Name: Aniket Tiwari

Roll No:21143285

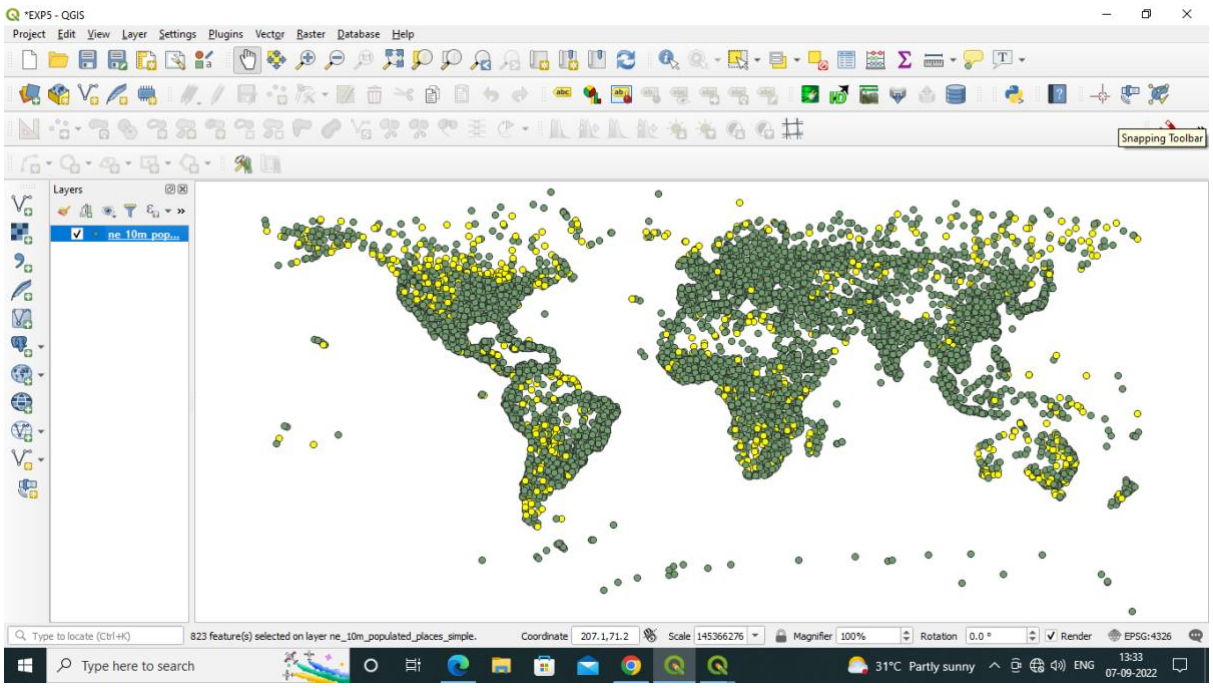
EXPERIMENT NO.: 5

TITLE: : Working with attributes, terrain Data

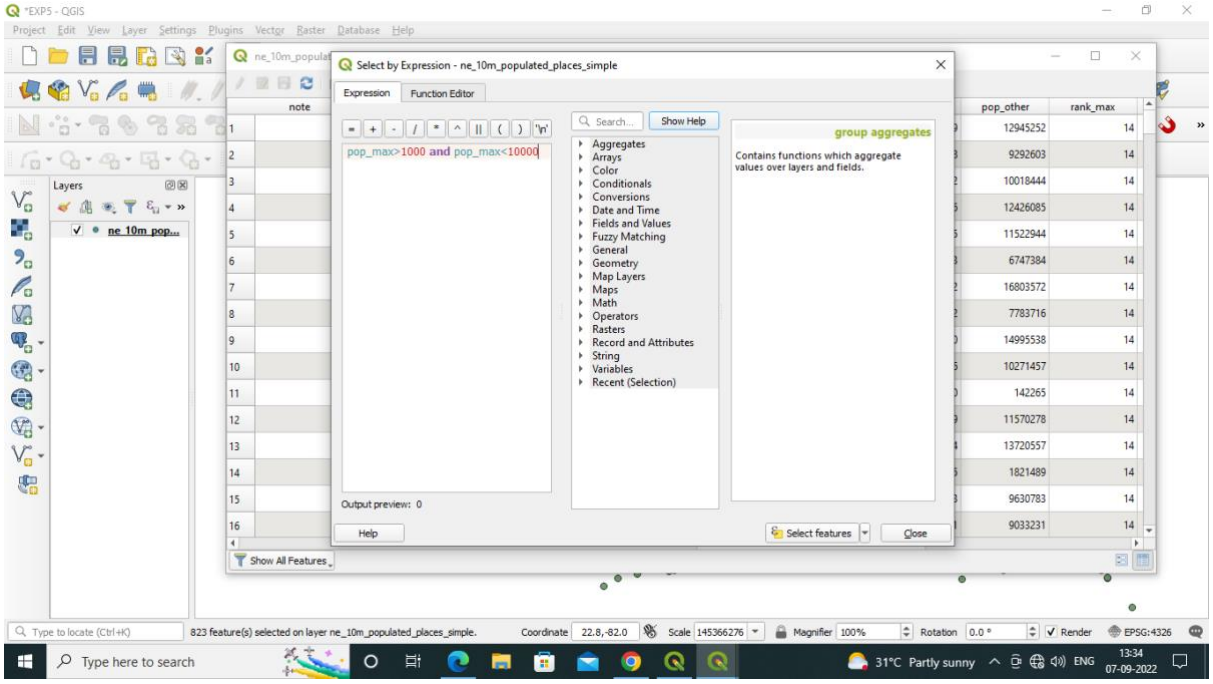
Right click on Layer in Layer Panel → Open AΣribute Table. Explore various attributes and their values in the Attribute table. To find the Place with maximum population click on “pop_max” file

