19F-0228

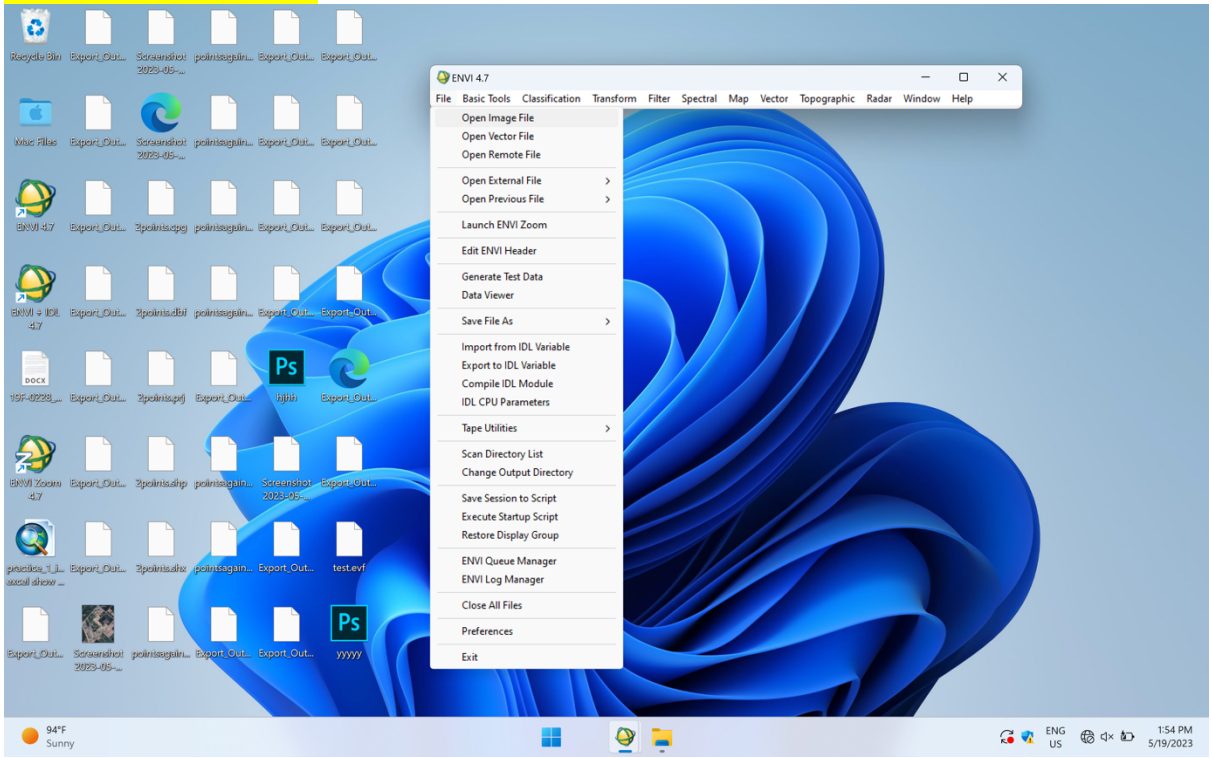
Muhammad Zain

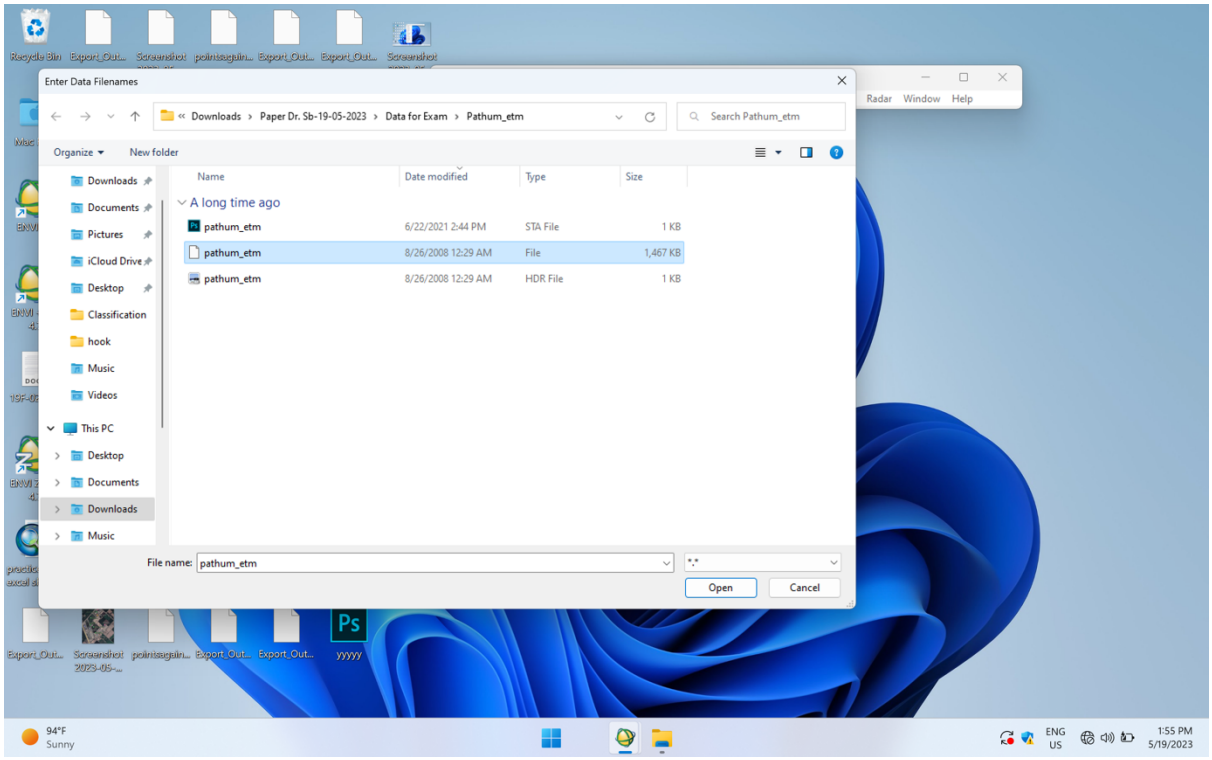
Remote Sensing GIS Final

Question 1:

