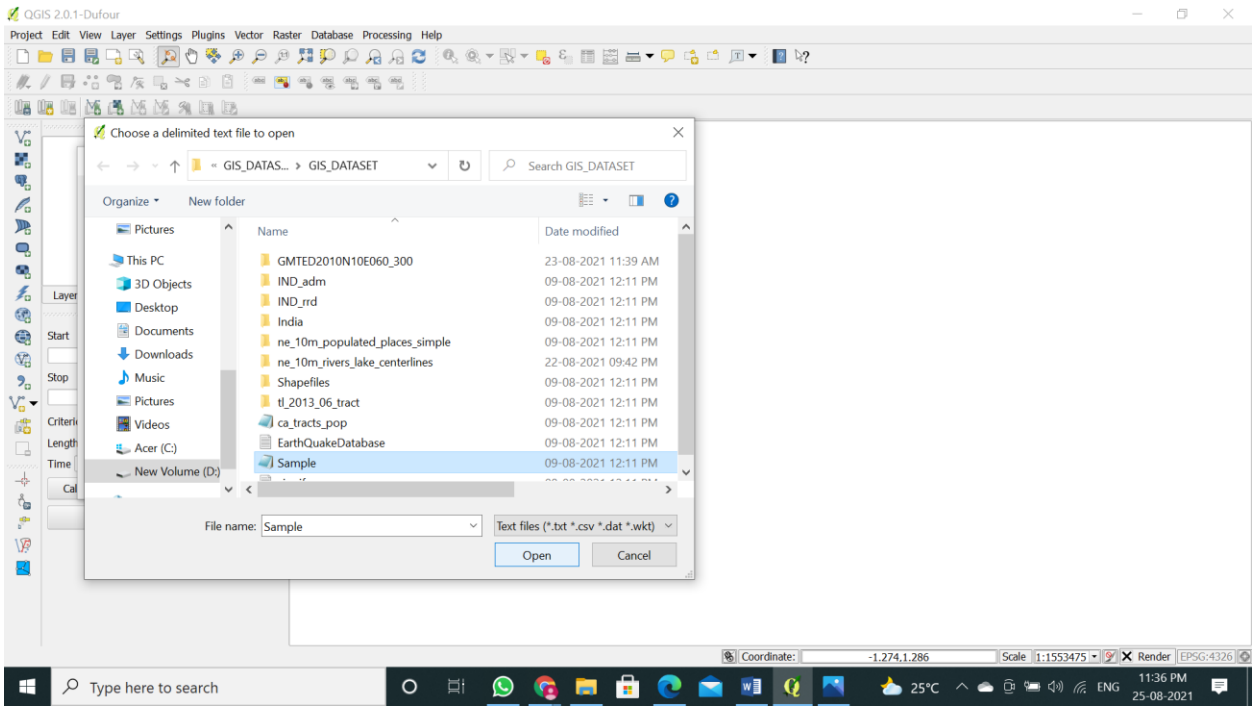
Aim: Importing Spreadsheets or import CSV Files.

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

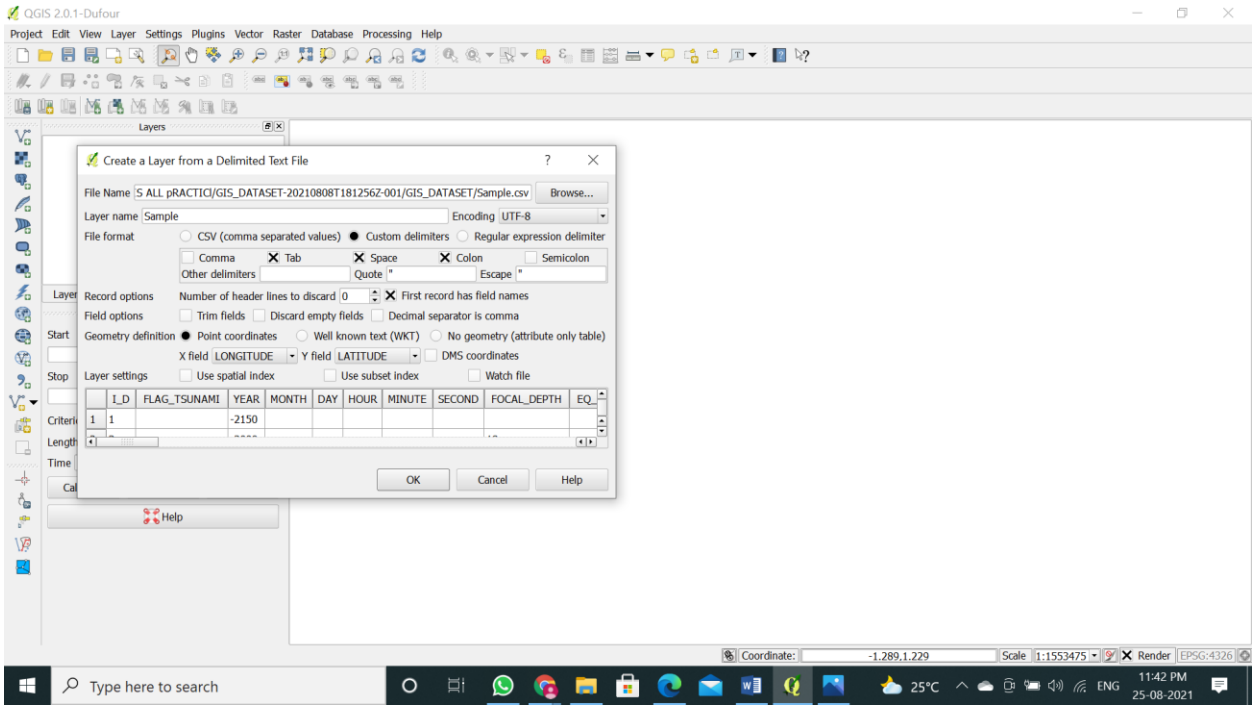


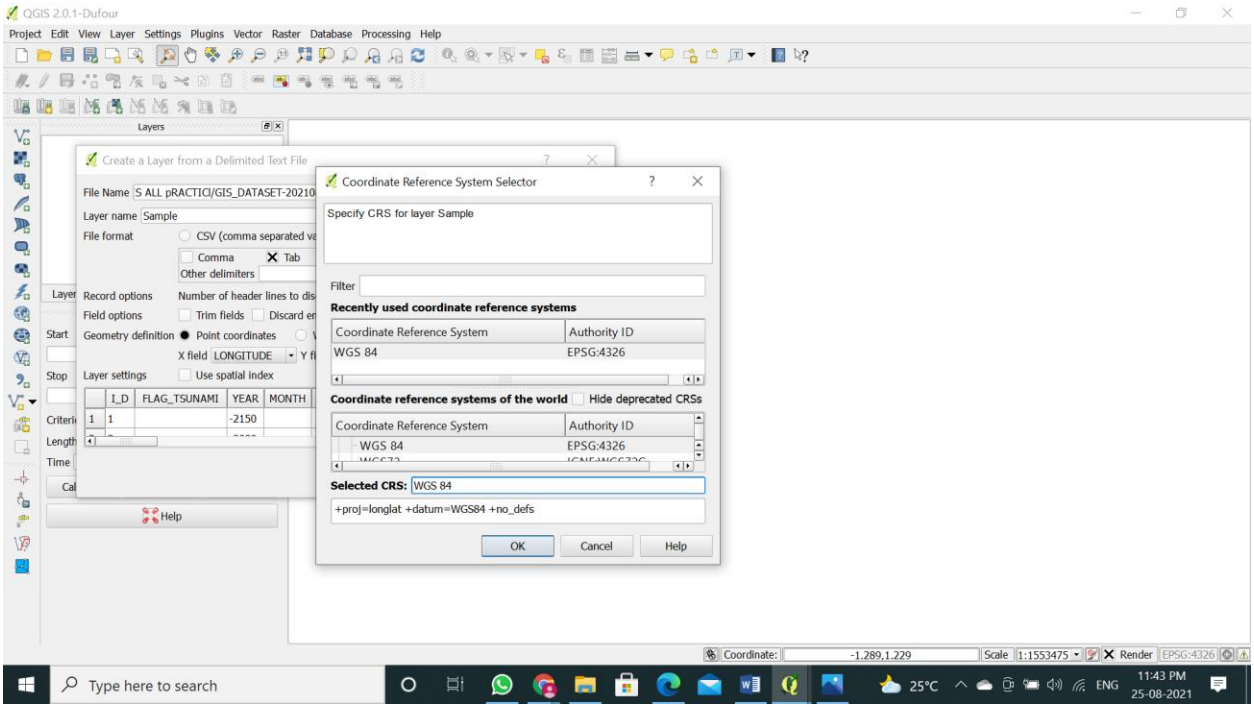


Step 2: Data Source Manager | Delimited Text window will appear and select the Sample.csv file from data folder.

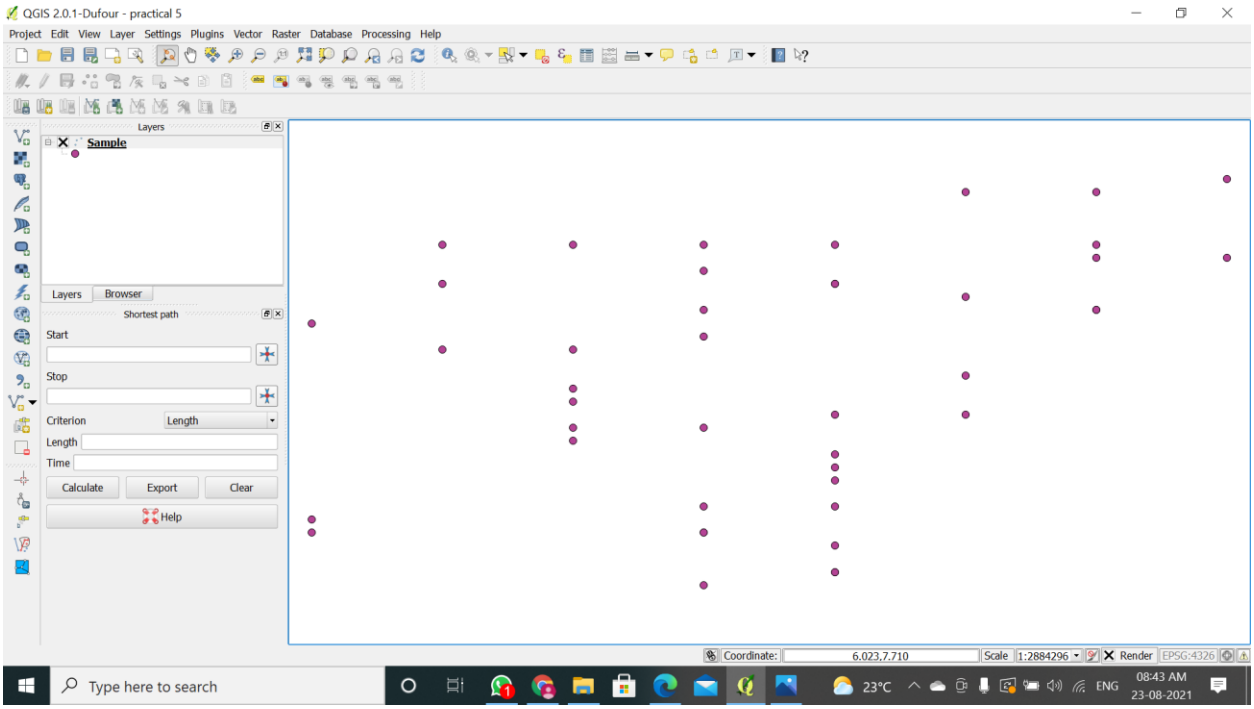


Step 3: Make following changes: under delimited Text CHECK TAB, COLON, SPACE Geometry definition X – Longitude, Y – Latitude geometry CRS EPSG:4326-WGS 84 • Press ADD and close the window.