On clicking the Select feature using expression button the following window will appear.

After selecting feature :



Different queries can be performed using the dataset

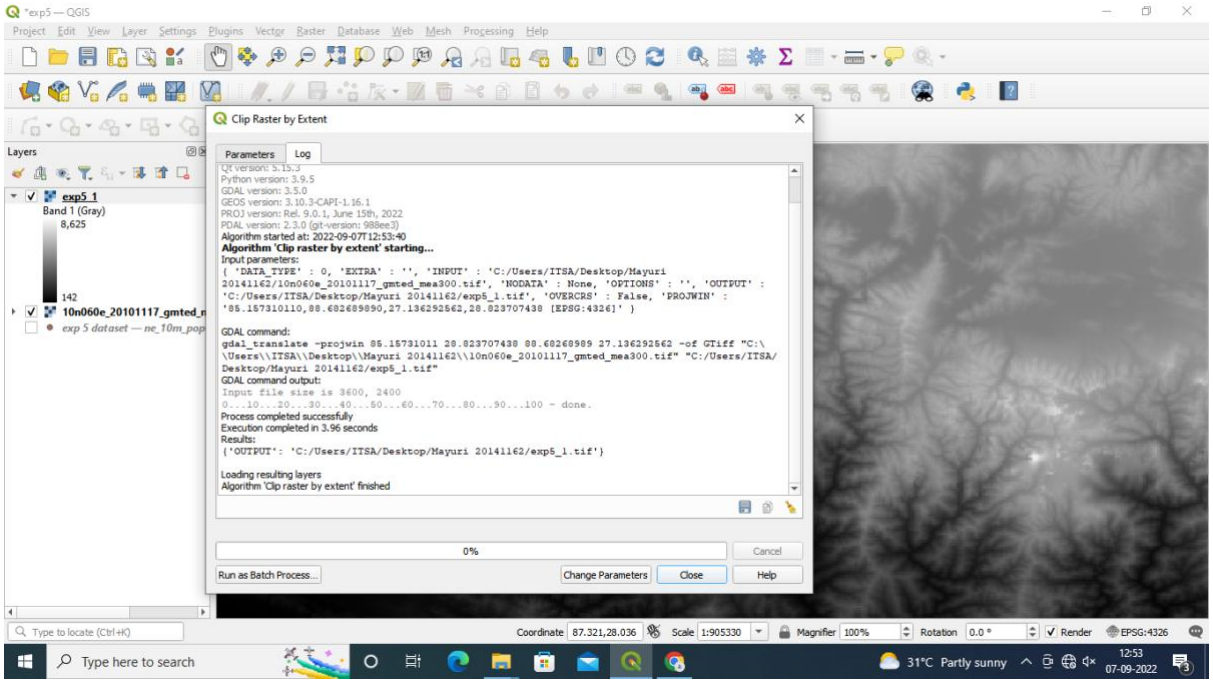


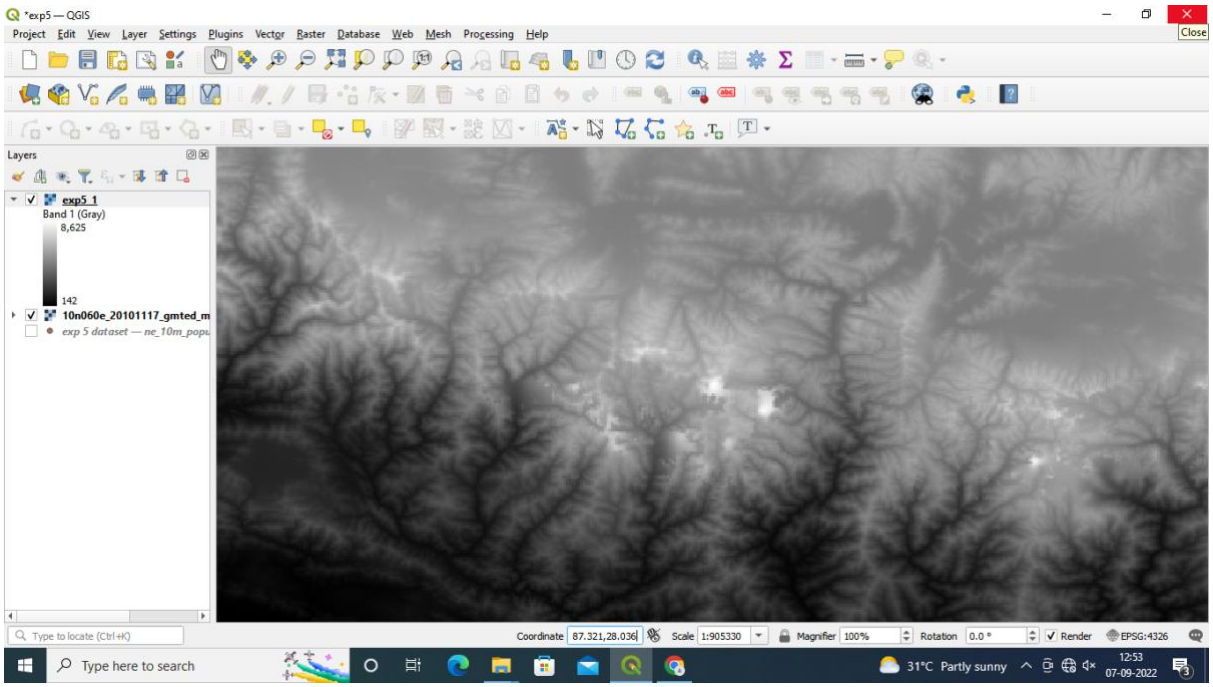
2. Terrain Data and Hill shade analysis

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