Supervised Classification

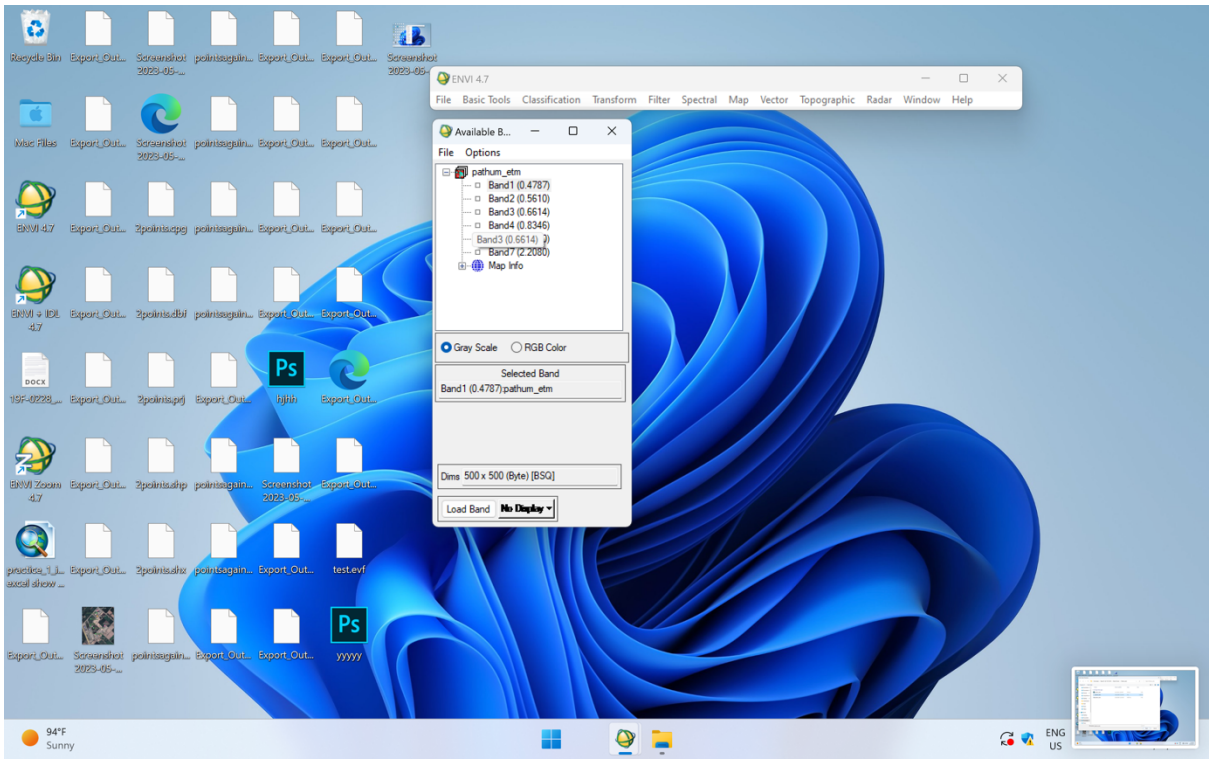
Step 1: Importing Data

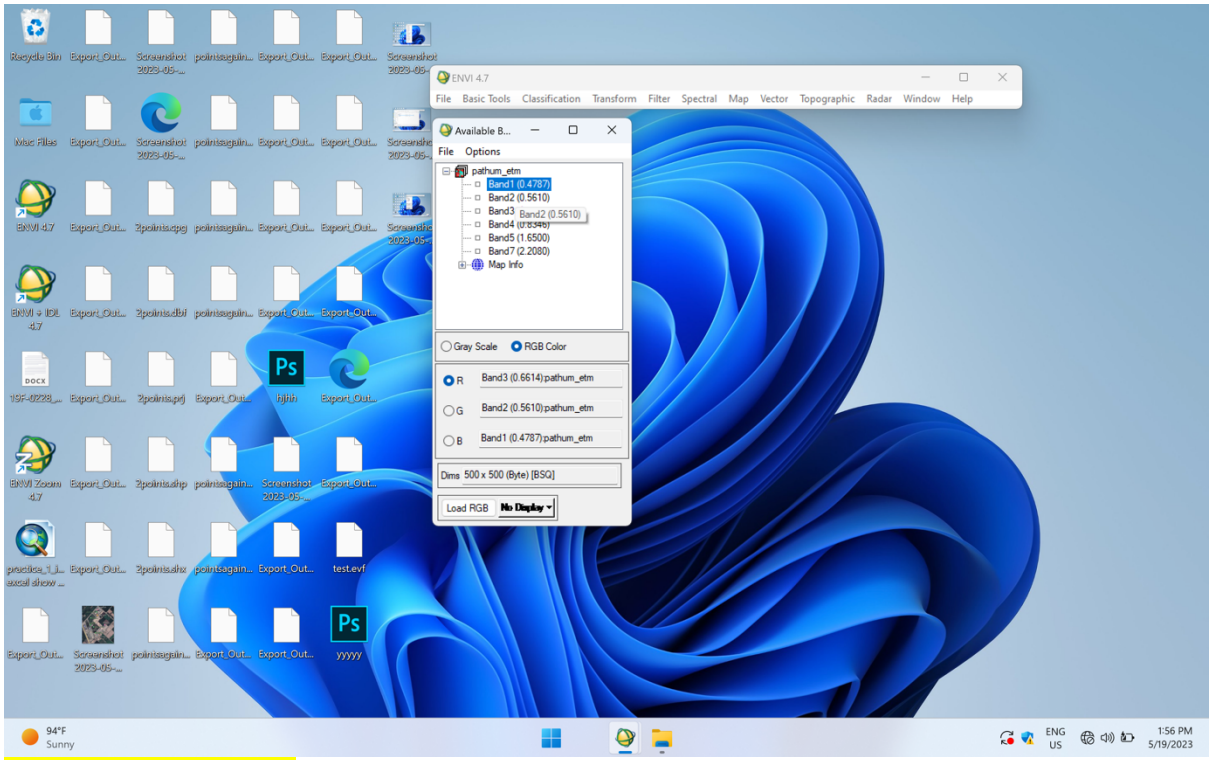




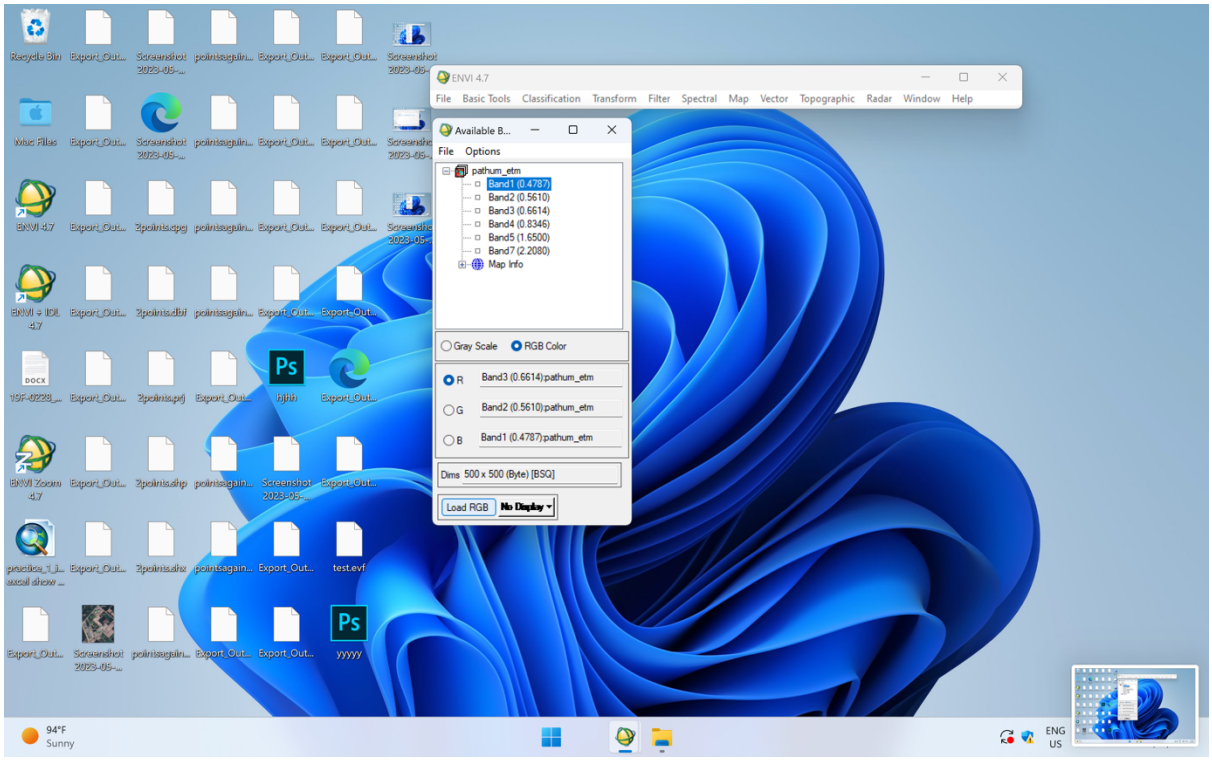
Step2: Bands are loaded now …Entering RGB data from 3 2 1