Step 4: Press Add and Close the Window



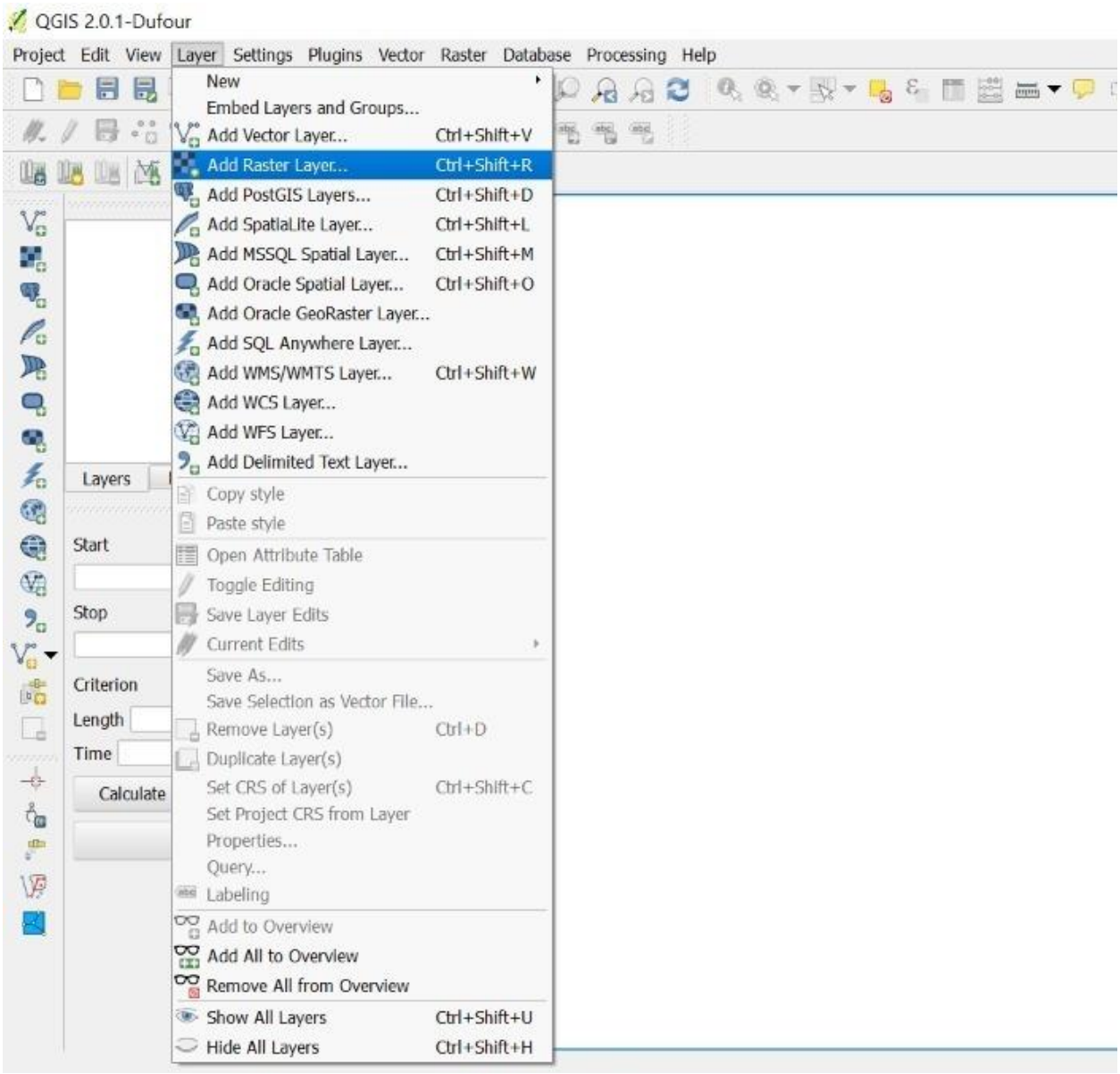
Practical 6

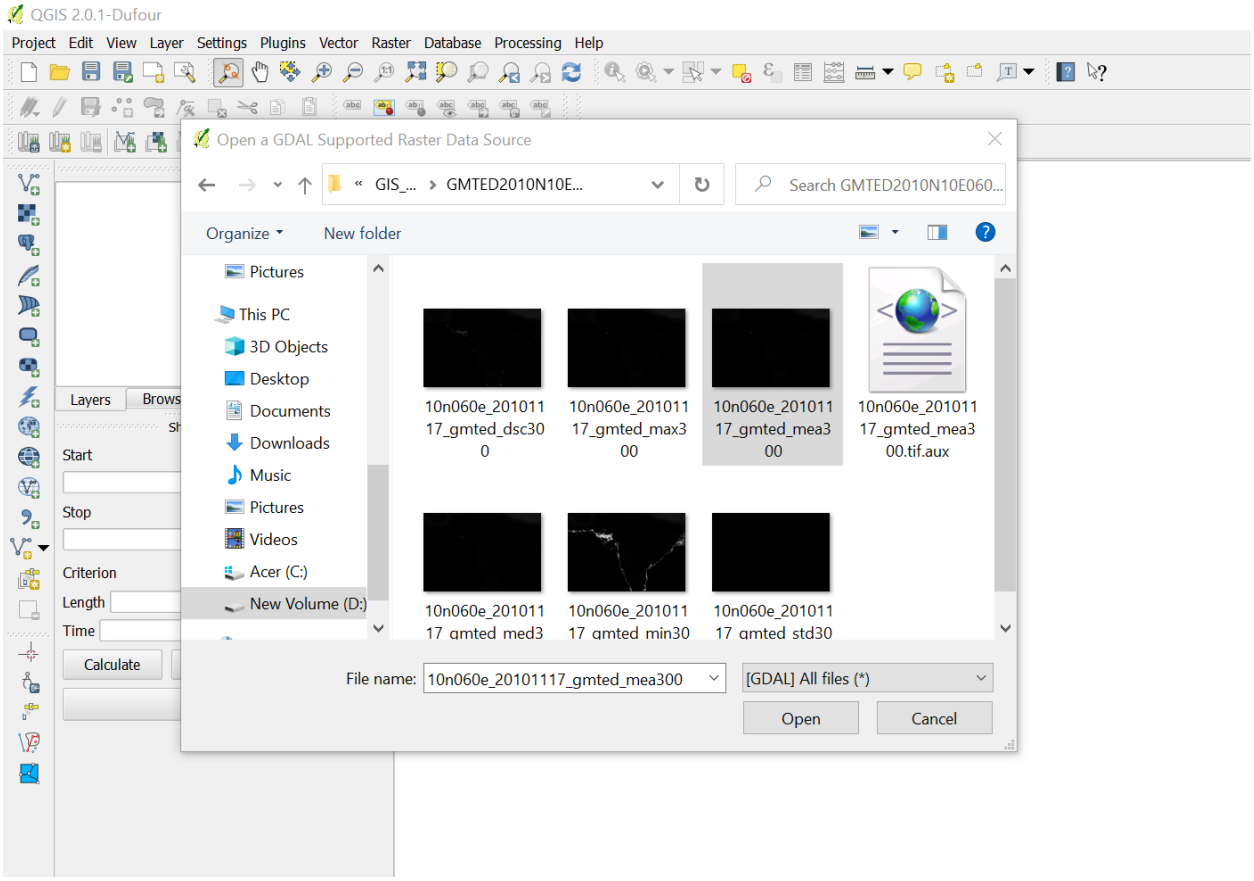
Aim: Working with Attributes, Terrain Data Analysis

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.

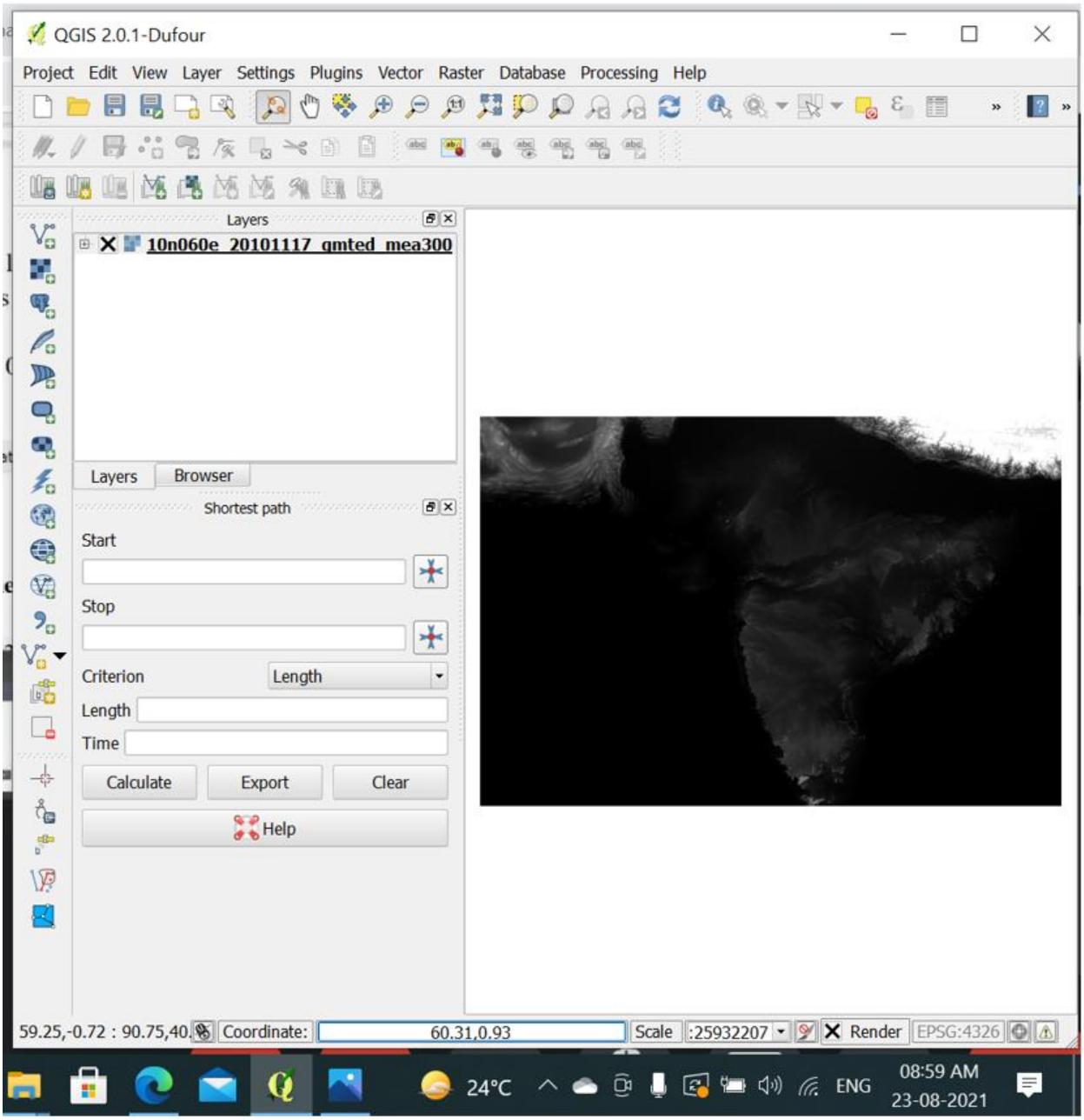
1. Go to Layer > Add Raster Layer > Select

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

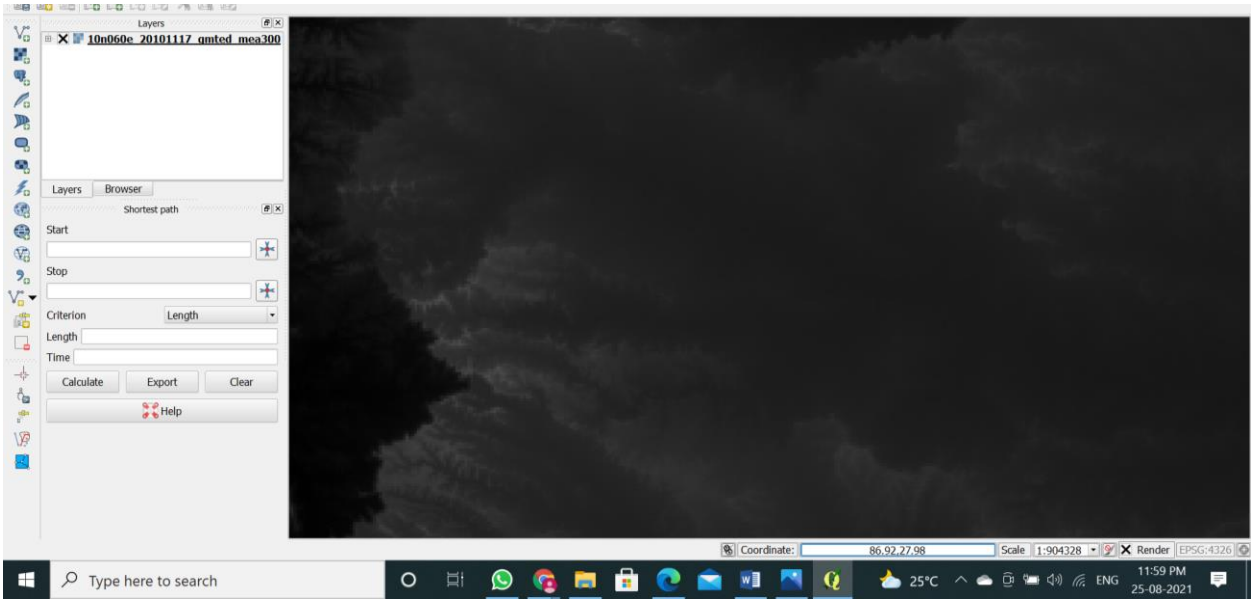




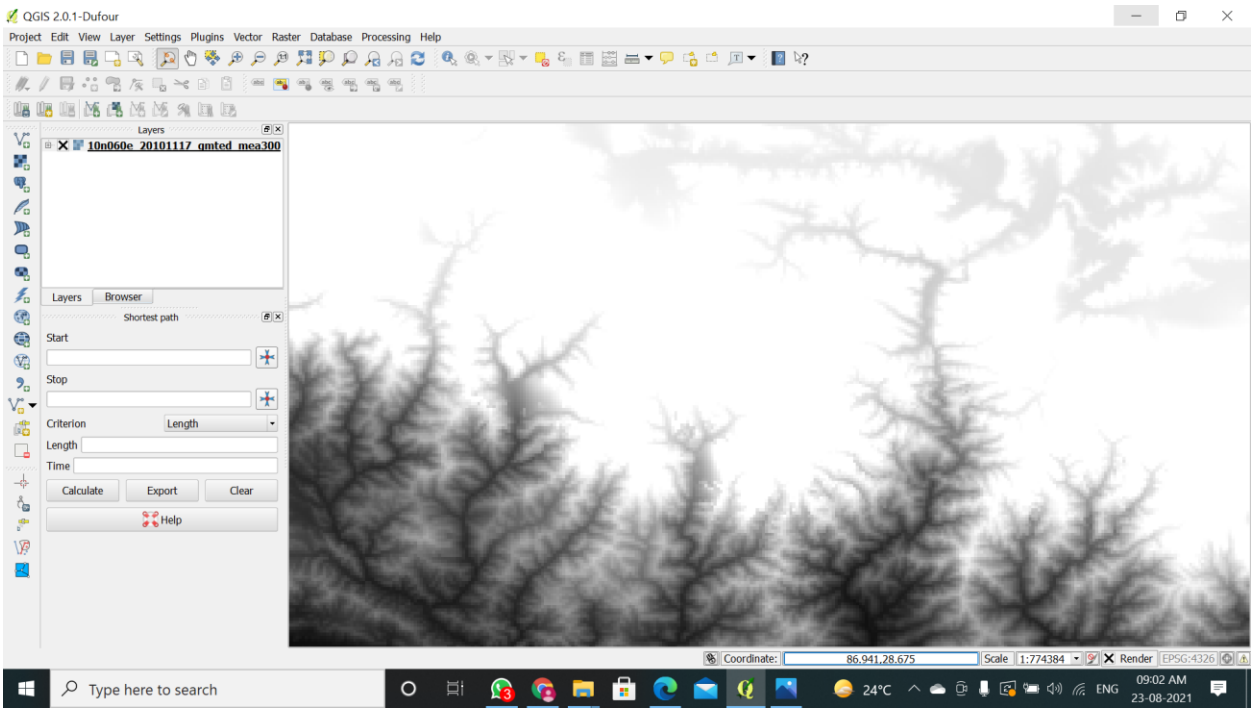
2. The Lower Latitude region are shown using dark color and highest using light shade as seen on top region containing Himalaya and Mt Everest – is located at the coordinates 27.9881 Degree N 89.9253 Degree E.