Go to Layer → Add Raster Layer → select "10n060e_20101117_gmted_mea300.Θf", from Data folder

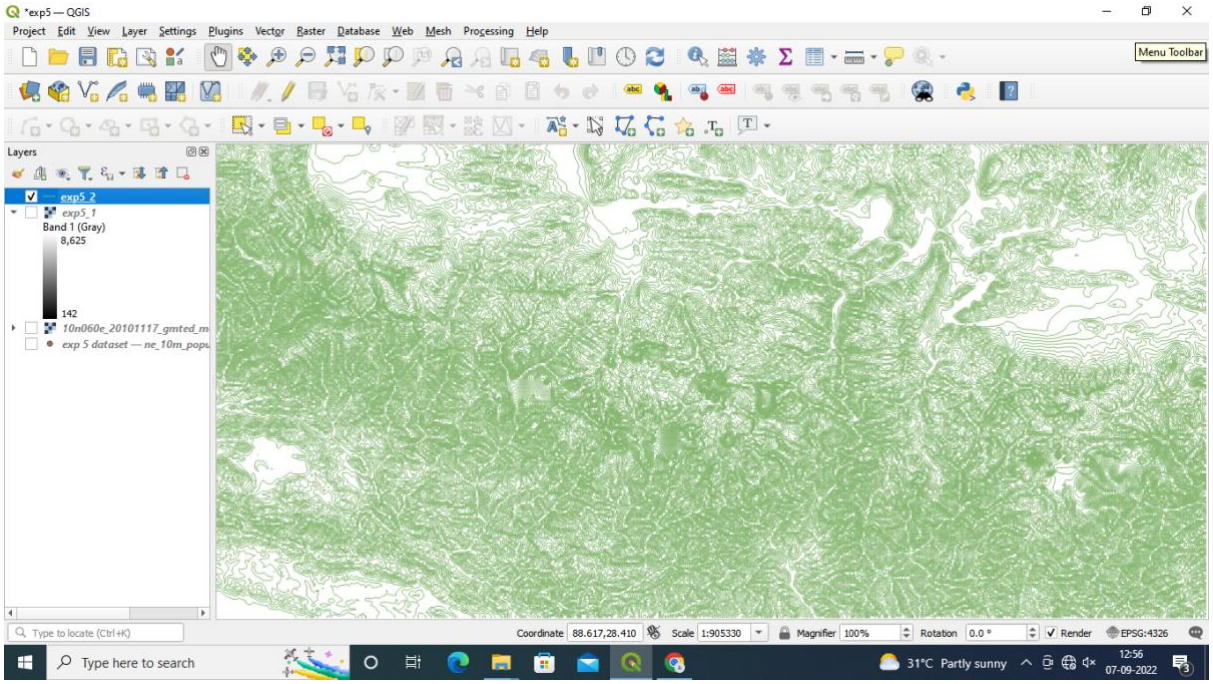
The Lower altitude regions are shown using dark color and higher using light shade as seen on top region containing Himalaya and Mt Everest. Mt. Everest - is located at the coordinates 27.9881° N, 86.9253° E. Enter 86.92, 27.98 in the coordinate field, Scale 900000 and Magnifier 100% at the bottom of QGIS.