- Already Greyscale is selected so we need to convert into RGB

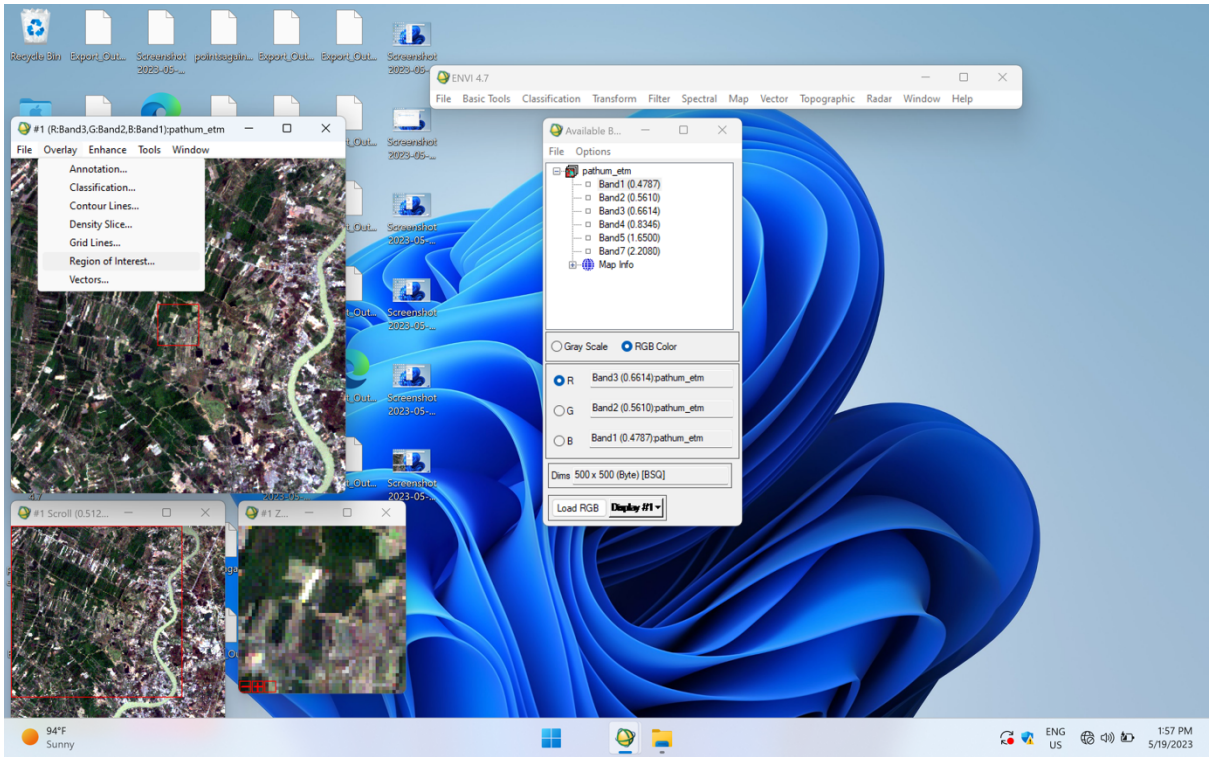




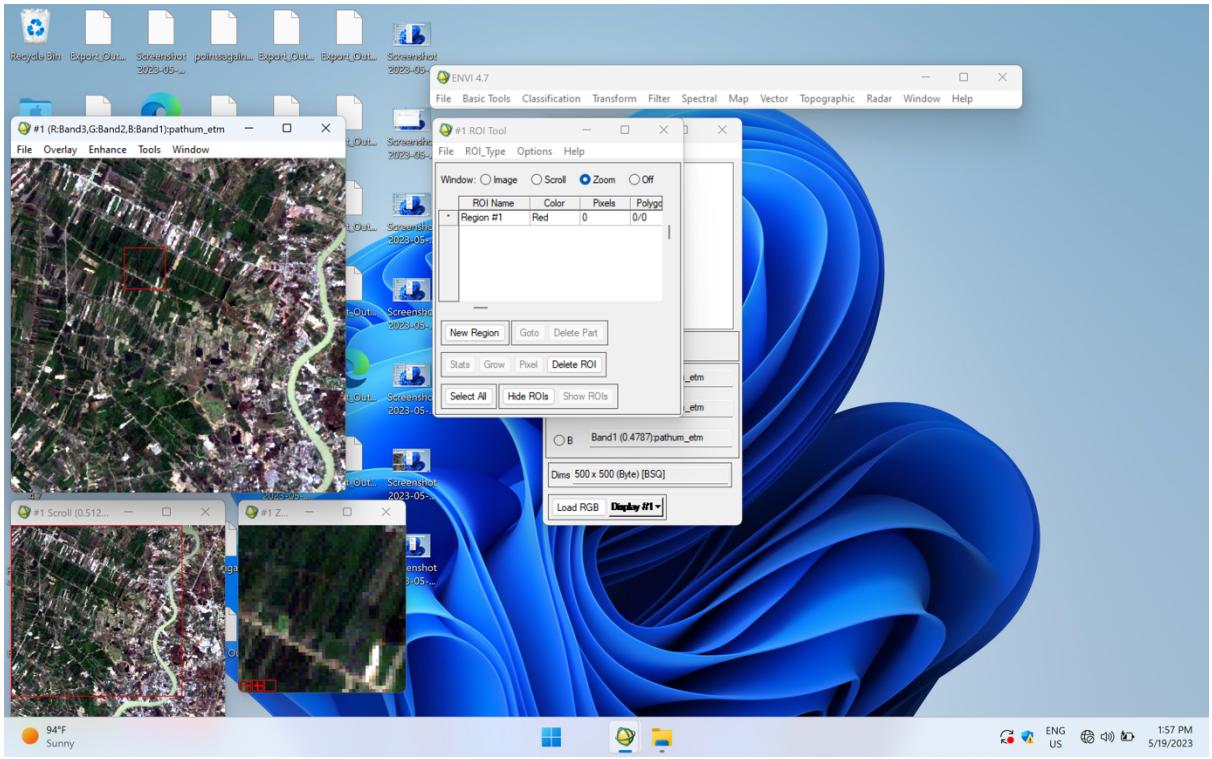
Setting the RGB values

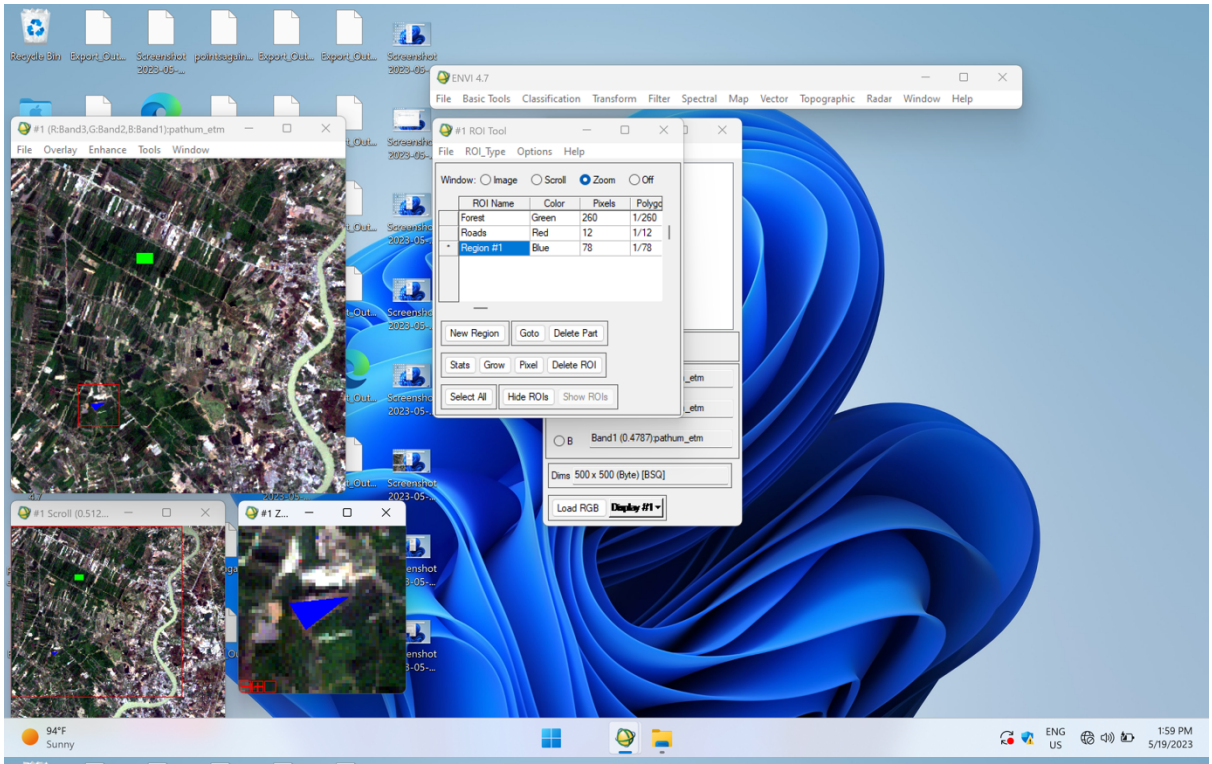


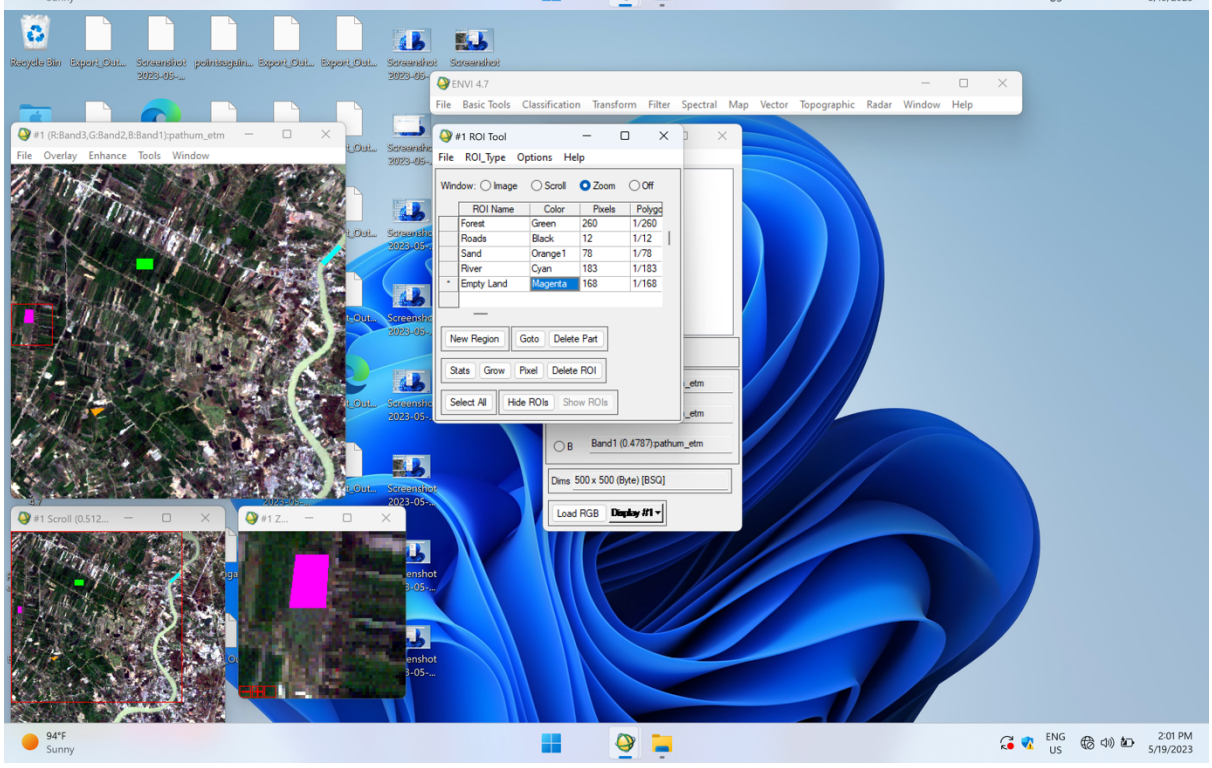
- Loading the RGB value and selecting the region of interest