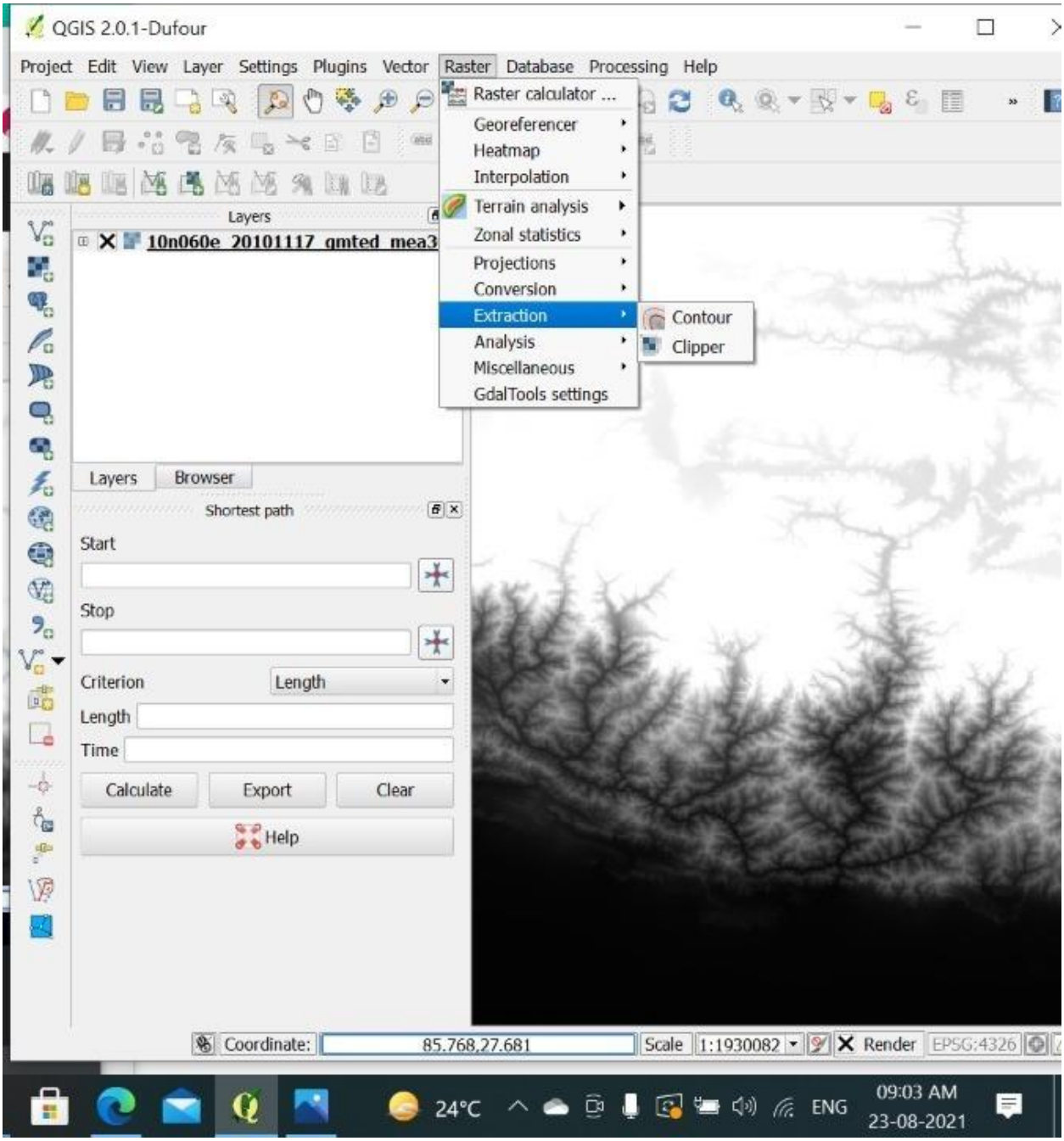
3. Enter 86.92,27.98 in the coordinate field , Scale 900000 and Magnifier 100% at the bottom of QGIS

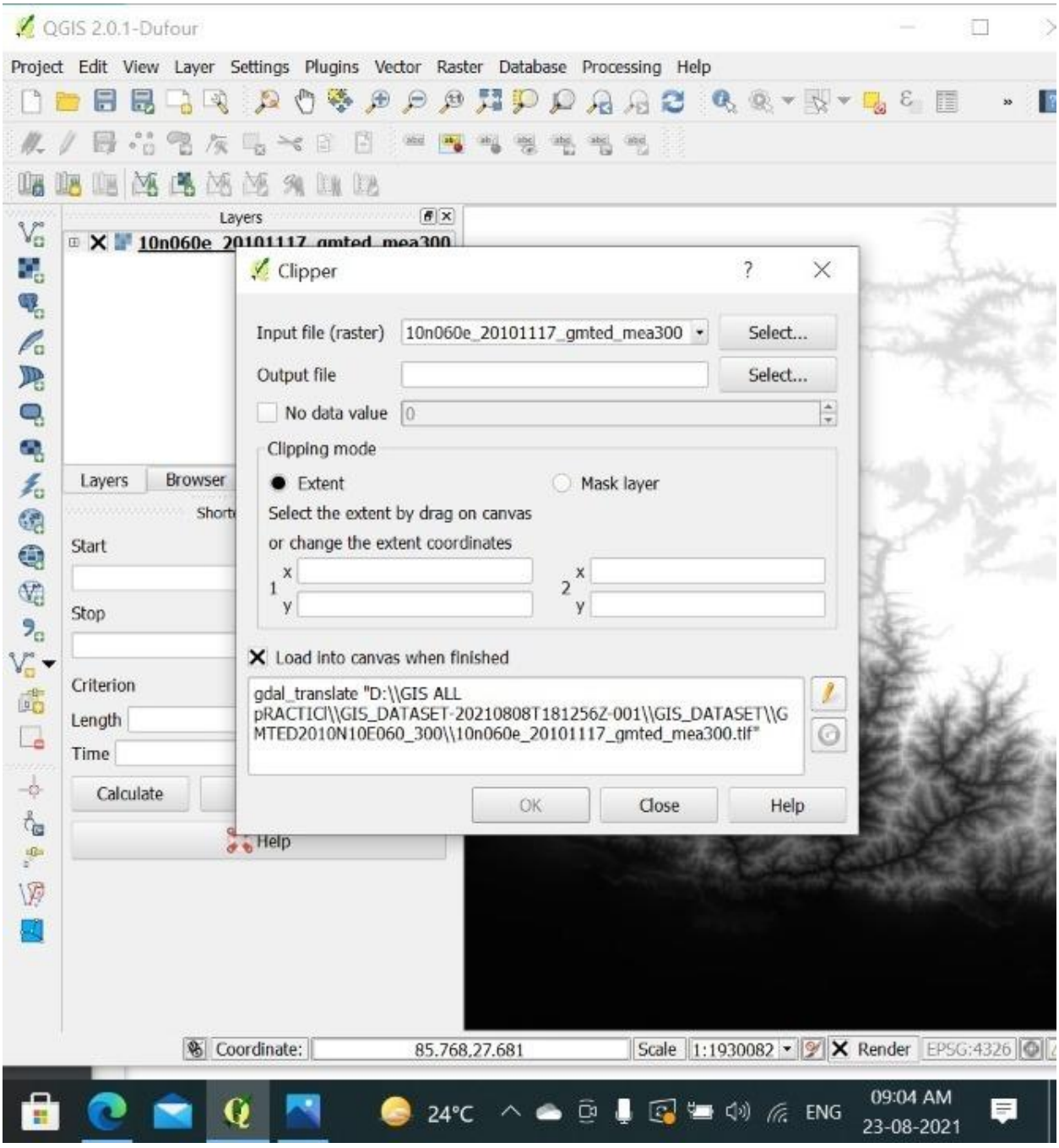


4. Press enter the view port will be centered on Himalaya Region.



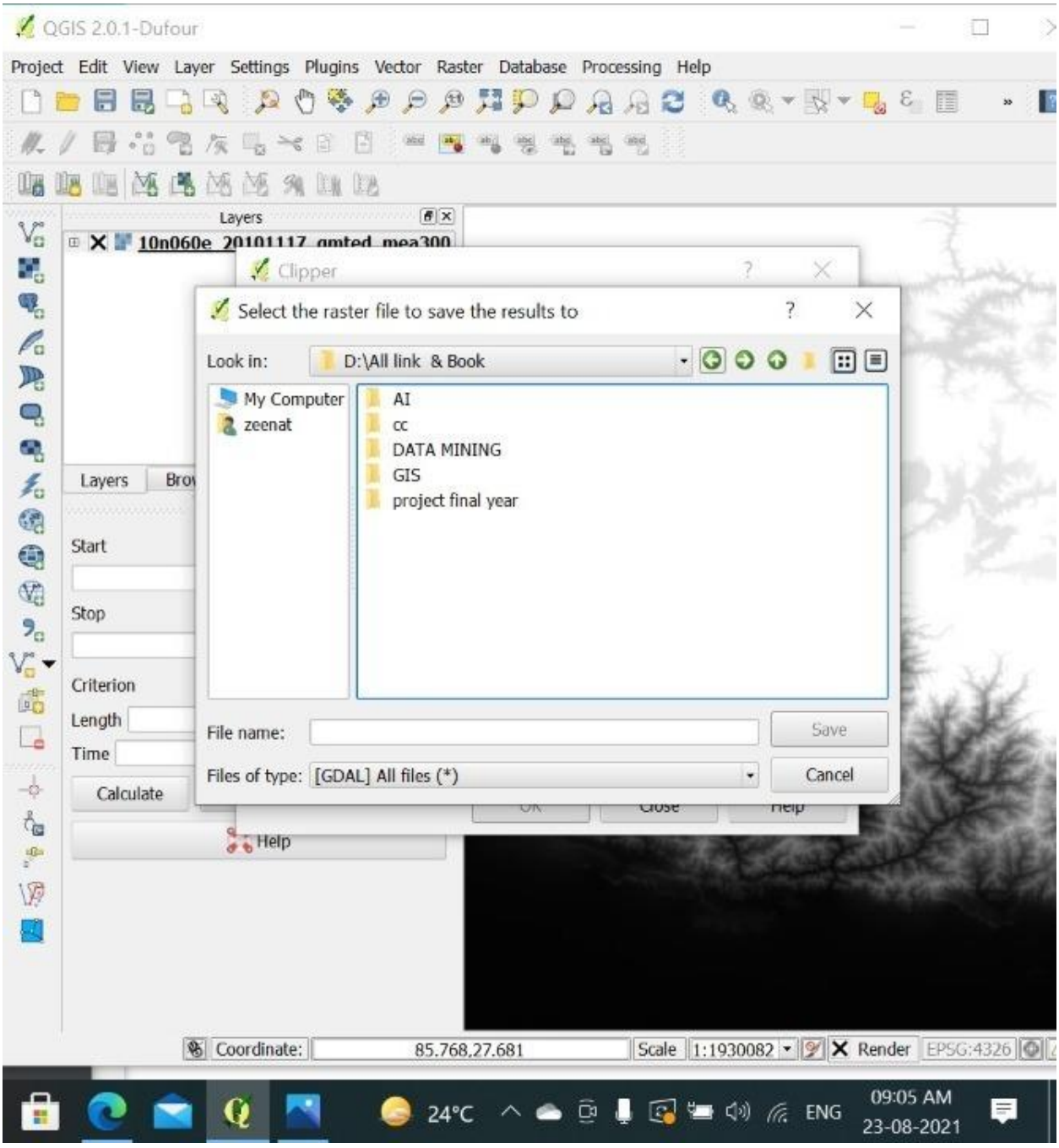
5. Go to Raster > Extraction > Clipper

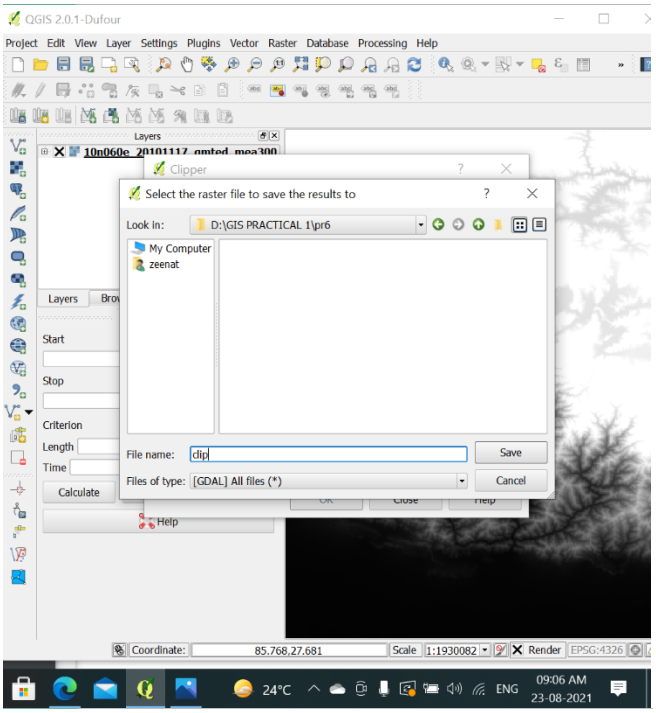

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Raster calculator ...
Georeferencer
Heatmap
Interpolation
Terrain analysis
Zonal statistics
Projections
Conversion
Extraction
Analysis
Miscellaneous
GdalTools settings
Contour
Clipper
Layers
10n060e_20101117_gmted_mea3
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