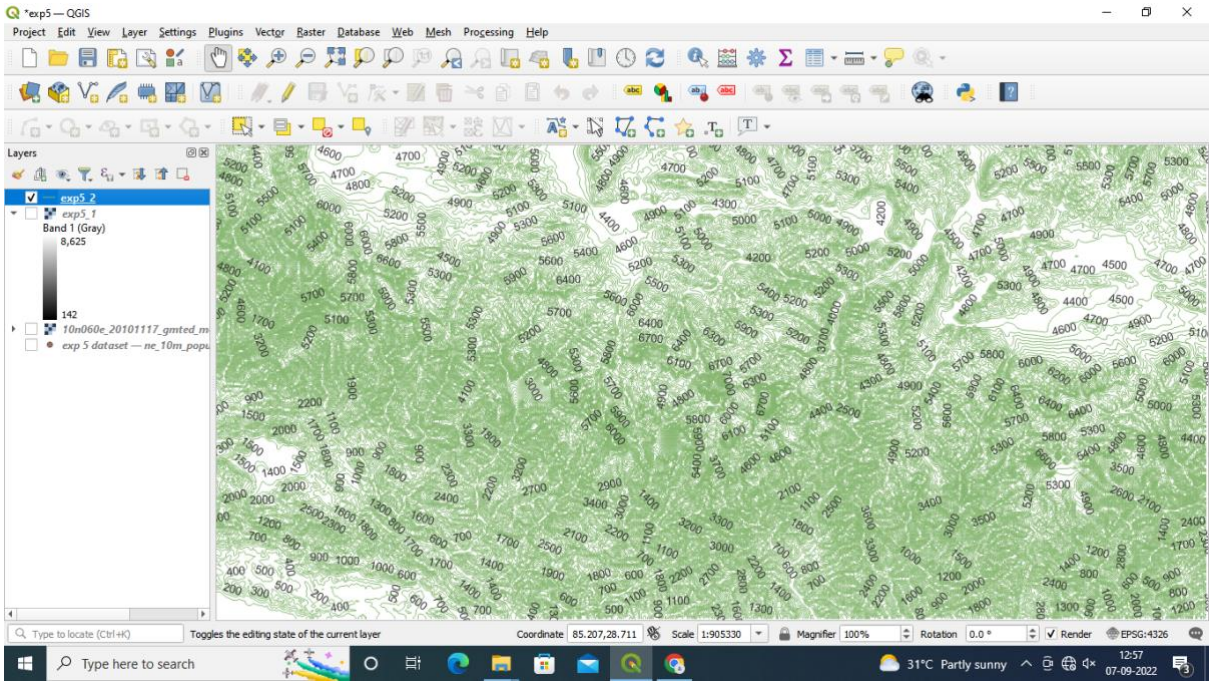

*exp5 — QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help
Clip Raster by Extent
Parameters
Log
Python version: 3.9.5
GDAL version: 3.5.0
GEOS version: 3.10.3-CAPI-1.16.1
PROJ version: Rel. 9.0.1, June 15th, 2022
PDAL version: 2.3.0 (git-version: 988ee3)
Algorithm started at: 2022-09-07T12:53:40
Algorithm 'Clip raster by extent' starting...
Input parameters:
{ 'DATA_TYPE' : 0, 'EXTRA' : '', 'INPUT' : 'C:/Users/ITSA/Desktop/Mayuri 20141162/10n060e_20101117_gmted_mea300.tif', 'NODATA' : None, 'OPTIONS' : '', 'OUTPUT' : 'C:/Users/ITSA/Desktop/Mayuri 20141162/exp5_1.tif', 'OVERCRS' : False, 'PROJWIN' : '85.157310110,88.682689890,27.136292562,28.023707438 [EPSG:4326]' }
GDAL command:
gdal_translate -projwin 85.15731011 28.023707438 88.68268989 27.136292562 -of GTiff "C:\\Users\\ITSA\\Desktop\\Mayuri 20141162\\10n060e_20101117_gmted_mea300.tif" "C:/Users/ITSA/Desktop/Mayuri 20141162/exp5_1.tif"