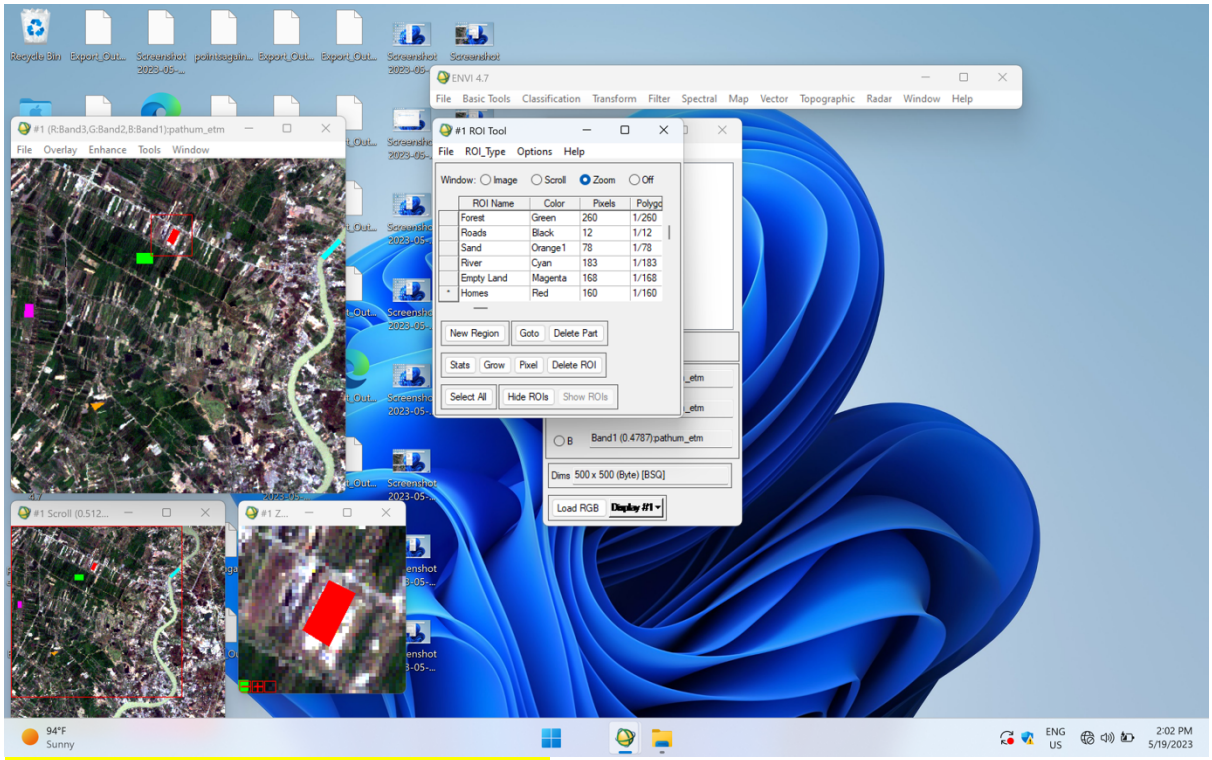


Selecting Regions one by one

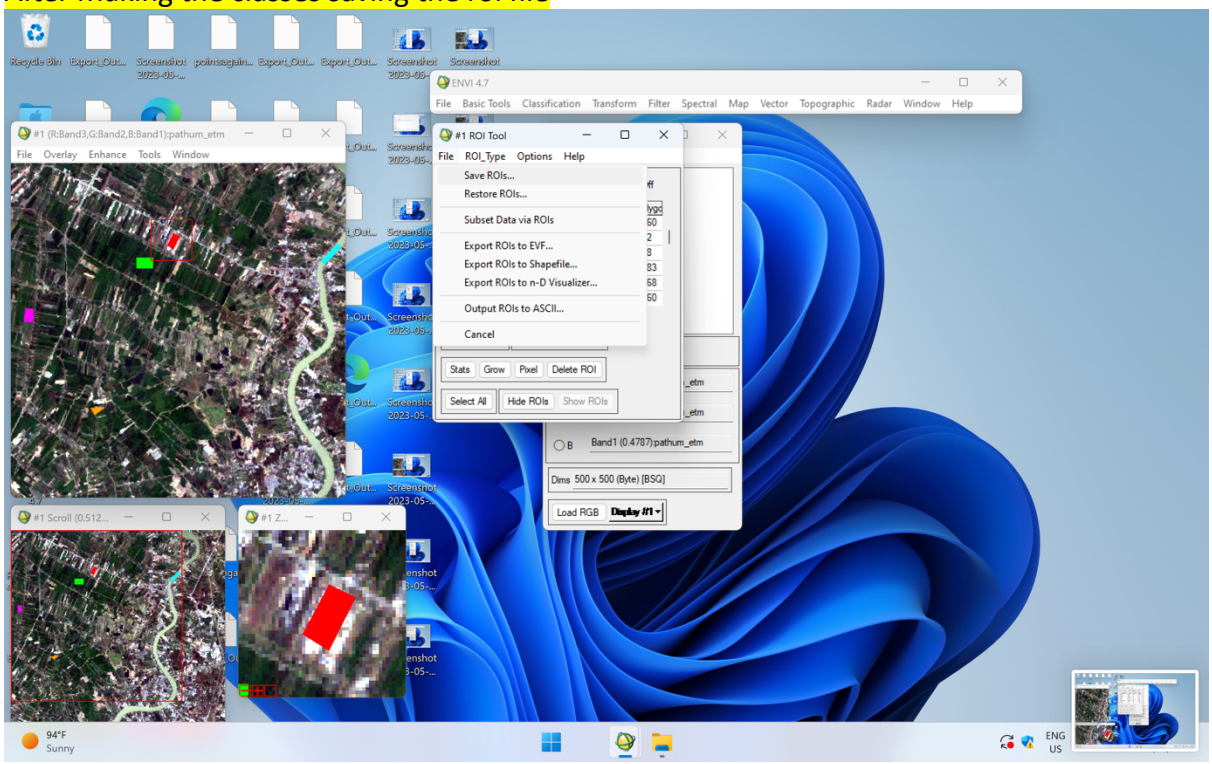


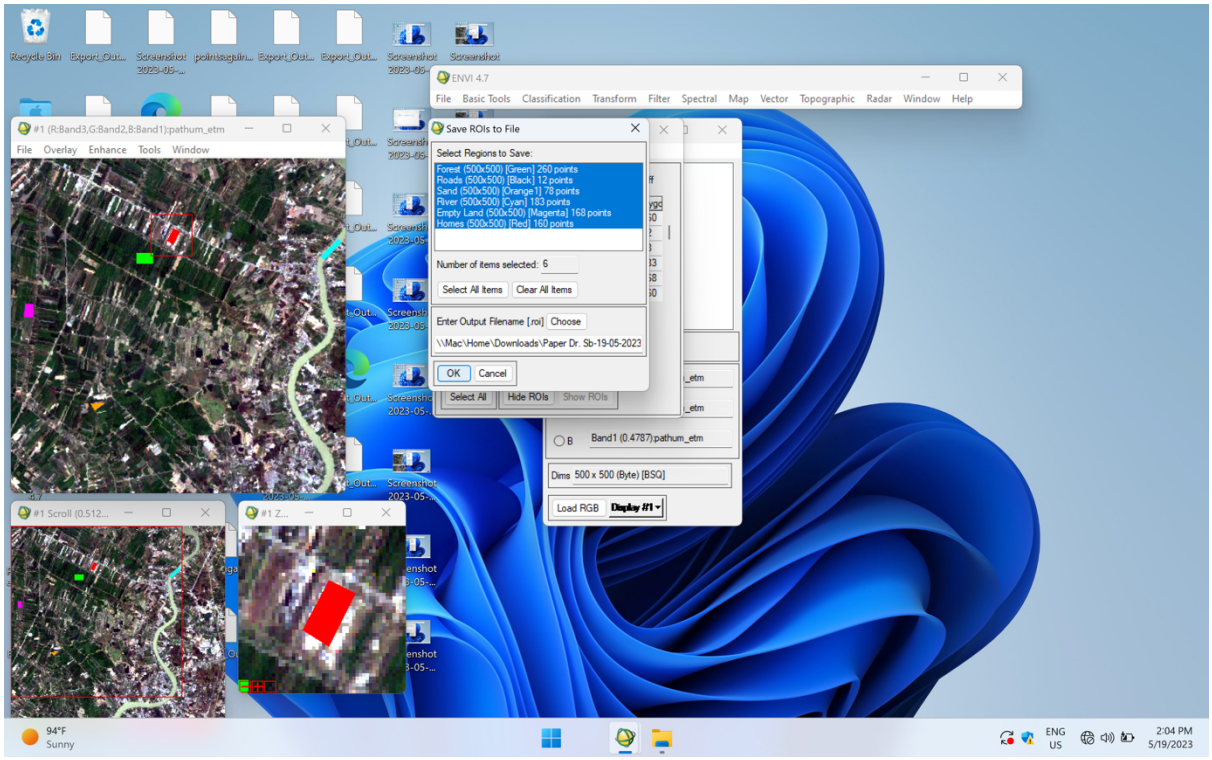

ENVI 4.7
File Basic Tools Classification Transform Filter Spectral Map Vector Topographic Radar Window Help
#1 ROI Tool
File ROI_Type Options Help
Window: Image Scroll Zoom Off
ROI Name Color Pixels Polygo
Forest Green 260 1/260
Roads Red 12 1/12
Region #1 Blue 78 1/78
New Region Goto Delete Part
Stats Grow Pixel Delete ROI
Select All Hide ROIs Show ROIs
Band1 (0.4787):pathum_etm
Dims 500 x 500 (Byte) [BSQ]
Load RGB Display #1
#1 (R:Band3,G:Band2,B:Band1):pathum_etm
File Overlay Enhance Tools Window
#1 Scroll (0.512...
#1 Z...
94°F Sunny
ENG US
1:59 PM 5/19/2023


ENVI 4.7
File Basic Tools Classification Transform Filter Spectral Map Vector Topographic Radar Window Help
#1 ROI Tool
File ROI_Type Options Help
Window: Image Scroll Zoom Off
ROI Name Color Pixels Polygo
Forest Green 260 1/260
Roads Black 12 1/12
Sand Orange1 78 1/78
River Cyan 183 1/183
Empty Land Magenta 168 1/168
New Region Goto Delete Part
Stats Grow Pixel Delete ROI
Select All Hide ROIs Show ROIs
Band1 (0.4787):pathum_etm
Dims 500 x 500 (Byte) [BSQ]
Load RGB Display #1
#1 (R:Band3,G:Band2,B:Band1):pathum_etm
File Overlay Enhance Tools Window
#1 Scroll (0.512...
#1 Z...
94°F Sunny
ENG US
2:01 PM 5/19/2023