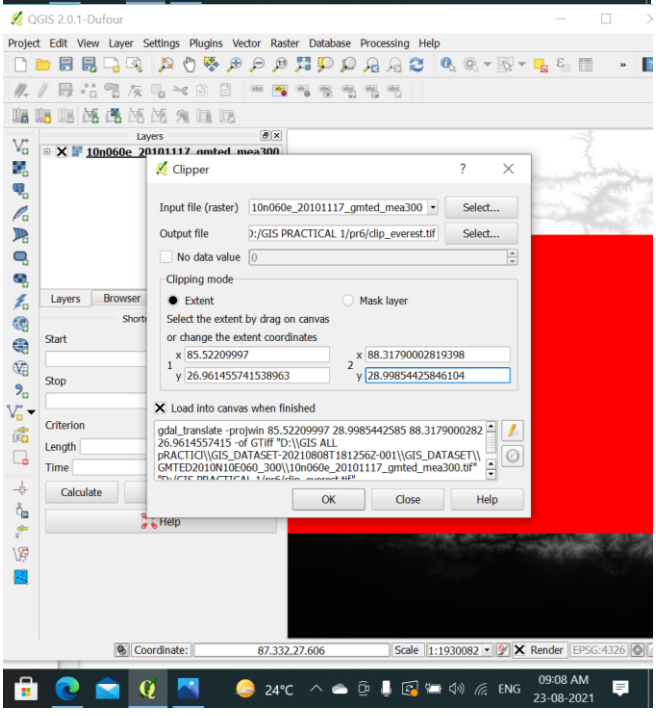


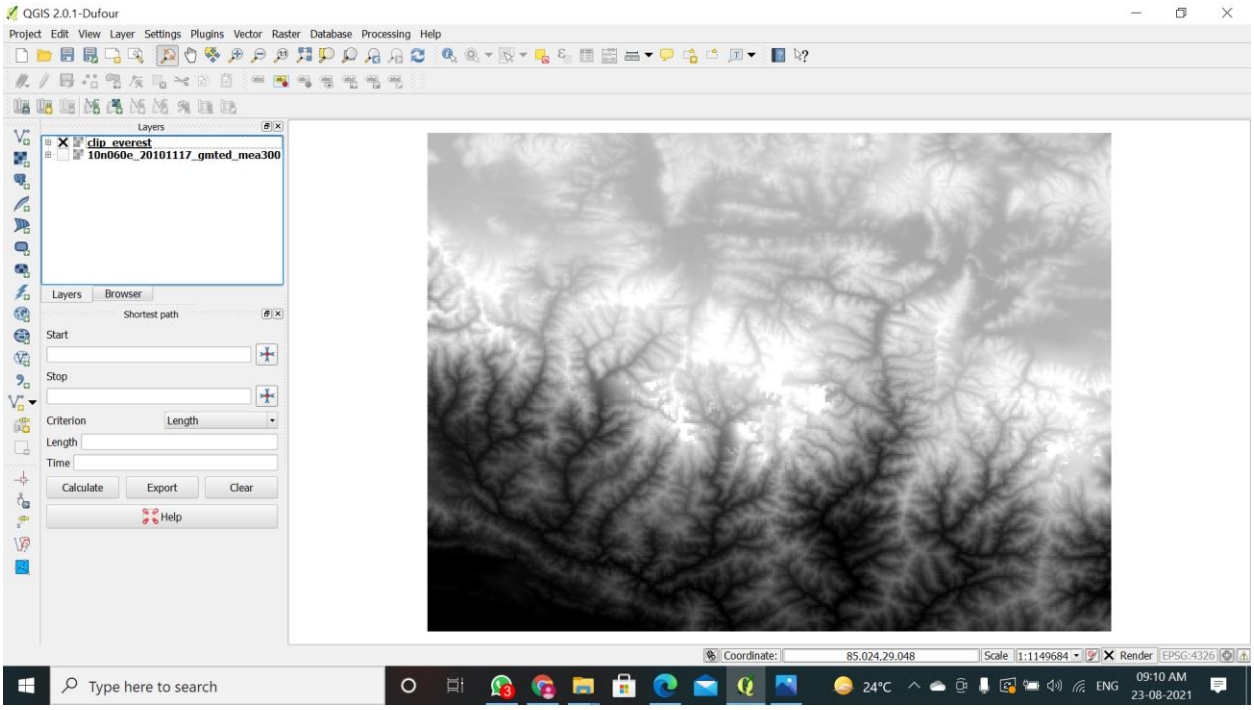
6. Select clip by Extent, select input file as **10n060e_2010117_gmted_mea300.tif** and output file as "clipped_everest.tif" Xmin=85.52209997, xmax=88.3 1790002819398, ymin=26.96 1455741538963, ymax= 28.99854425846104, and click OK Deselect the original file.

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.**

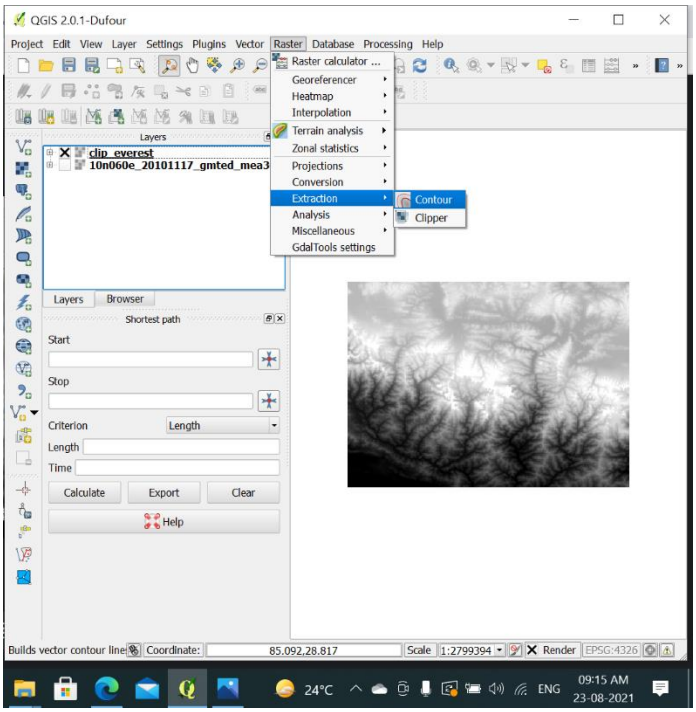

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Layers
10n060e_20101117_gmted_mea300
Clipper
Select the raster file to save the results to
Look in: D:\All link & Book
My Computer
zeenat
AI
cc
DATA MINING
GIS
project final year
File name:
Save
Files of 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

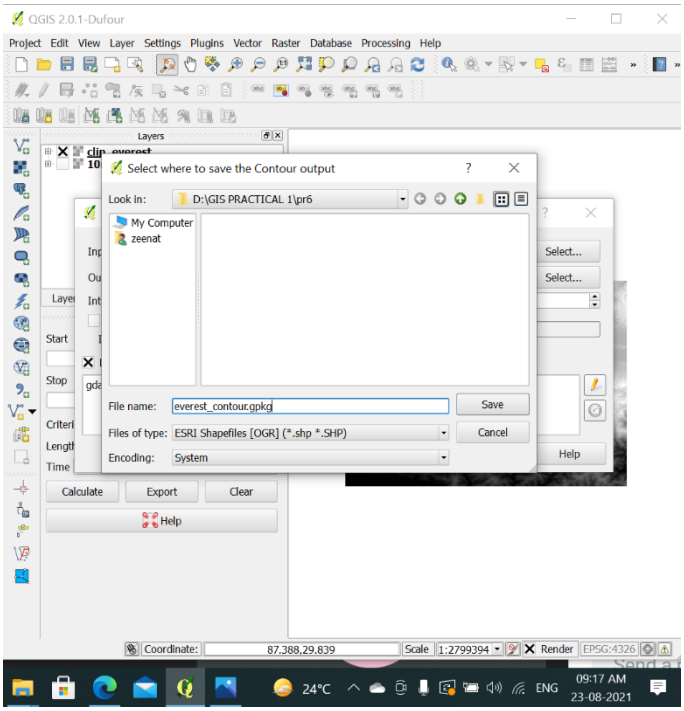

QGIS 2.0.1-Dufour
Project Edit View Layer Settings Plugins Vector Raster Database Processing Help
Clipper
Select the raster file to save the results to
Look in: D:\GIS PRACTICAL 1\pr6
My Computer
zeenat
File name: clip
Save
Files of type: [GDAL] All files (*)
Cancel
Start
Stop
Criterion
Length
Time
Calculate
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

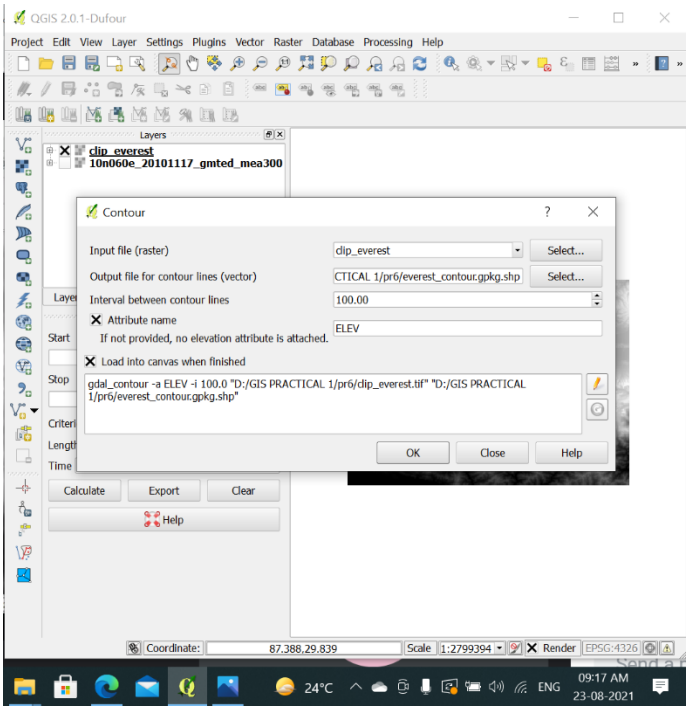


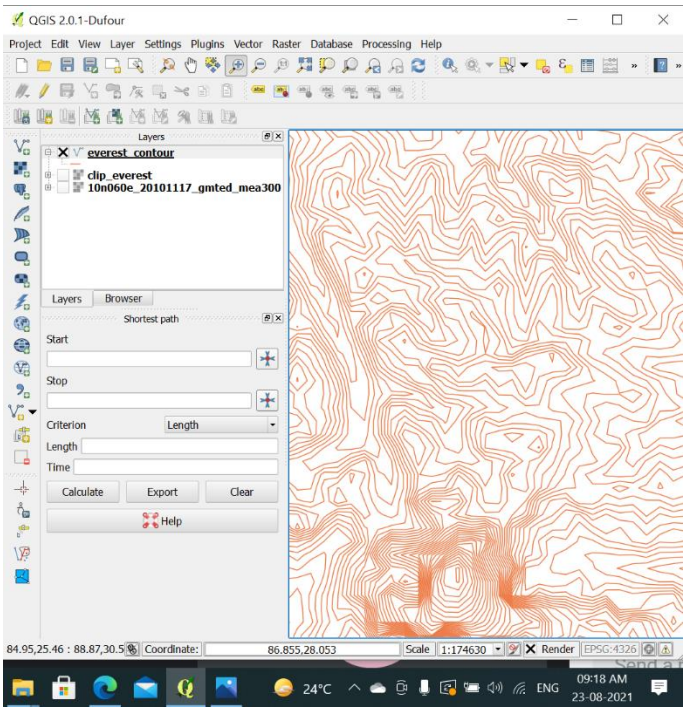
7. Go to Raster → Extraction→ Contour
8. Select Input file as **"clipped_everest.tif"** and output file= (browse to your folder) **everest.gpkg,** Interval=100, SELECT attribute name check box and click ok
9. contour layer will appear