GDAL command output:
Input file size is 3600, 2400
0...10...20...30...40...50...60...70...80...90...100 - done.
Process completed successfully
Execution completed in 3.96 seconds
Results:
{'OUTPUT': 'C:/Users/ITSA/Desktop/Mayuri 20141162/exp5_1.tif'}
Loading resulting layers
Algorithm 'Clip raster by extent' finished
0%
Cancel
Run as Batch Process...
Change Parameters
Close
Help
Layers
exp5_1
Band 1 (Gray)
8,625
142
Coordinate 87.321,28.036
Scale 1:905330
Magnifier 100%
Rotation 0.0 °
Render
EPSG:4326
Type here to search
31°C Partly sunny
12:53
07-09-2022


*exp5 — QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help
Close
Layers
exp5_1
Band 1 (Gray)
8,625
142
Coordinate 87.321,28.036
Scale 1:905330
Magnifier 100%
Rotation 0.0 °
Render
EPSG:4326
Type here to search
31°C Partly sunny
12:53
07-09-2022

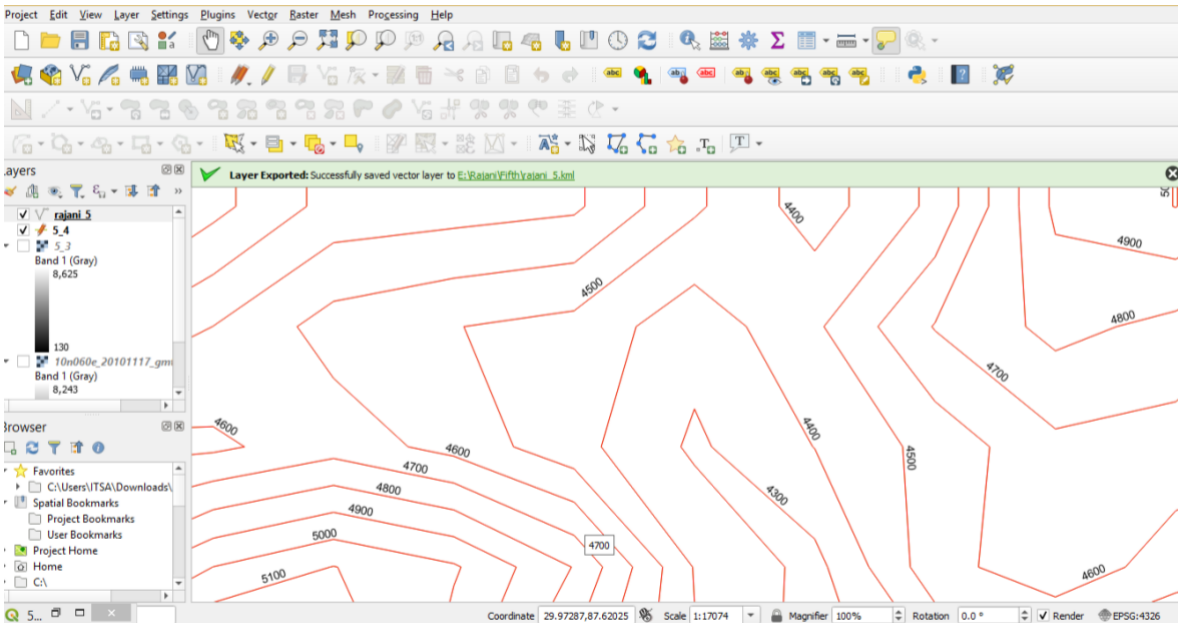
To derive counter lines from given raster. Go to Raster → ExtracƟon→ Contour