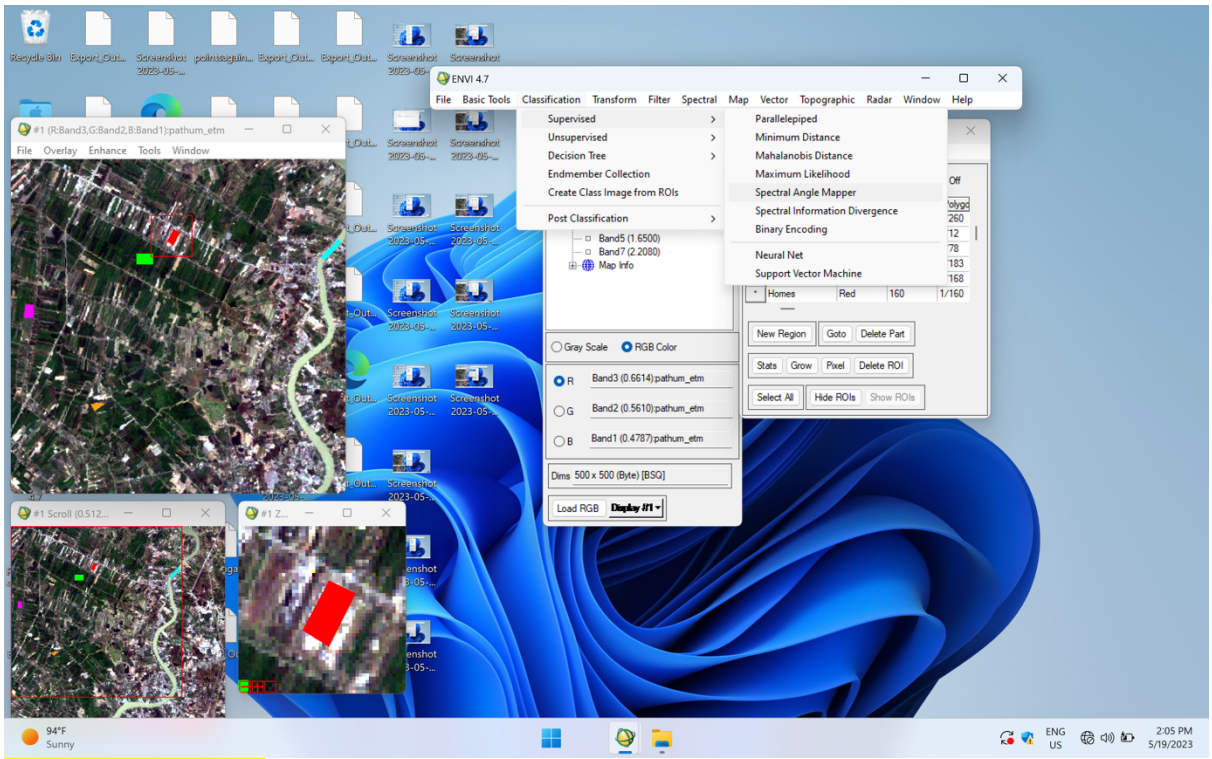


After Making the classes saving the roi file

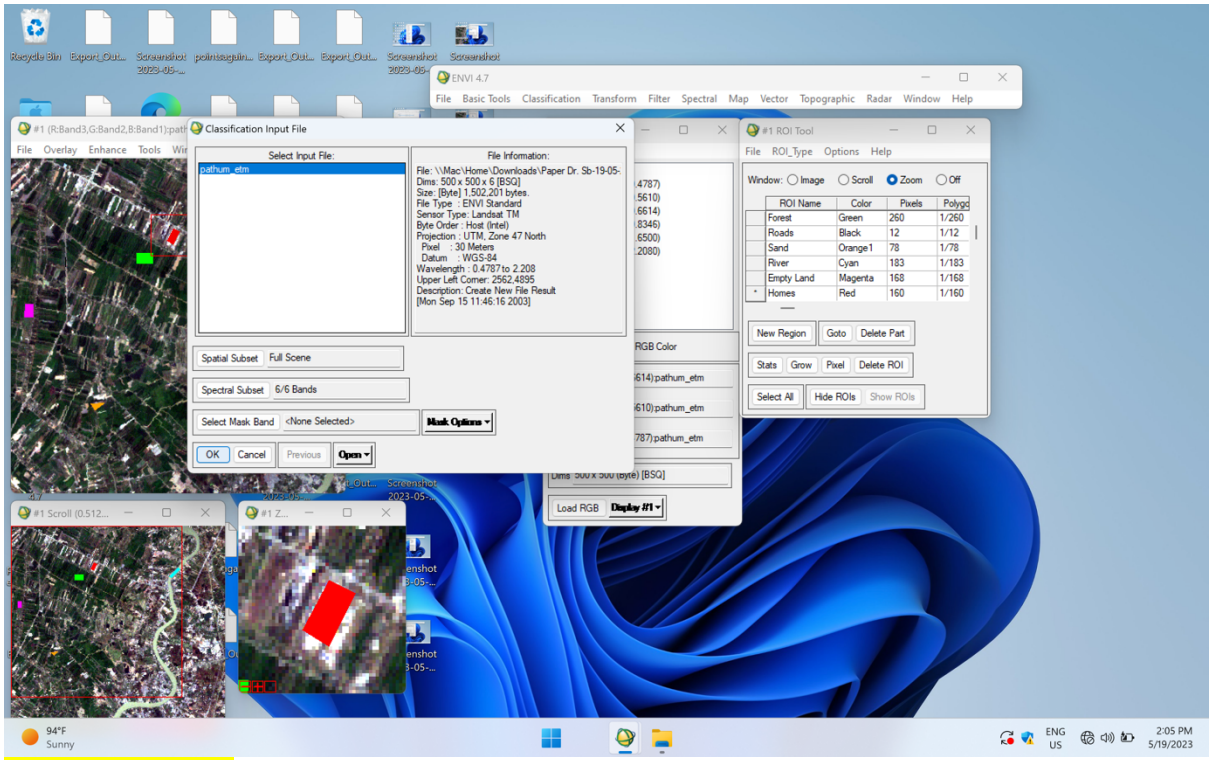




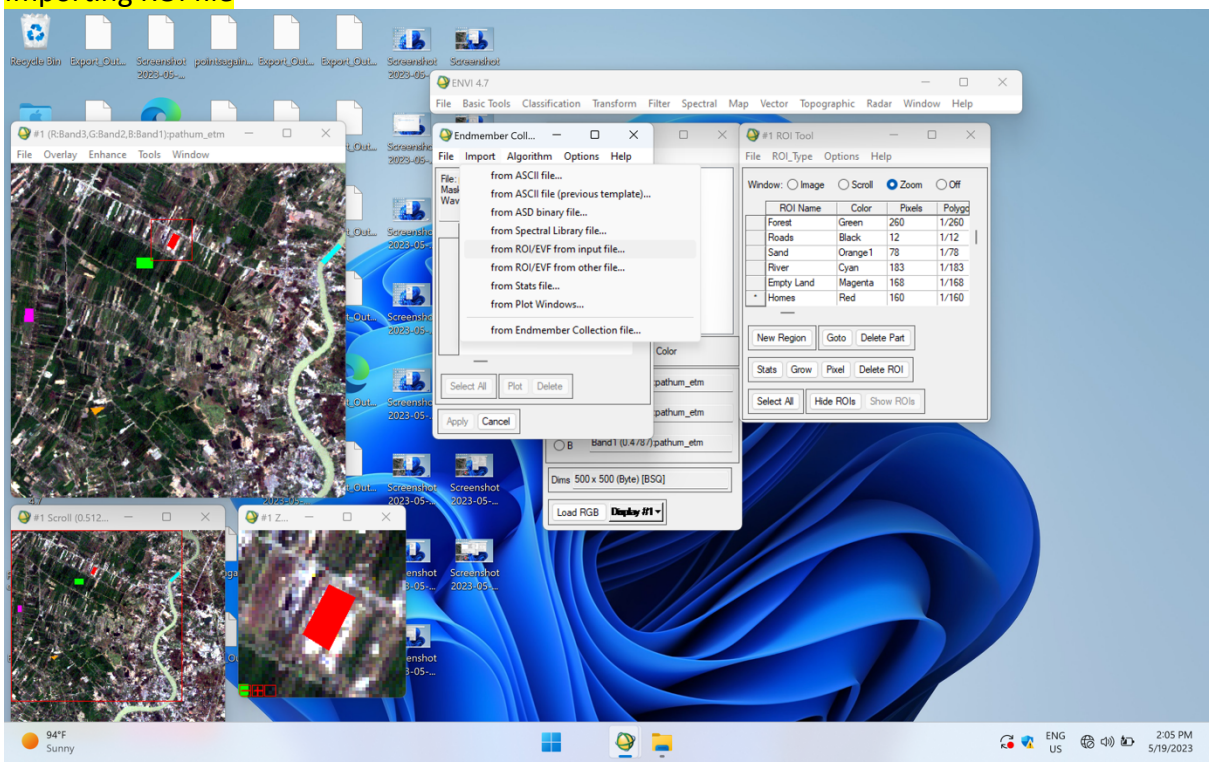
Now Performing the Supervised Classification