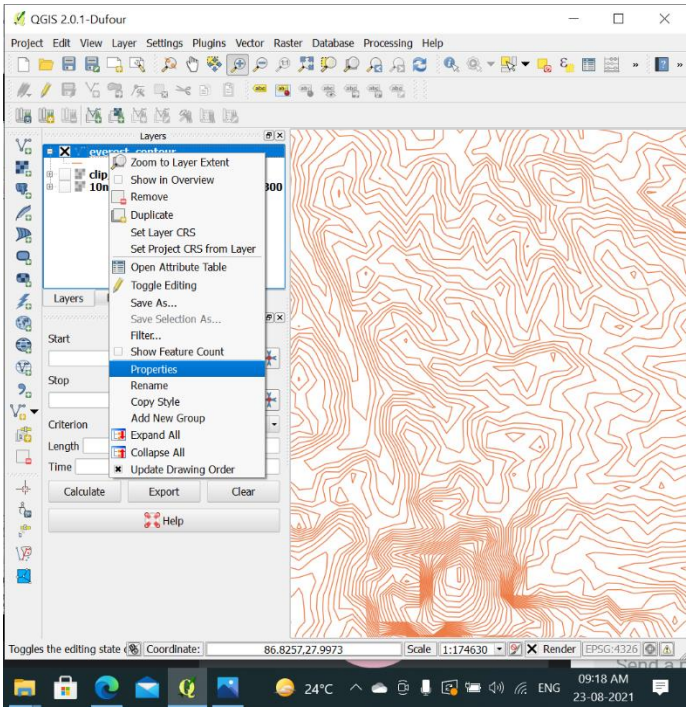


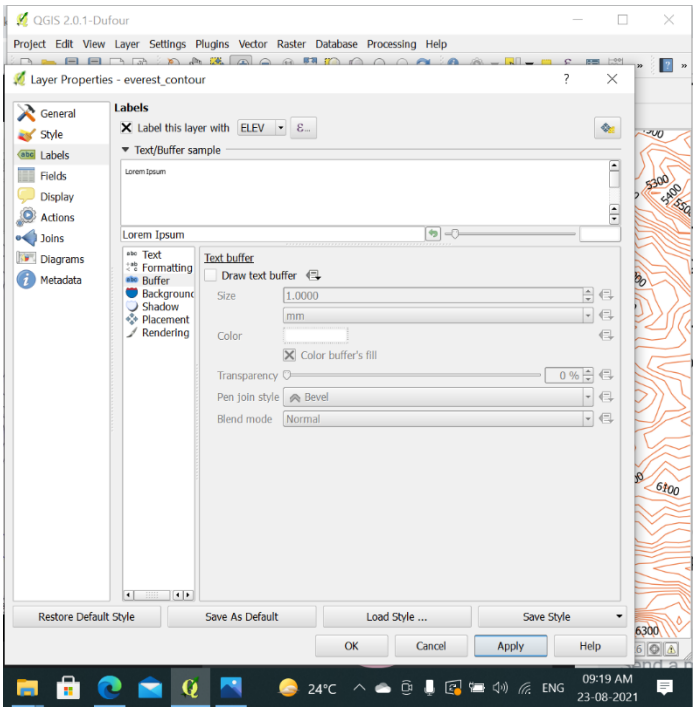


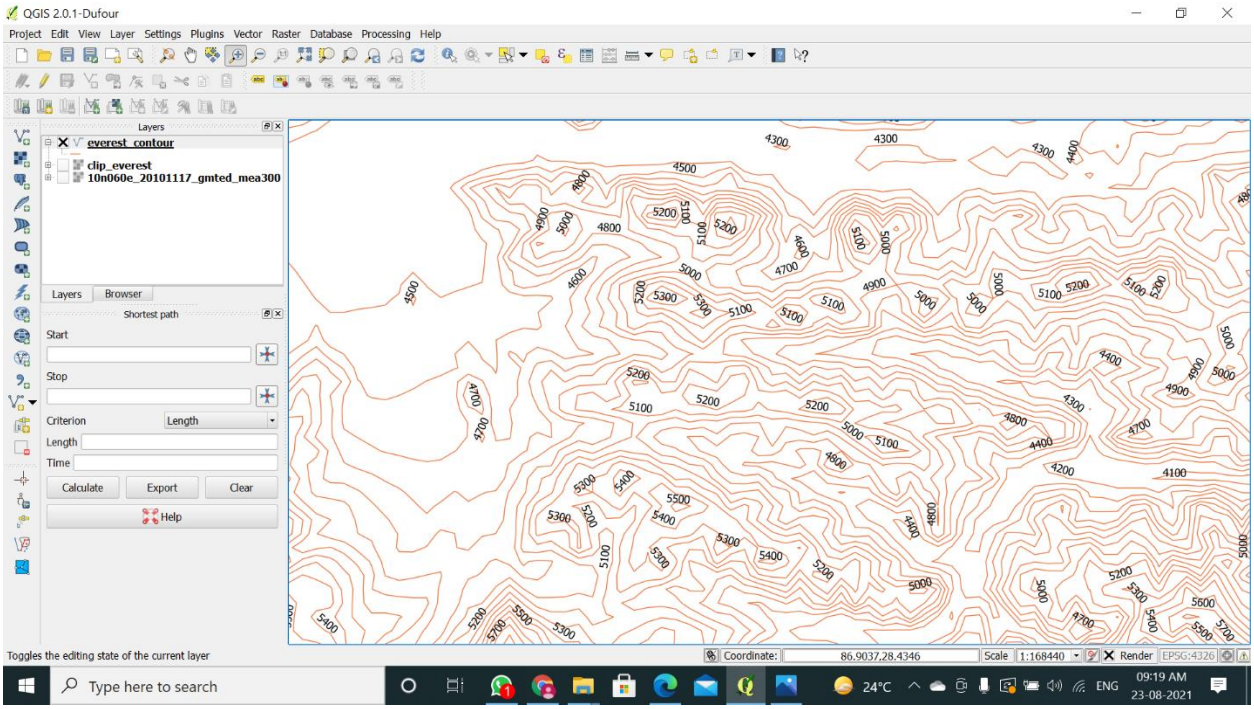
10. Label the layer using “ELEV” field and set appropriate symbols for line. Right click on layer□ properties□ Labels □ (Select attribute as ELEV)




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 Browser
Shortest path
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



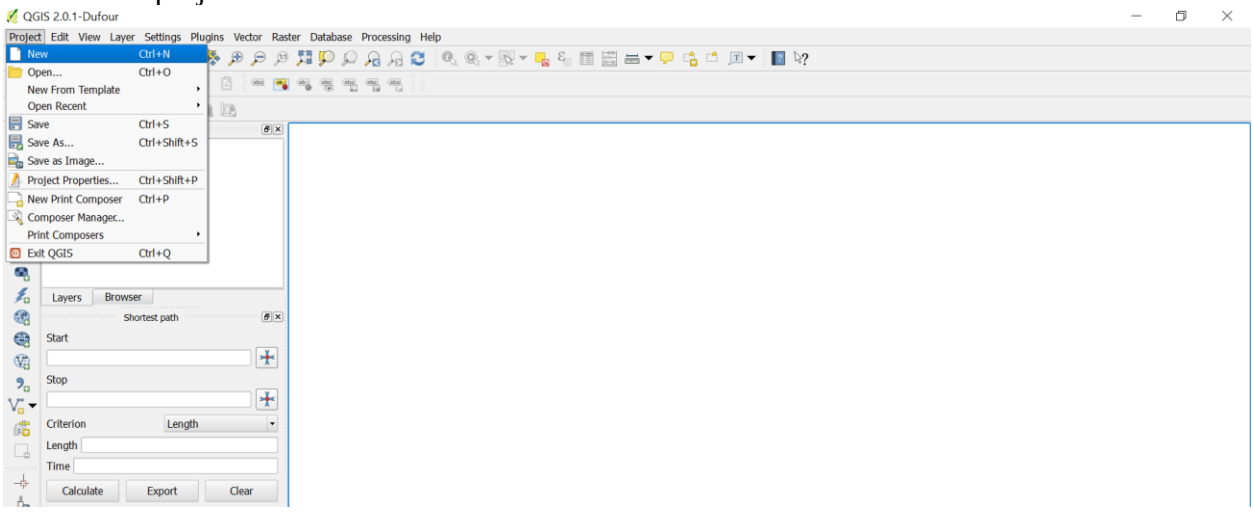


11. In the Layer panel right click on Contour Raster Layer and select “Open Attribute table”,the table in descending order based in the value of “ELEV” column.