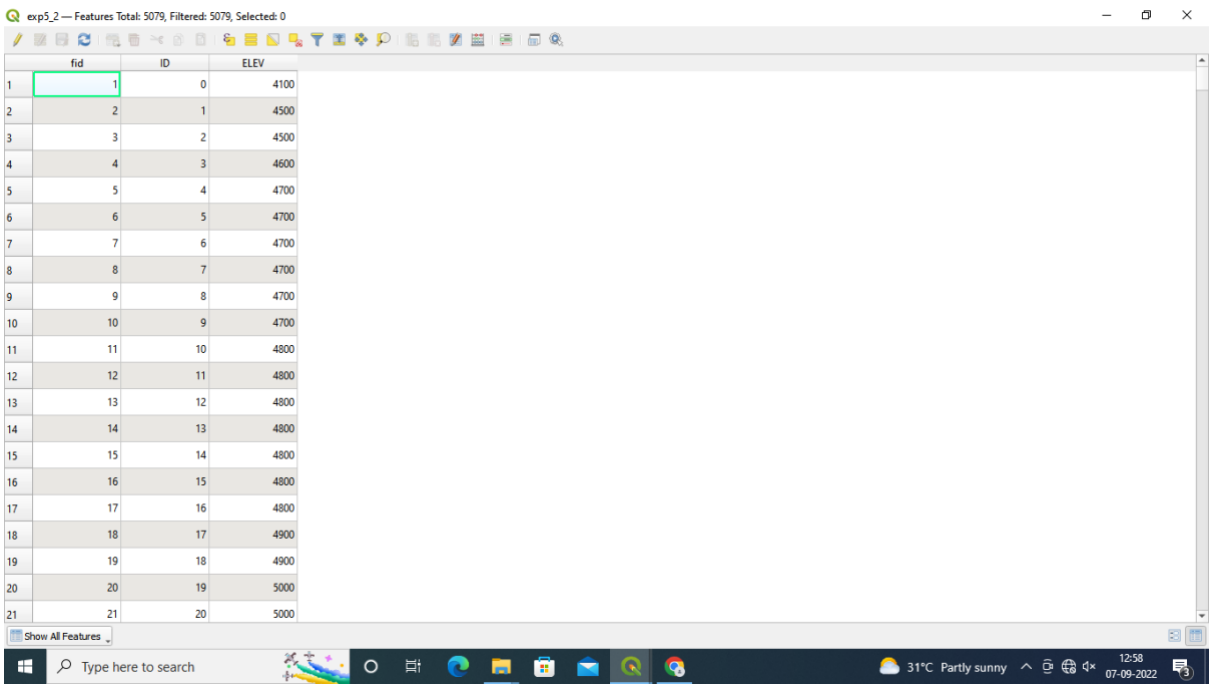
The contour layer will appear like this



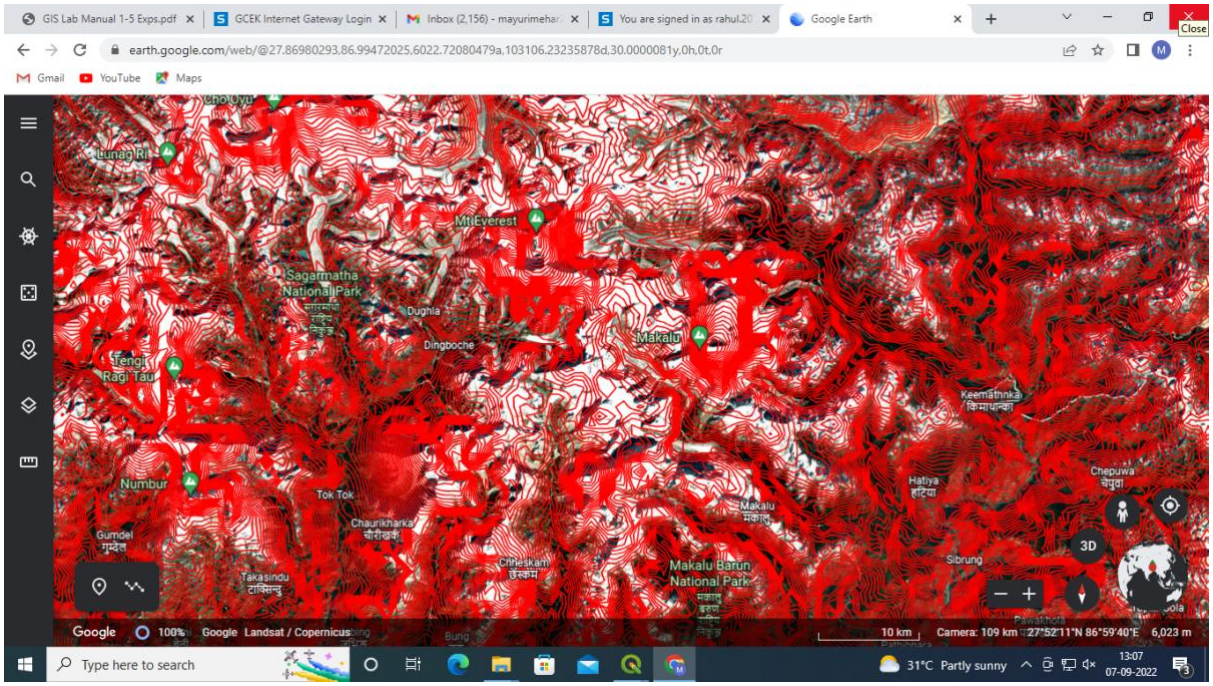