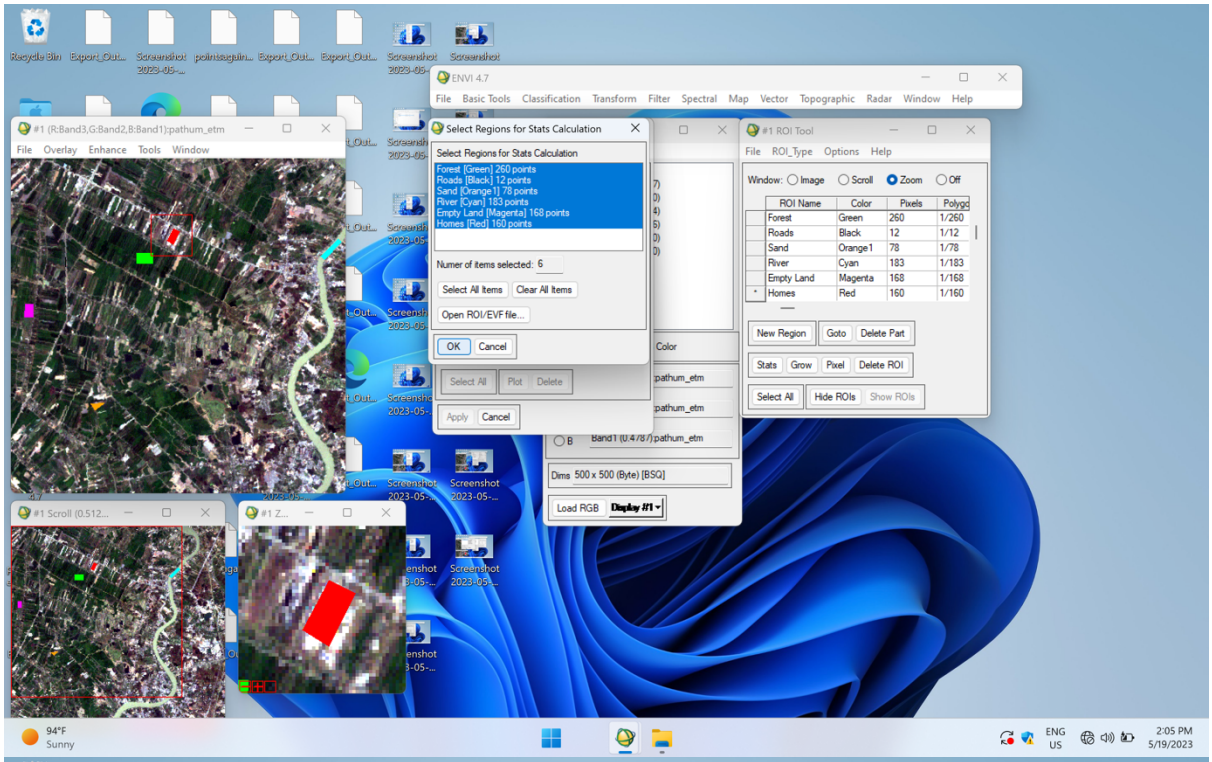


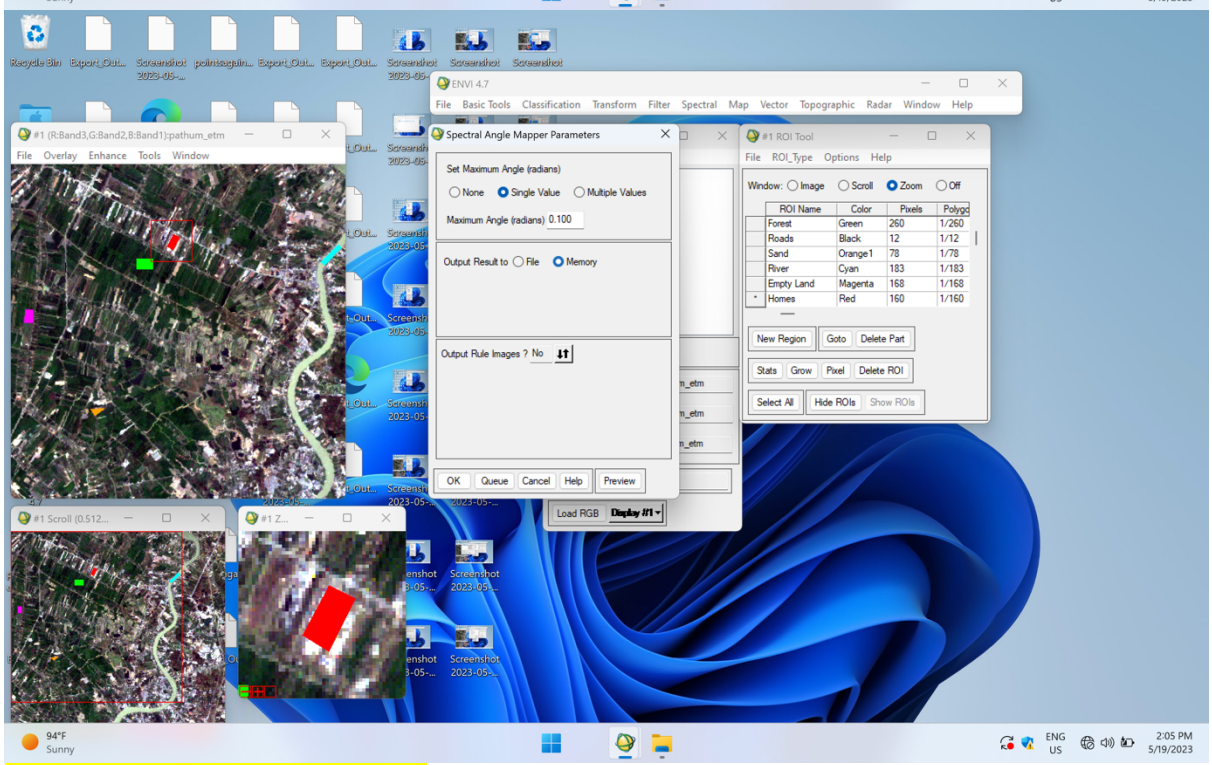
Importing the tif file



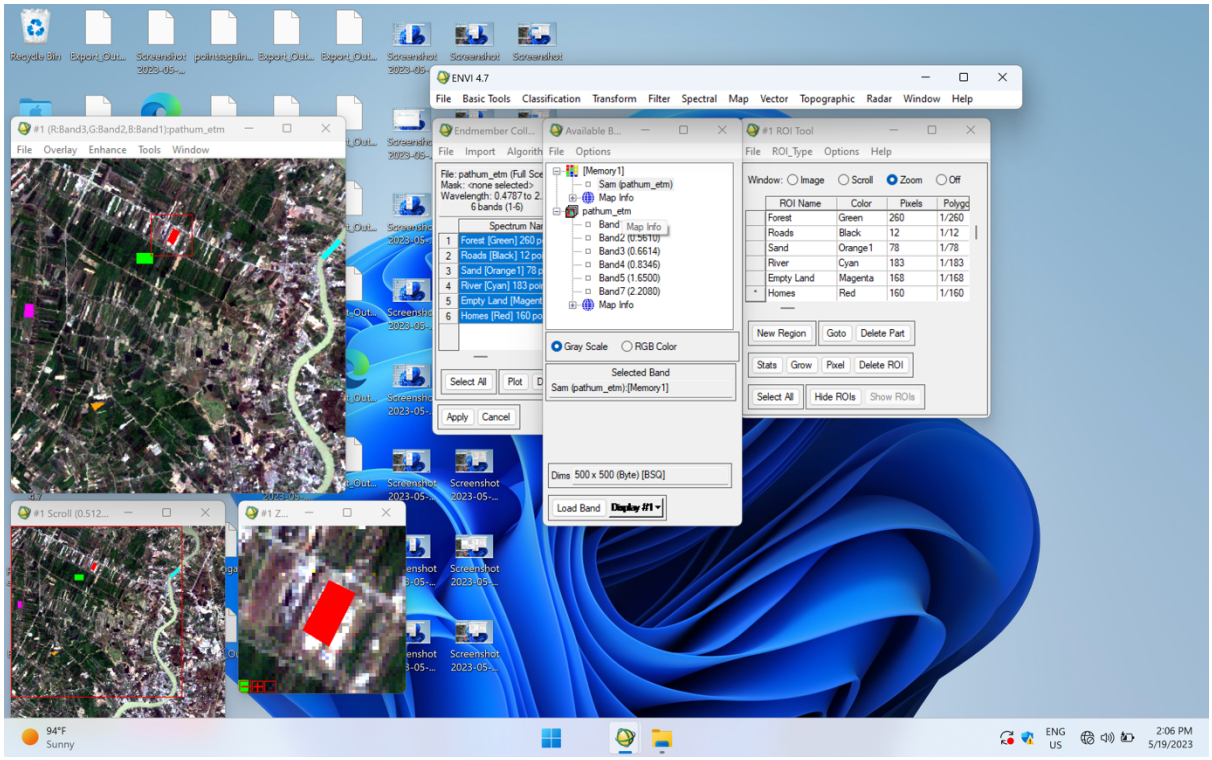
Importing ROI file



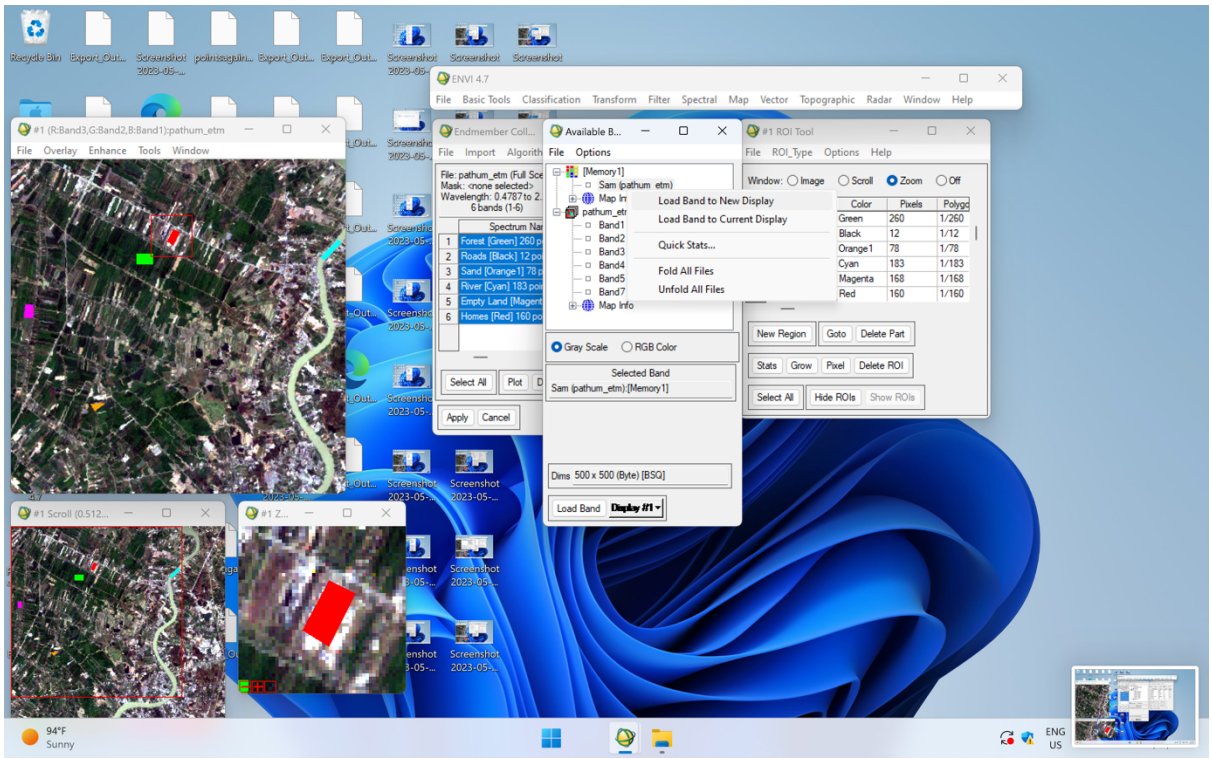


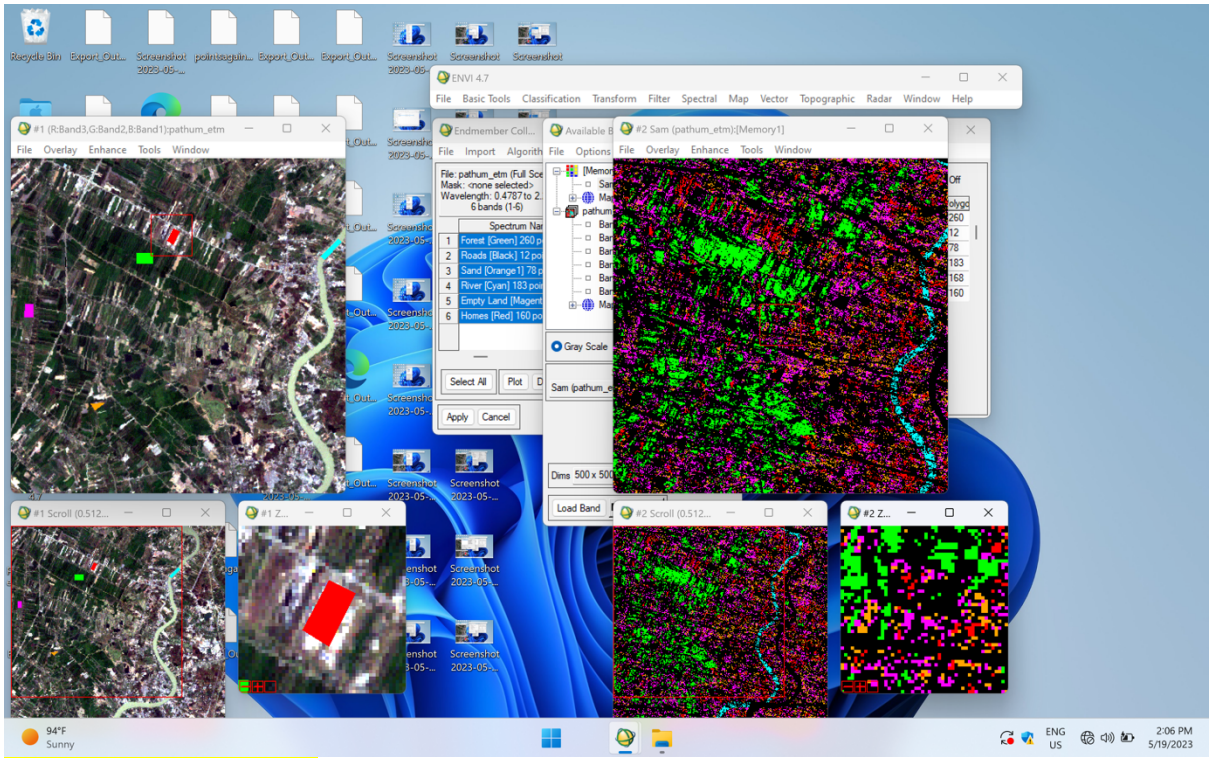


The output file is now generated

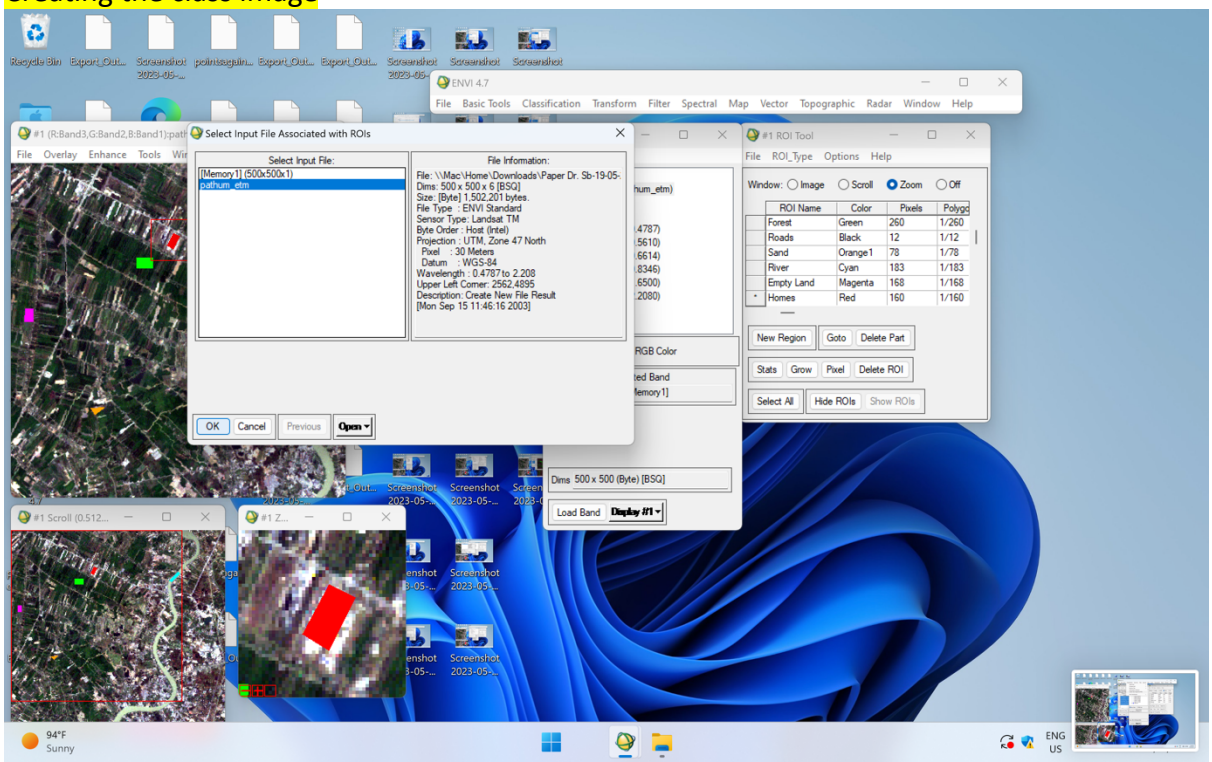


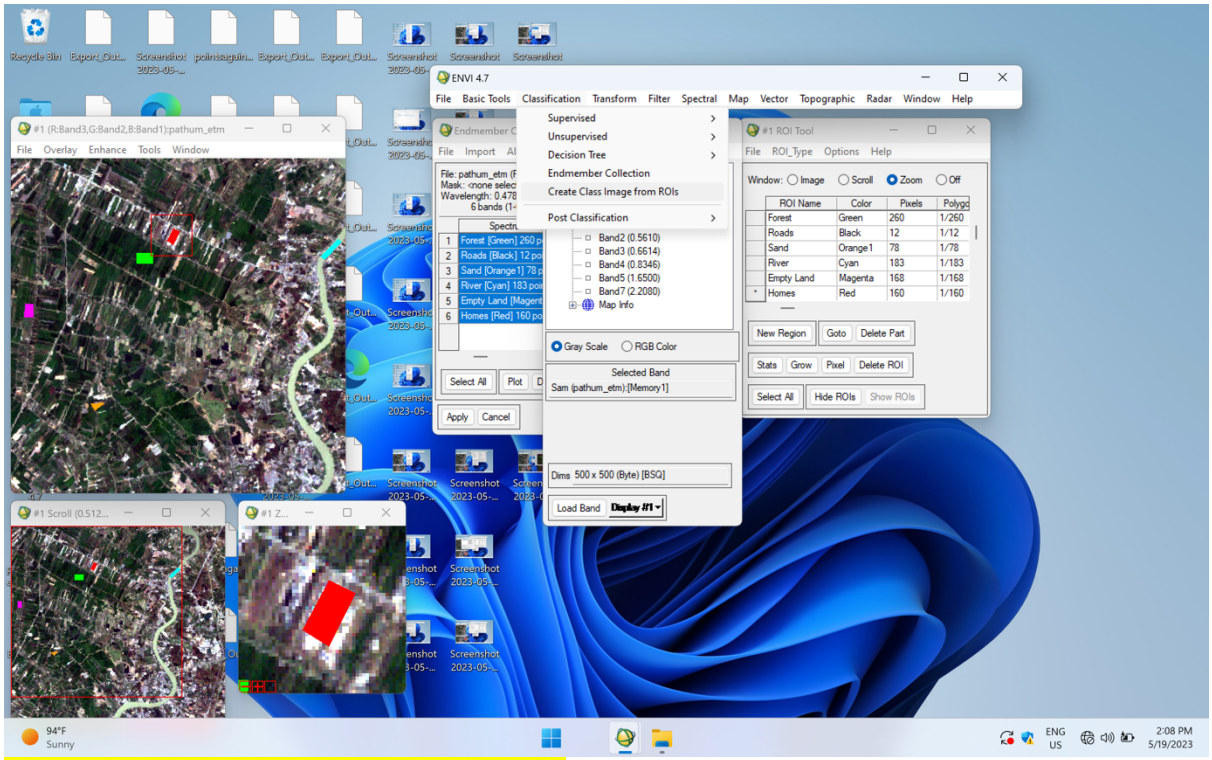
Showing on another display



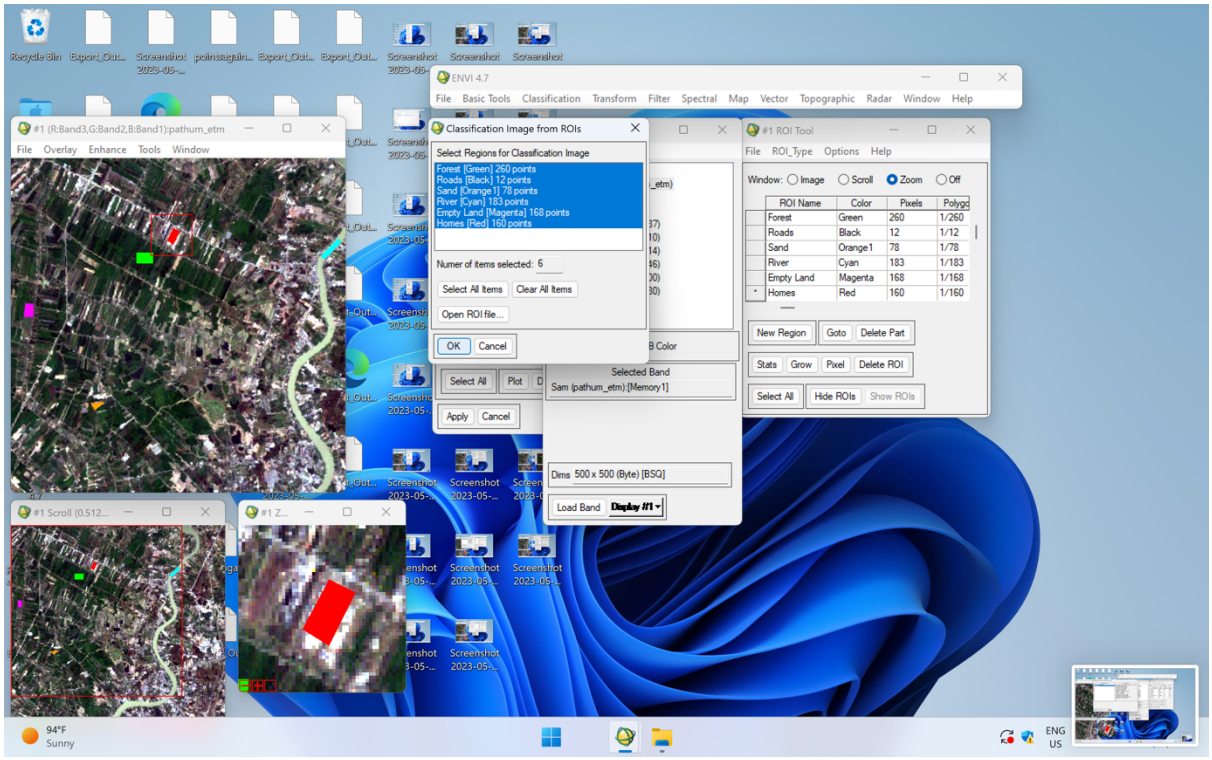


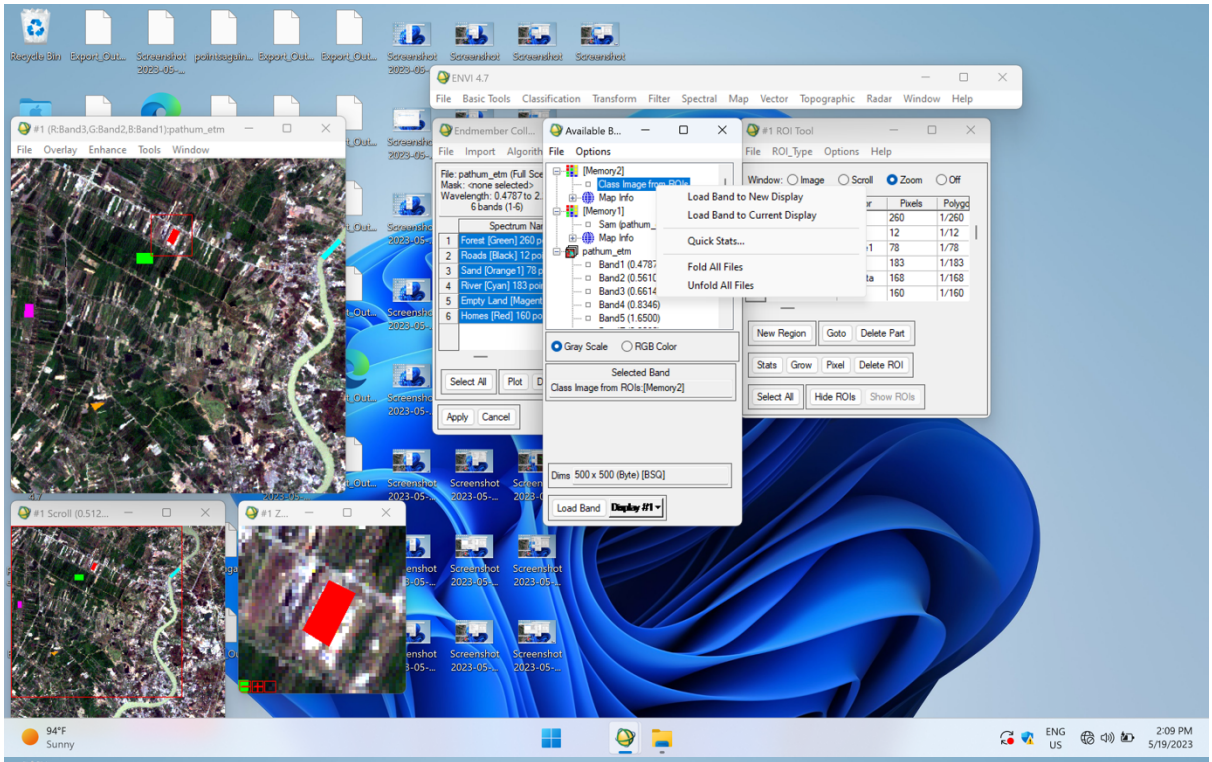
Creating the class image

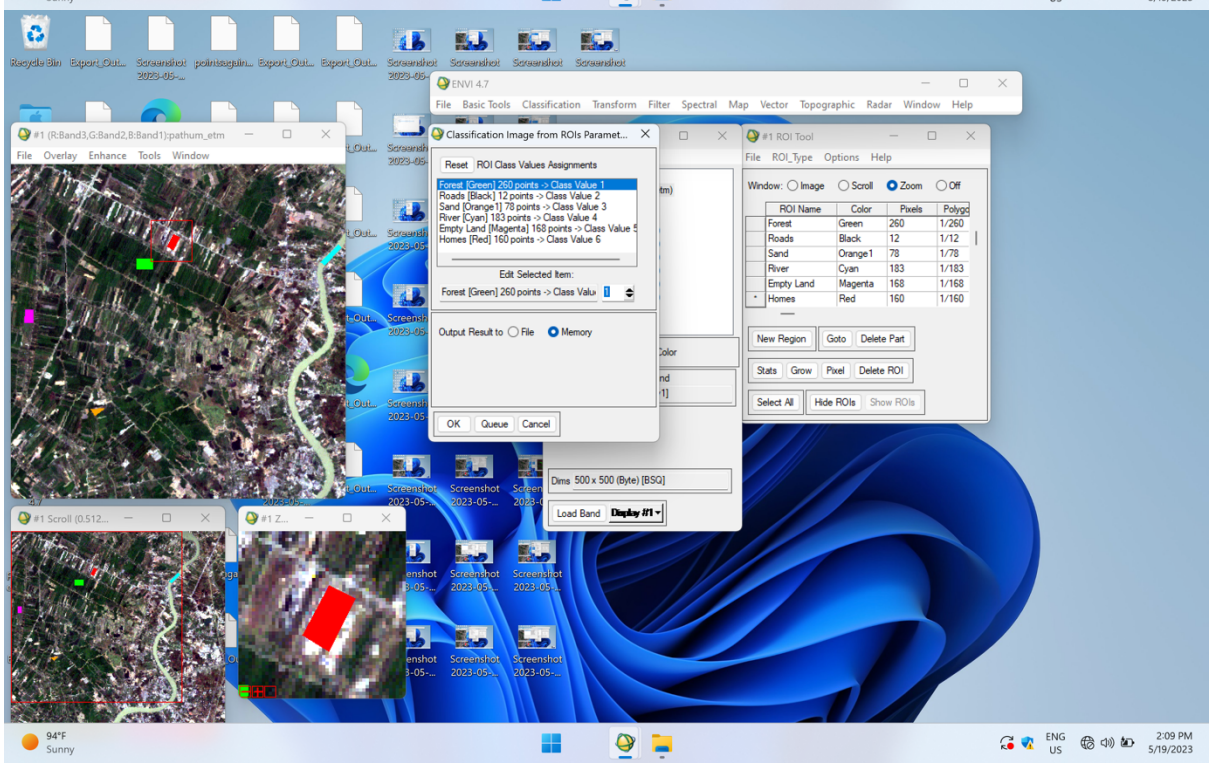




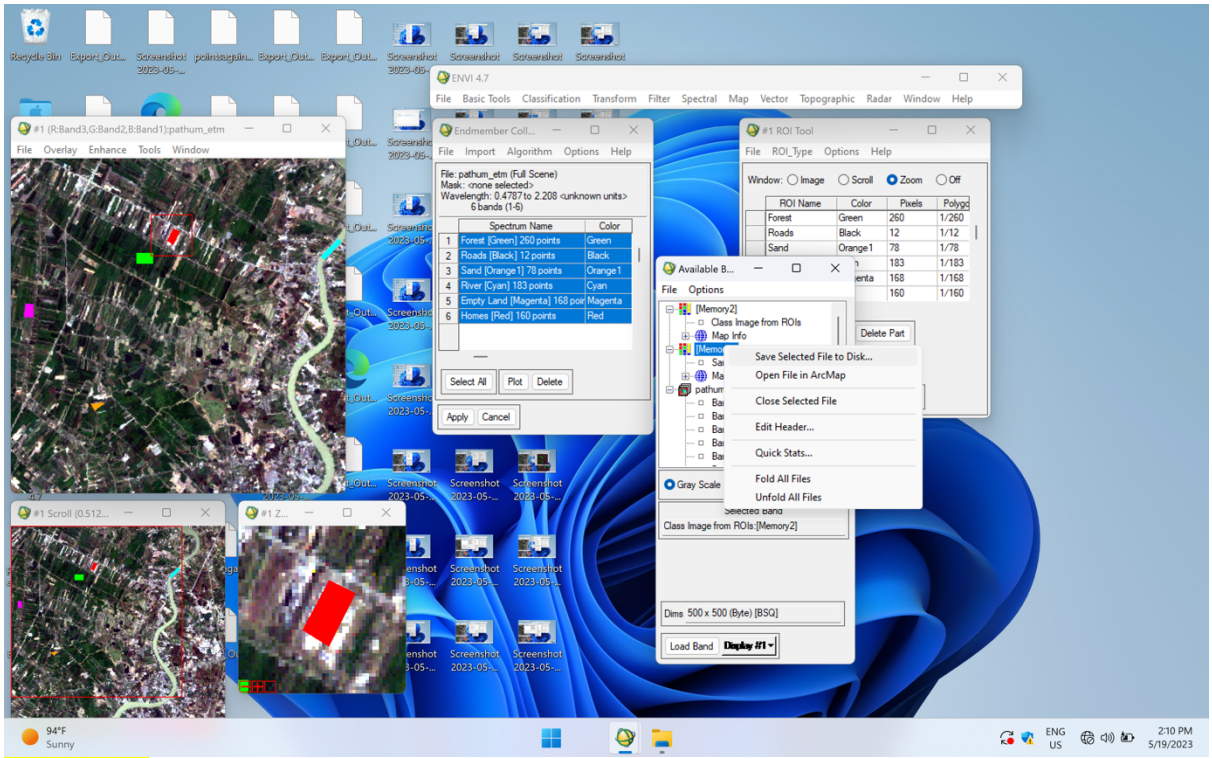
Classification of the image from the ROI file



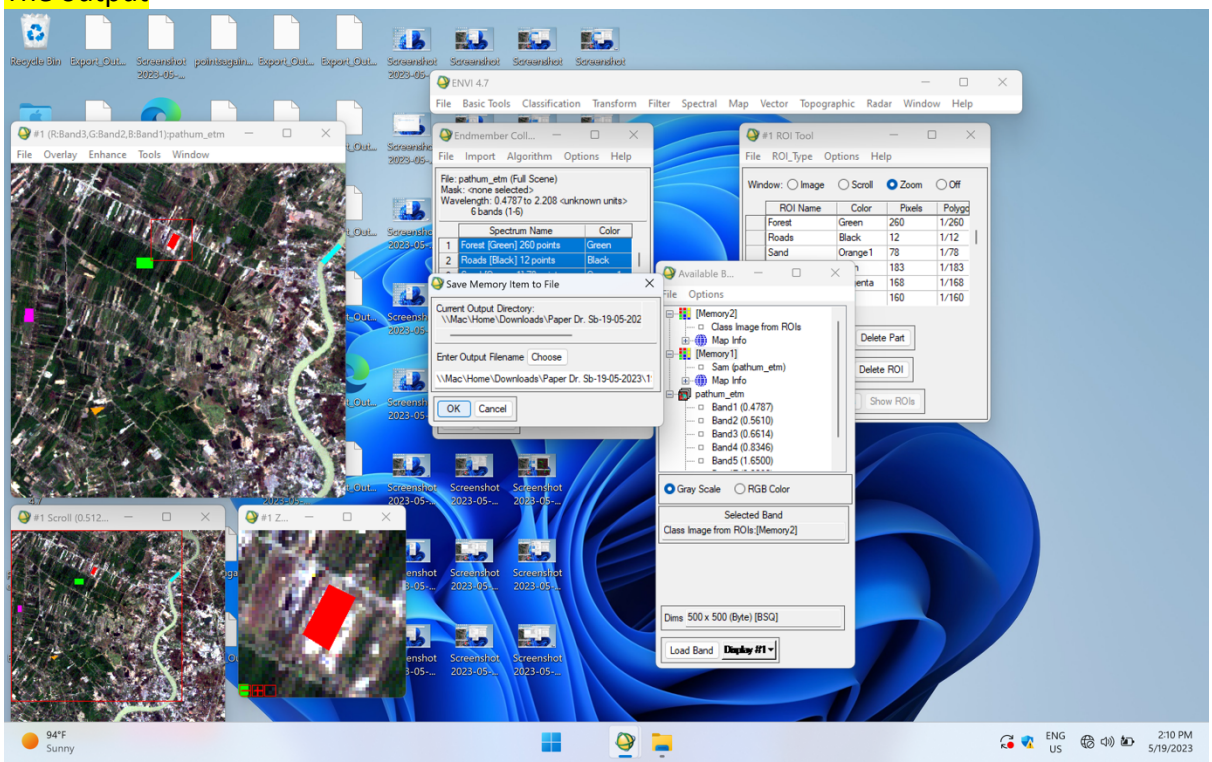




Saving the file on the disk


ENVI 4.7
File Basic Tools Classification Transform Filter Spectral Map Vector Topographic Radar Window Help
#1 (R:Band3,G:Band2,B:Band1):pathum_etm
File Overlay Enhance Tools Window
Endmember Coll...
File Import Algorithm Options Help
File: pathum_etm (Full Scene)
Mask: <none selected>
Wavelength: 0.4787 to 2.208 <unknown units>
6 bands (1-6)
Spectrum Name Color