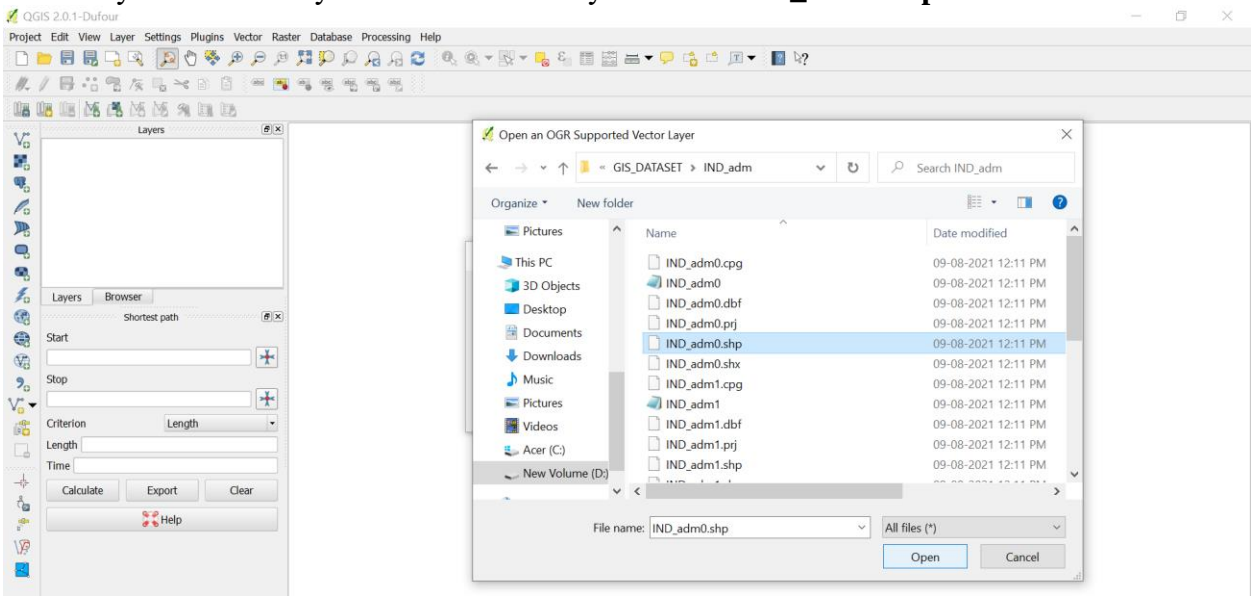
Practical 7

Aim: Georeferencing Topo Sheets and Scanned Maps

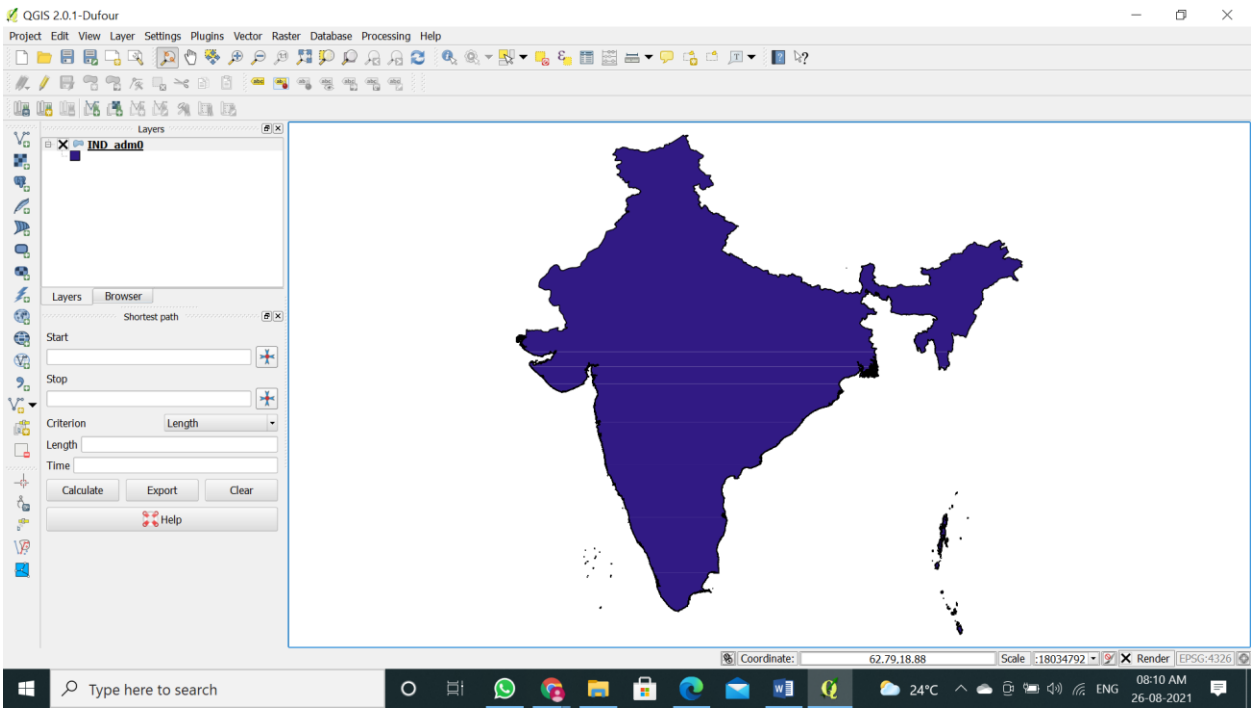
1. Start a new project



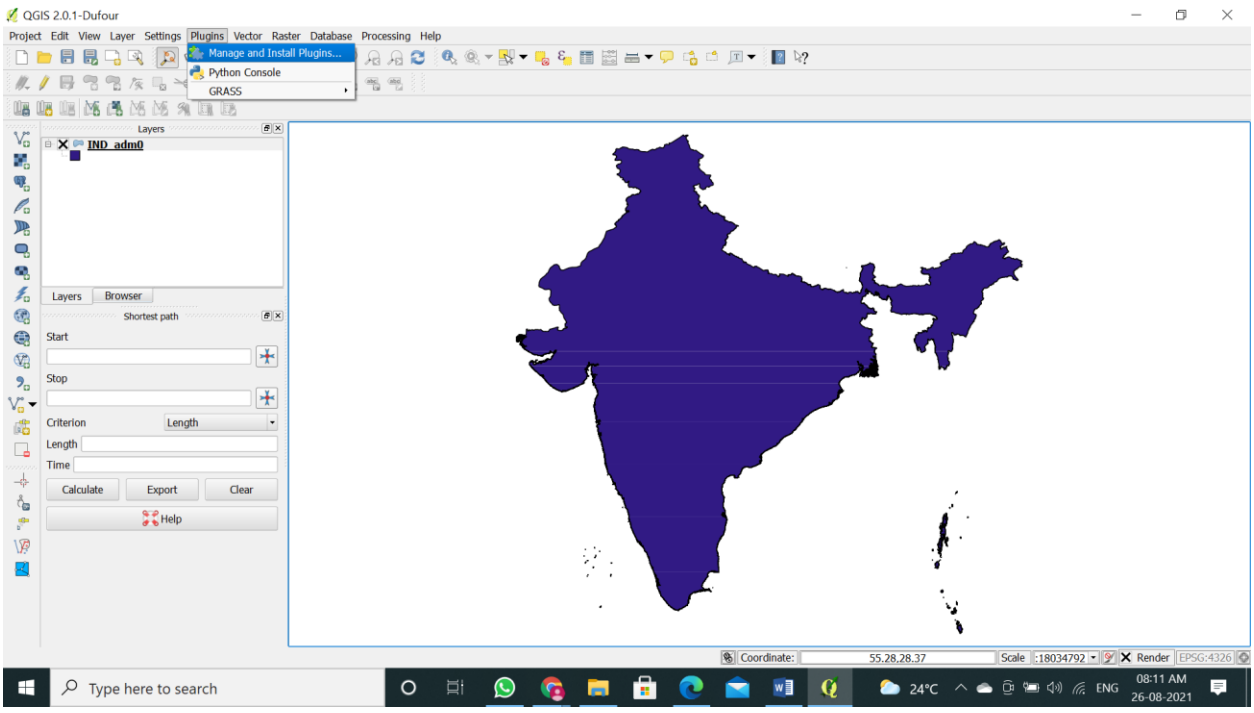
2. Go to Layers → Add Layer → Add vector Layer Select **IND_adm0.shp**

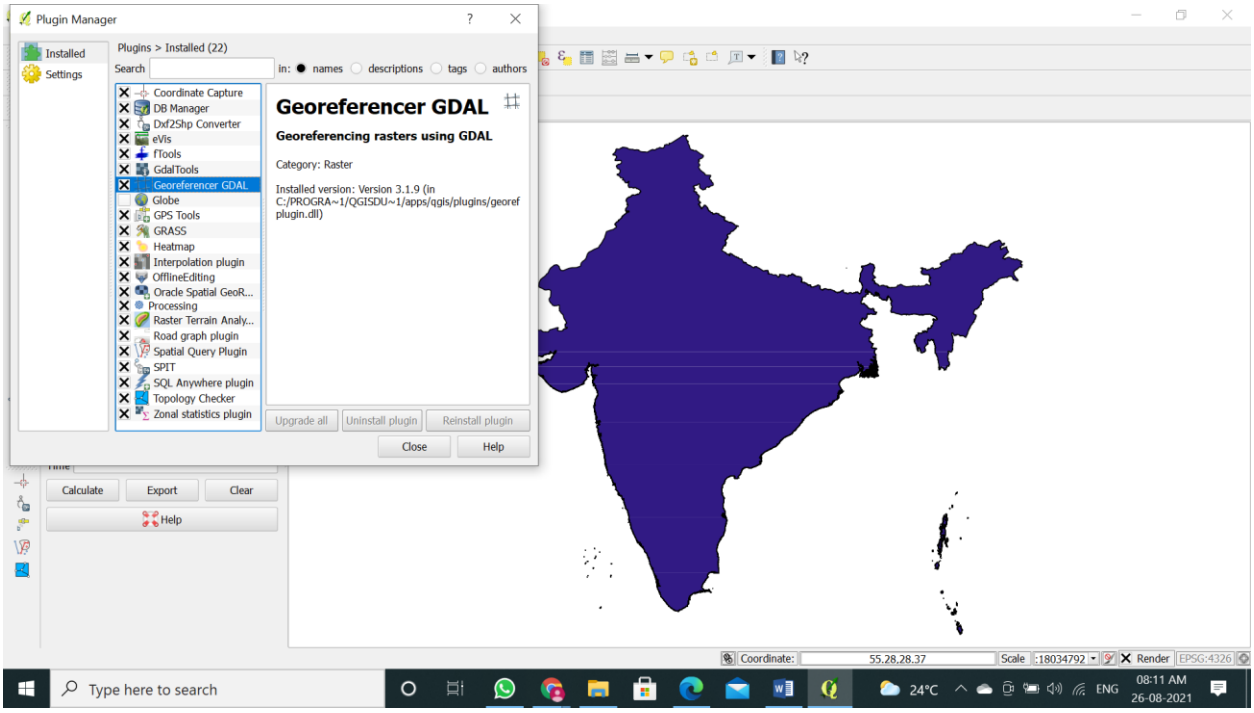


3. Zoom in to Mumbai region in the layer.

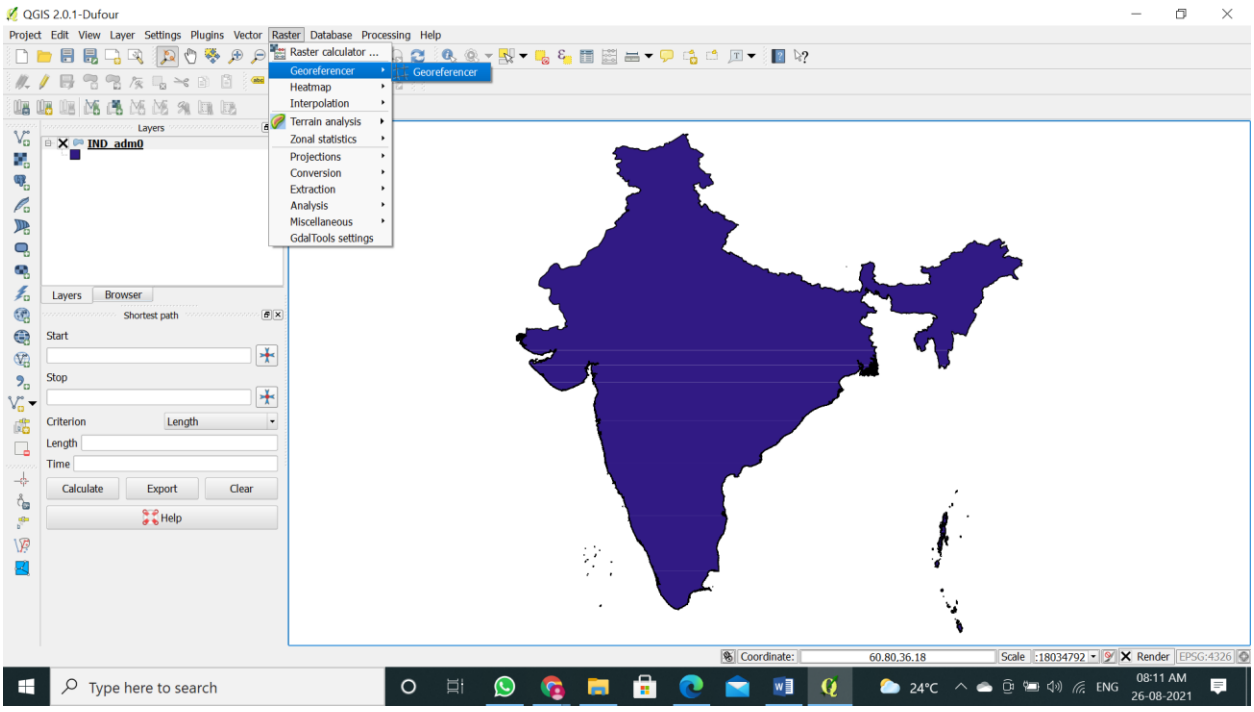


NOTE**: For** Georeferencing **analysis > Go to Plugin → Install Georeferencer GADL**. After successful installation of plugin,