We can see counter line raster layer as follows





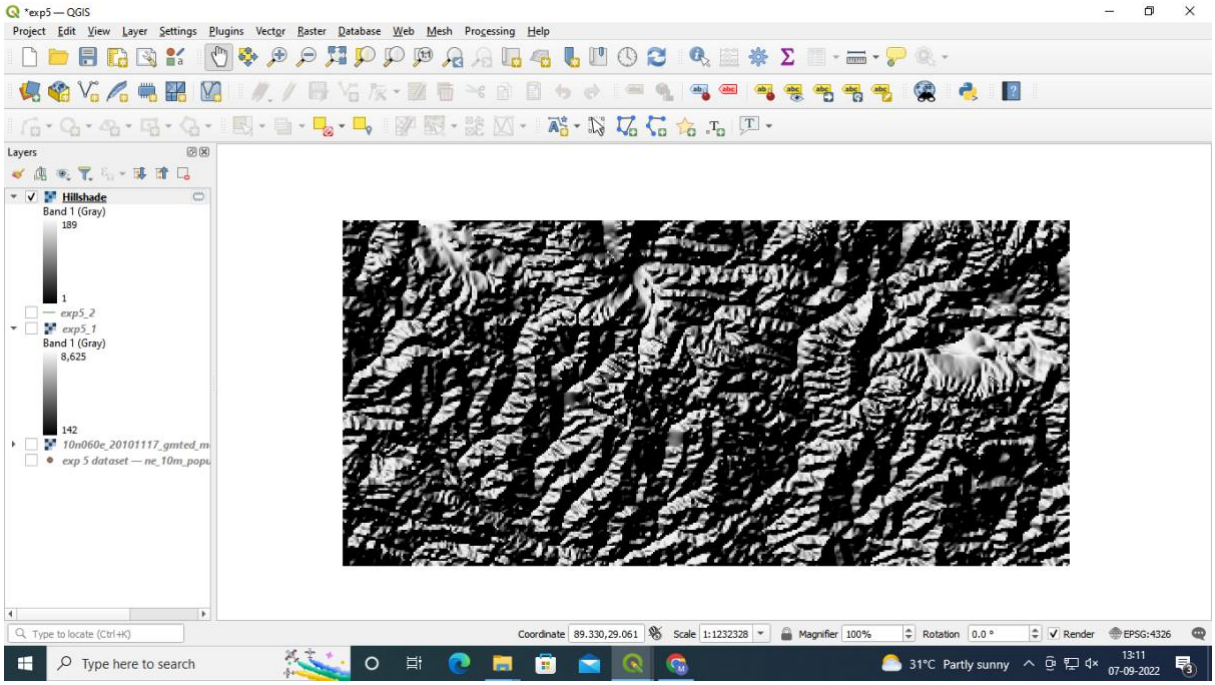
Go to Google earth->projects->new project->import kml from computer