1 Forest [Green] 260 points Green
2 Roads [Black] 12 points Black
3 Sand [Orange1] 78 points Orange1
4 River [Cyan] 183 points Cyan
5 Empty Land [Magenta] 168 poir Magenta
6 Homes [Red] 160 points Red
Select All Plot Delete
Apply Cancel
#1 ROI Tool
File ROI_Type Options Help
Window: Image Scroll Zoom Off
ROI Name Color Pixels Polygc
Forest Green 260 1/260
Roads Black 12 1/12
Sand Orange1 78 1/78
1/183
168 1/168
160 1/160
Delete Part
Available B...
File Options
[Memory2]
Class Image from ROIs
Map Info
Save Selected File to Disk...
Open File in ArcMap
Close Selected File
Edit Header...
Quick Stats...
Fold All Files
Unfold All Files
Gray Scale
Class Image from ROIs:[Memory2]
Dims 500 x 500 (Byte) [BSQ]
Load Band Display #1
#1 Scroll (0.512...
#1 Z...
94°F
Sunny
ENG
US
2:10 PM
5/19/2023

The output


ENVI 4.7
File Basic Tools Classification Transform Filter Spectral Map Vector Topographic Radar Window Help
#1 (R:Band3,G:Band2,B:Band1):pathum_etm
File Overlay Enhance Tools Window
Endmember Coll...
File Import Algorithm Options Help
File: pathum_etm (Full Scene)
Mask: <none selected>
Wavelength: 0.4787 to 2.208 <unknown units>