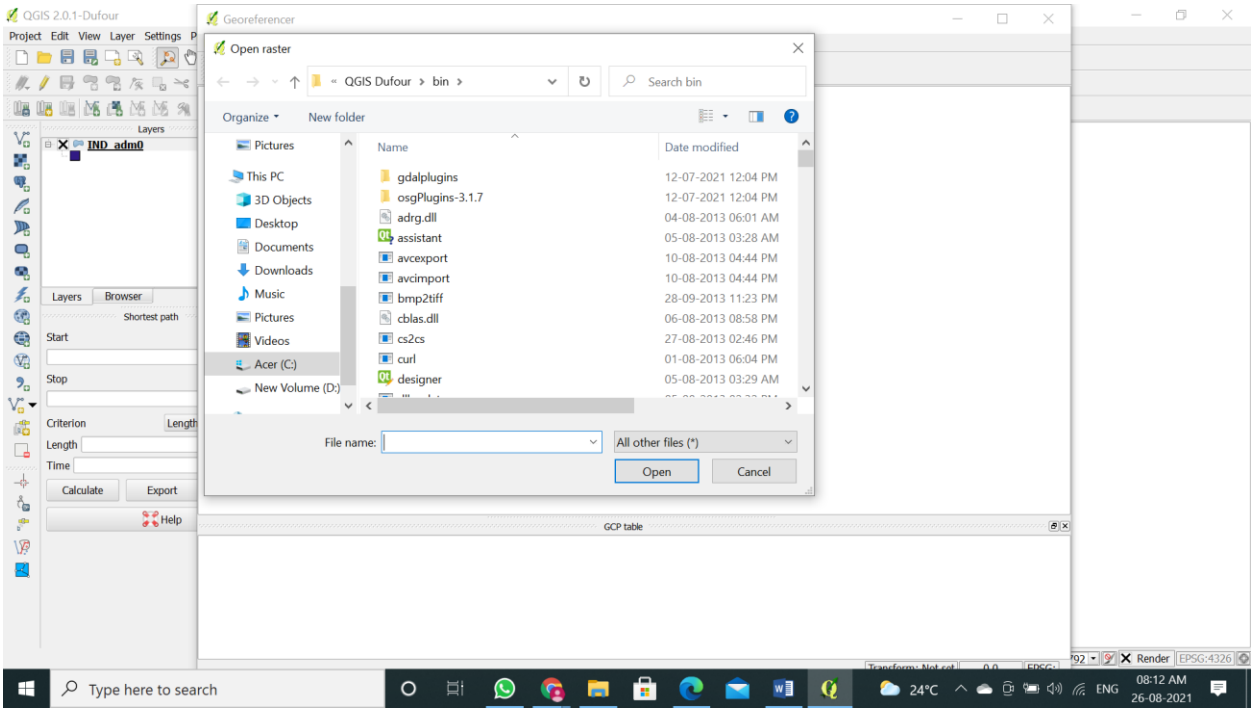




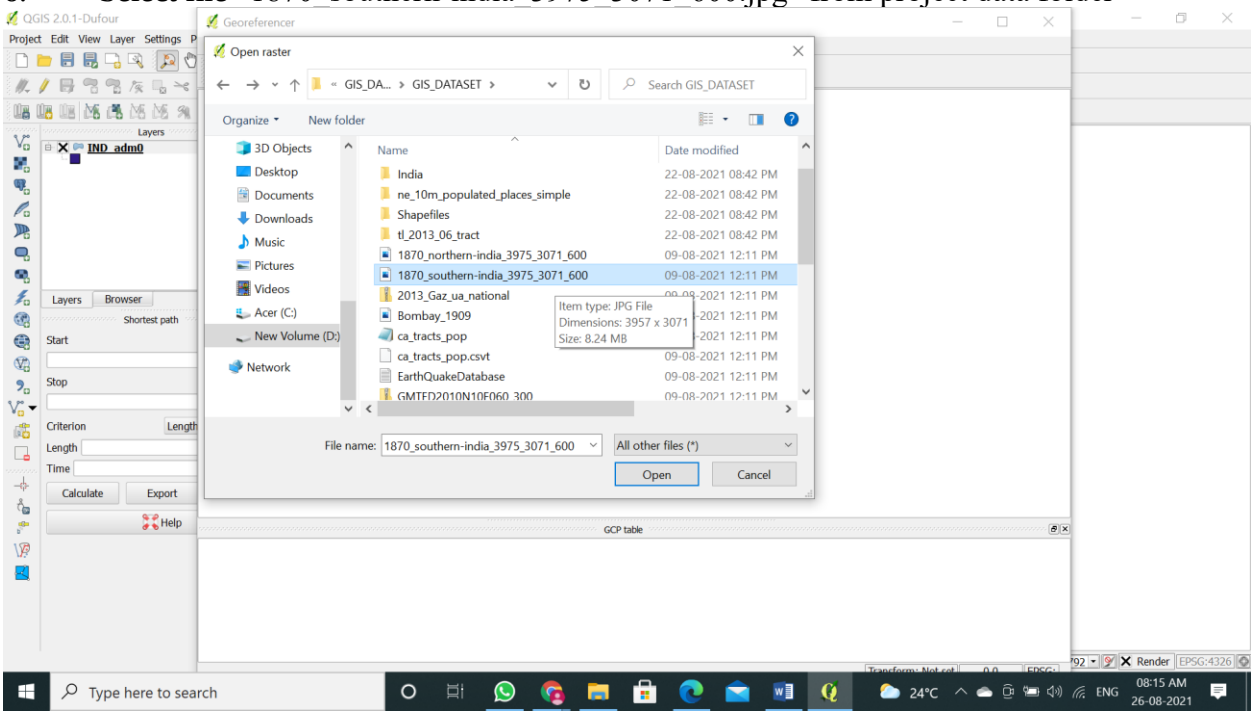
4. Go to Raster → Georefrencer Georeference



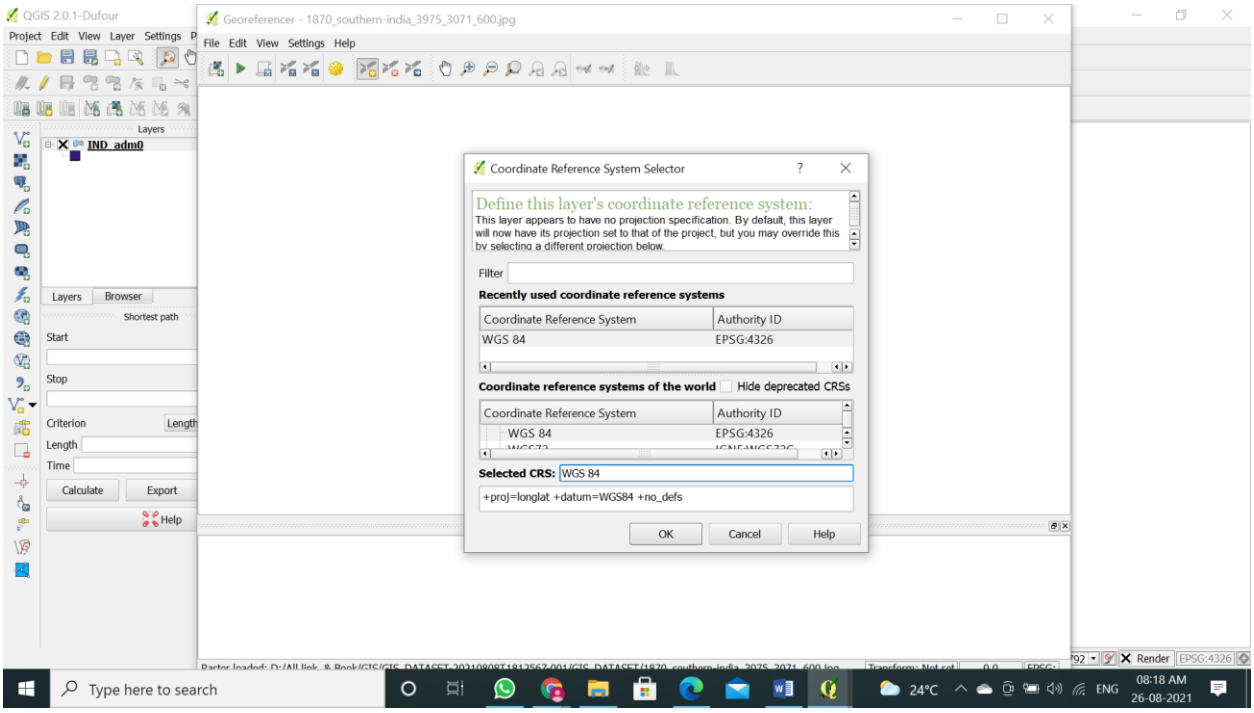
5. File → Open Raster

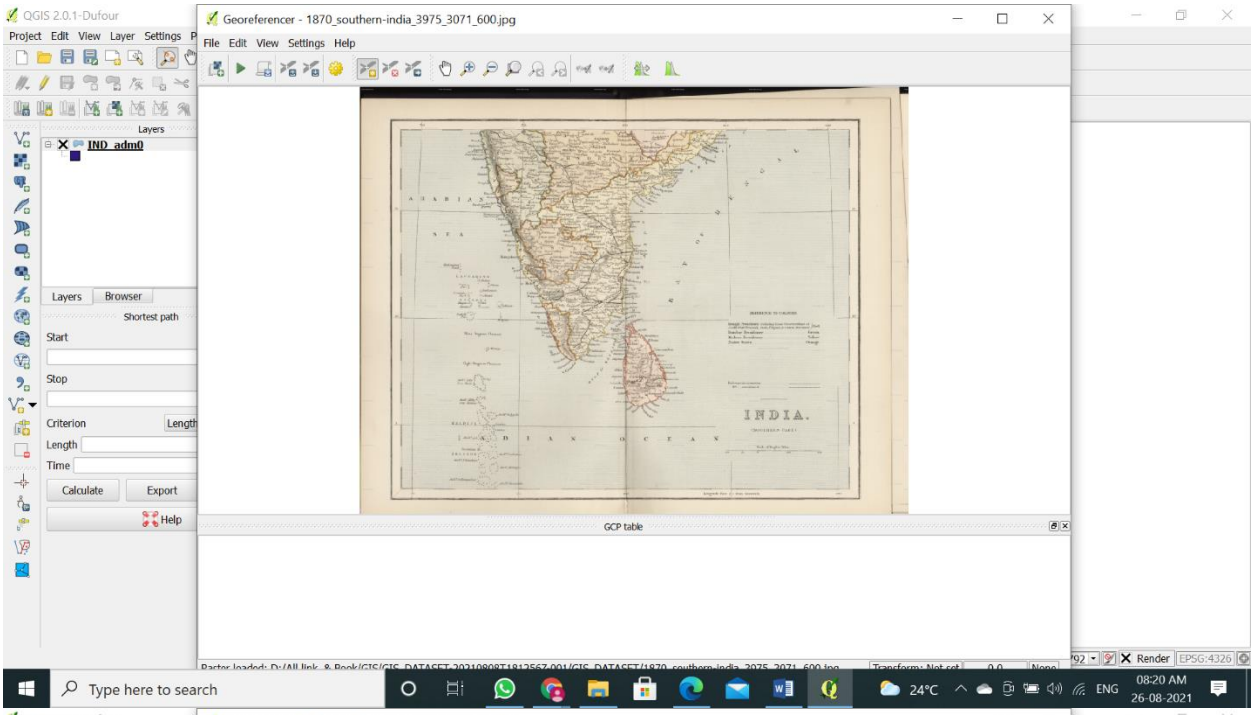


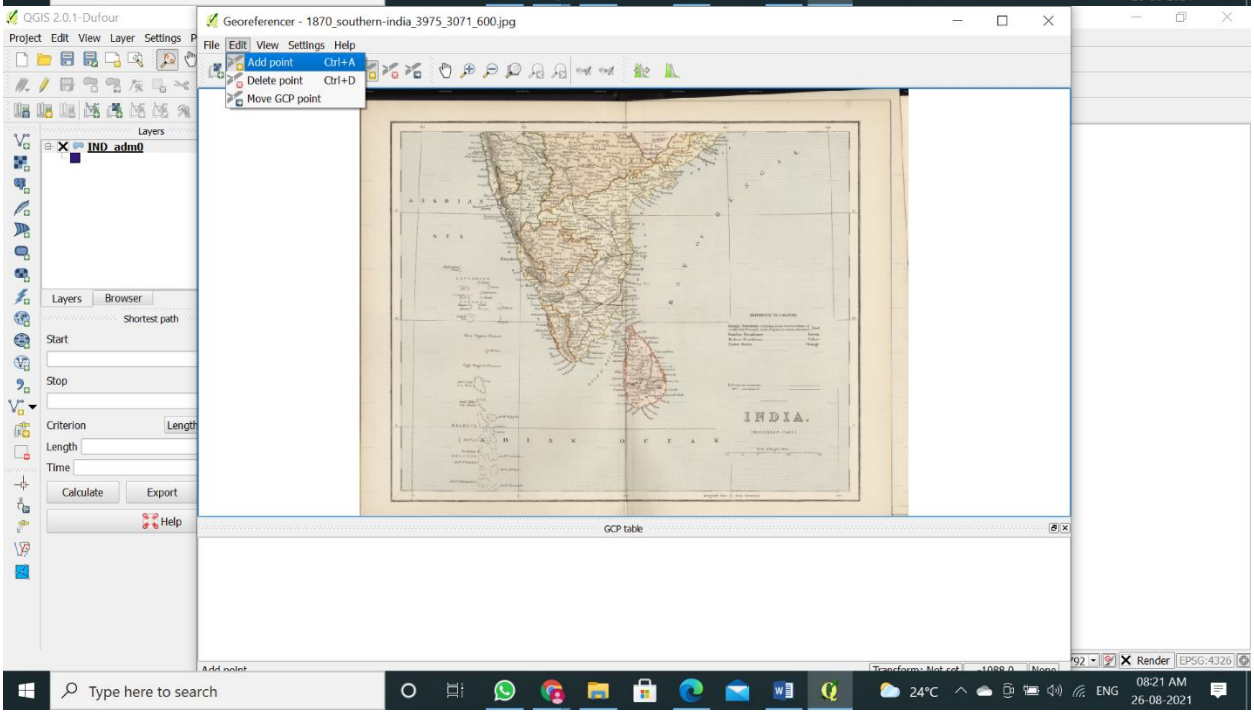
6. Select file “1870_southern-india_3975_3071_600.jpg” from project data folder

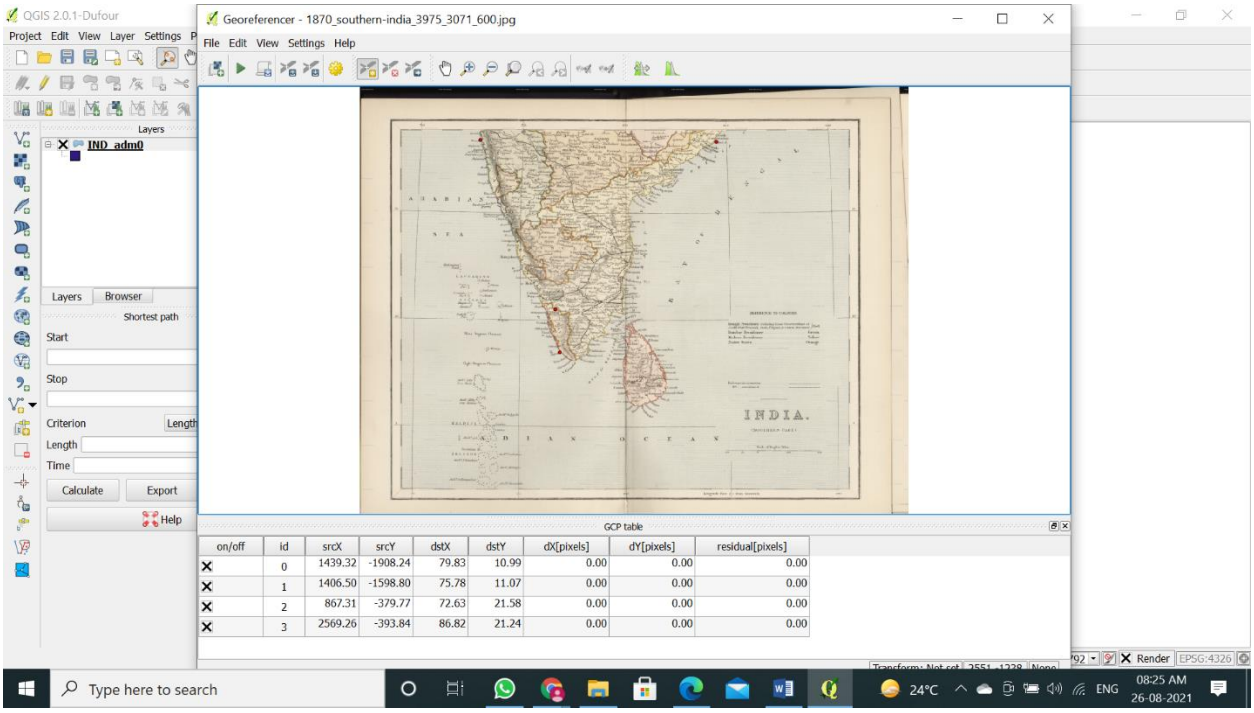


7.In Georeferencer window Go to Edit → Add Points (**NO** DIALOG BOX WILL BE OPENED, CLICK ANYWHERE ON IMAGE LOADED, SELECT BUTTON **“FROM MAP CANVAS”** AND CLICK ON ANY POINT IN THE ORIGINAL MAP IN **MUMBAI REGION**) (ADD 4 POINTS)