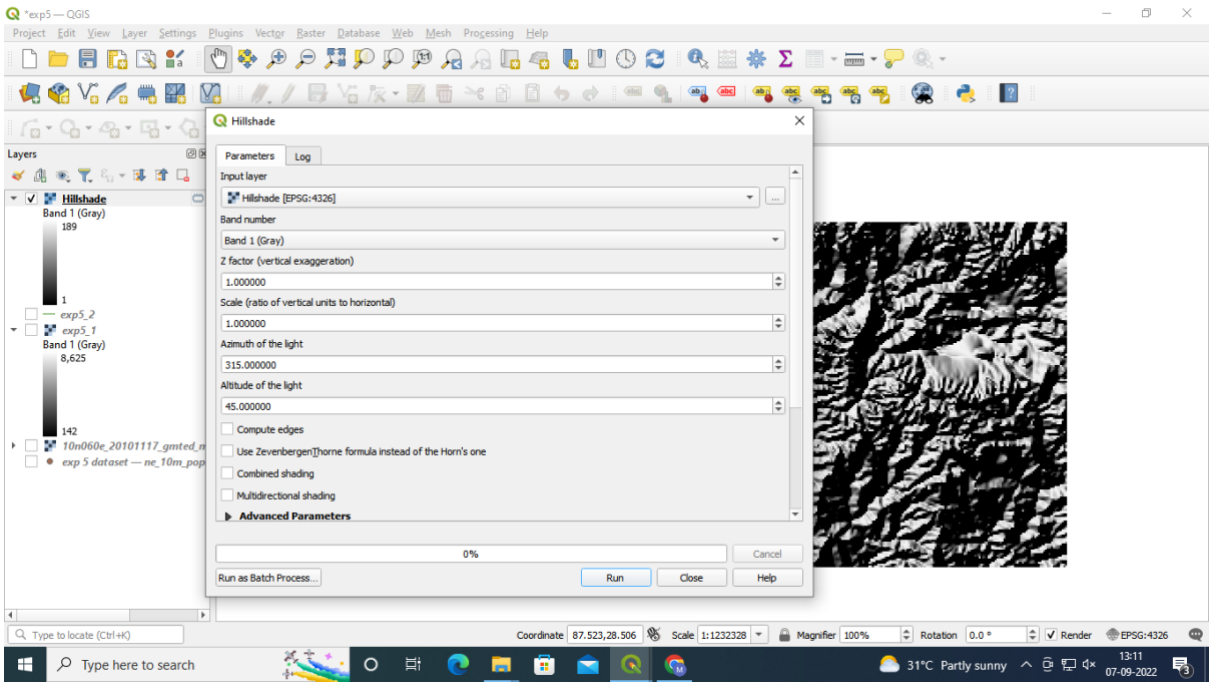


HILLSHADE: A Hillshade is a grayscale 3D representation of the surface, showing the topographicalshape of hills and mountains using shading (levels of gray) on a map, just to indicate relative slopes, mountain ridges, not absolute height.

For Hill Shade surface analysis:

- Go to Raster → Analysis → Hill Shade
- Select the input raster layer, select file name and location for storing Hill Shade output file


*exp5 — QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help
Layers
Hillshade
Band 1 (Gray)
189
1
exp5_2
exp5_1
Band 1 (Gray)
8,625
142
Type to locate (Ctrl+K)
Coordinate 89.330,29.061
Scale 1:1232328
Magnifier 100%
Rotation 0.0 °
Render
EPSG:4326
Type here to search
31°C Partly sunny
13:11
07-09-2022


*exp5 — QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help
Hillshade
Parameters
Log
Input layer
Hillshade [EPSG:4326]
Band number
Band 1 (Gray)
Z factor (vertical exaggeration)
1.000000
Scale (ratio of vertical units to horizontal)
1.000000
Azimuth of the light
315.000000
Altitude of the light
45.000000
Compute edges
Use Zevenbergen]horne formula instead of the Horn's one
Combined shading
Multidirectional shading
Advanced Parameters
0%
Cancel
Run as Batch Process...
Run
Close
Help
Layers
Hillshade
Band 1 (Gray)
189
1
exp5_2
exp5_1
Band 1 (Gray)
8,625
142
Coordinate 87.523,28.506
Scale 1:1232328
Magnifier 100%
Rotation 0.0 °
Render
EPSG:4326
Type here to search
31°C Partly sunny
13:11
07-09-2022