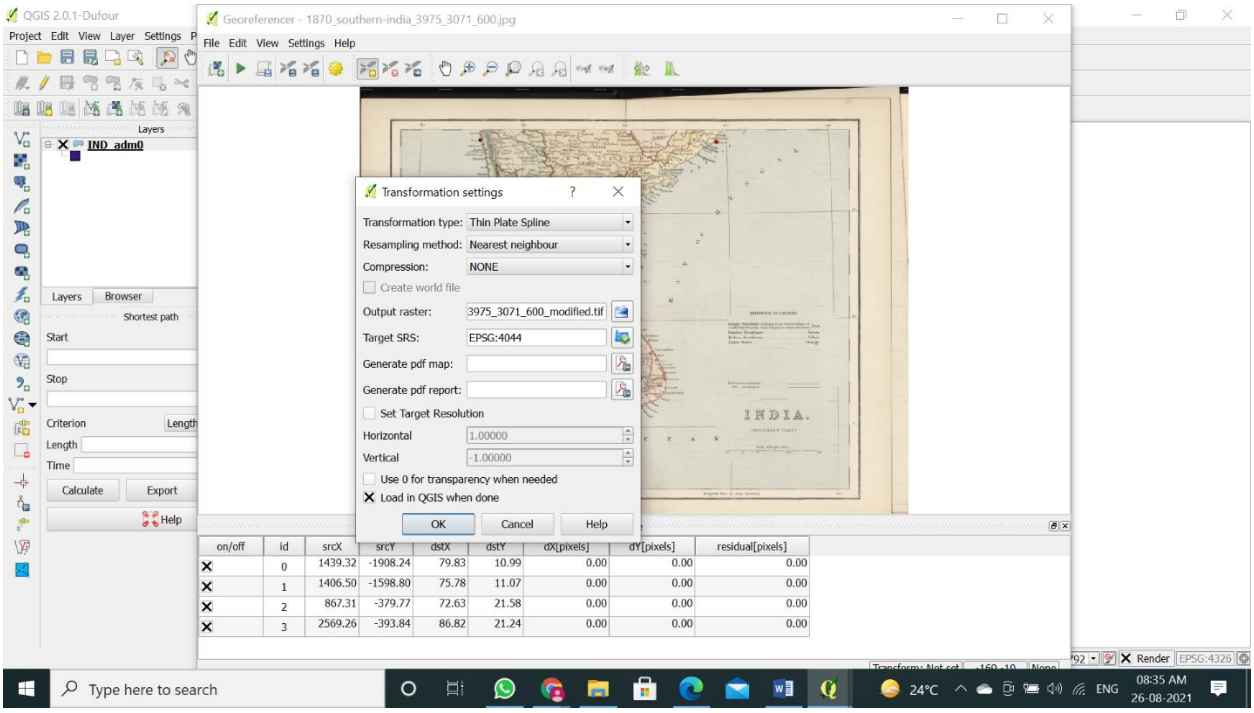

QGIS 2.0.1-Dufour
Project Edit View Layer Settings
Layers
IND_adm0
Layers Browser
Shortest path
Start
Stop
Criterion
Length
Time
Calculate
Export
Help
Georeferencer - 1870_southern-india_3975_3071_600.jpg
File Edit View Settings Help
Coordinate Reference System Selector
Define this layer's coordinate 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
Coordinate Reference System
Authority ID
WGS 84
EPSG:4326
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

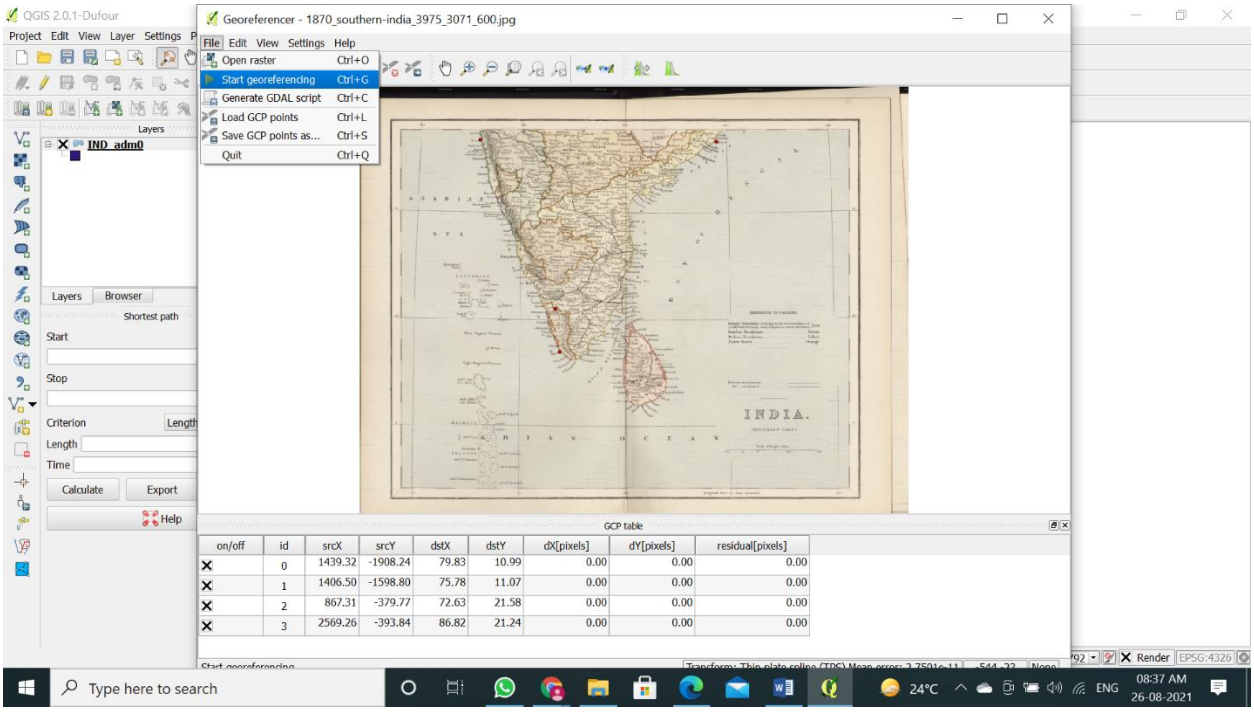

QGIS 2.0.1-Dufour
Project Edit View Layer Settings
Georeferencer - 1870_southern-india_3975_3071_600.jpg
File Edit View Settings Help
Add point Ctrl+A
Delete point Ctrl+D
Move GCP point
Layers
IND_adm0
Layers Browser
Shortest path
Start
Stop
Criterion
Length
Time
Calculate
Export
Help
INDIA.
GCP table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



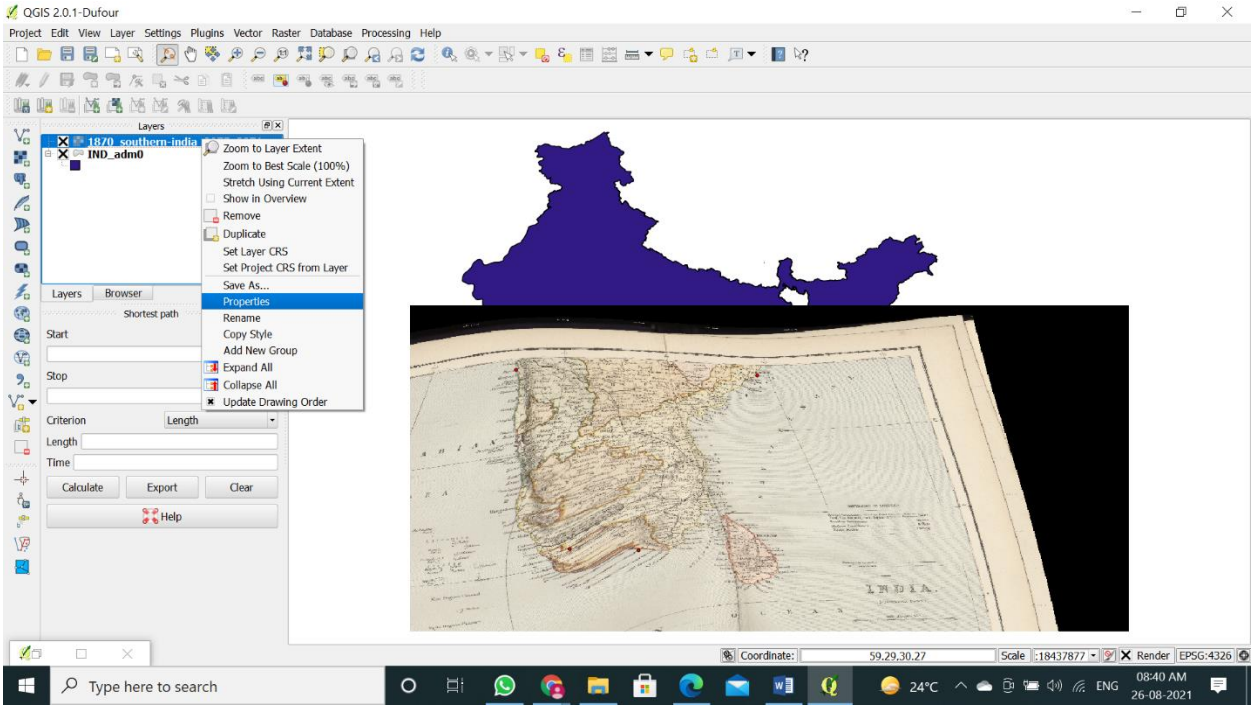
8. Go to Settings →Transformation Settings
Select Transformation type → Thin Plate Spline
Re-sampling Method → Nearest Neighbour
Target TRS → Everest 1830 datum: EPSG 4044
Select Output Raster: **MODIFIED.TIF**
Check the Load in QGIS When Done Option
Press “OK”.



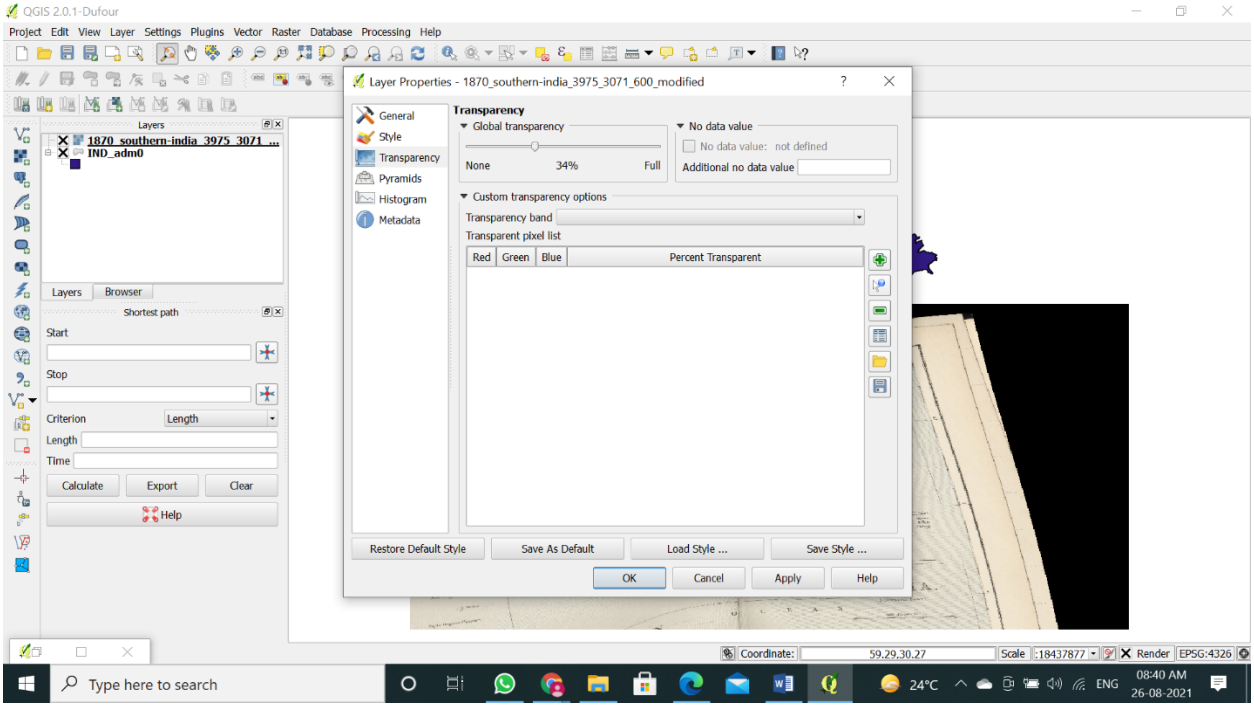
9. In Georeferencing window go to → File → Start Georeferencing



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



11. In TRANSPARENCY TAB Global Opacity to 38%



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