6 bands (1-6)
Spectrum Name Color
1 Forest [Green] 260 points Green
2 Roads [Black] 12 points Black
Save Memory Item to File
Current Output Directory:
\\Mac\Home\Downloads\Paper Dr. Sb-19-05-202
Enter Output Filename Choose
\\Mac\Home\Downloads\Paper Dr. Sb-19-05-2023\1
OK Cancel
#1 ROI Tool
File ROI_Type Options Help
Window: Image Scroll Zoom Off
ROI Name Color Pixels Polygc
Forest Green 260 1/260
Roads Black 12 1/12
Sand Orange1 78 1/78
1/183
168 1/168
160 1/160
Delete Part
Delete ROI
Show ROIs
Available B...
File Options
[Memory2]
Class Image from ROIs
Map Info
[Memory1]
Sam (pathum_etm)
Map Info
pathum_etm
Band1 (0.4787)
Band2 (0.5610)
Band3 (0.6614)
Band4 (0.8346)
Band5 (1.6500)
Gray Scale RGB Color
Selected Band
Class Image from ROIs:[Memory2]
Dims 500 x 500 (Byte) [BSQ]
Load Band Display #1
#1 Scroll (0.512...
#1 Z...
94°F
Sunny
ENG
US
2:10 PM
5/19/2023

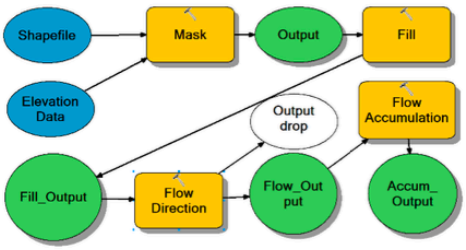
Question 2:

Supervised Classification

Q.2. Develop the following module in ArcMap based on the following inputs. (20 marks)

i. Input must be from the following district. (10)

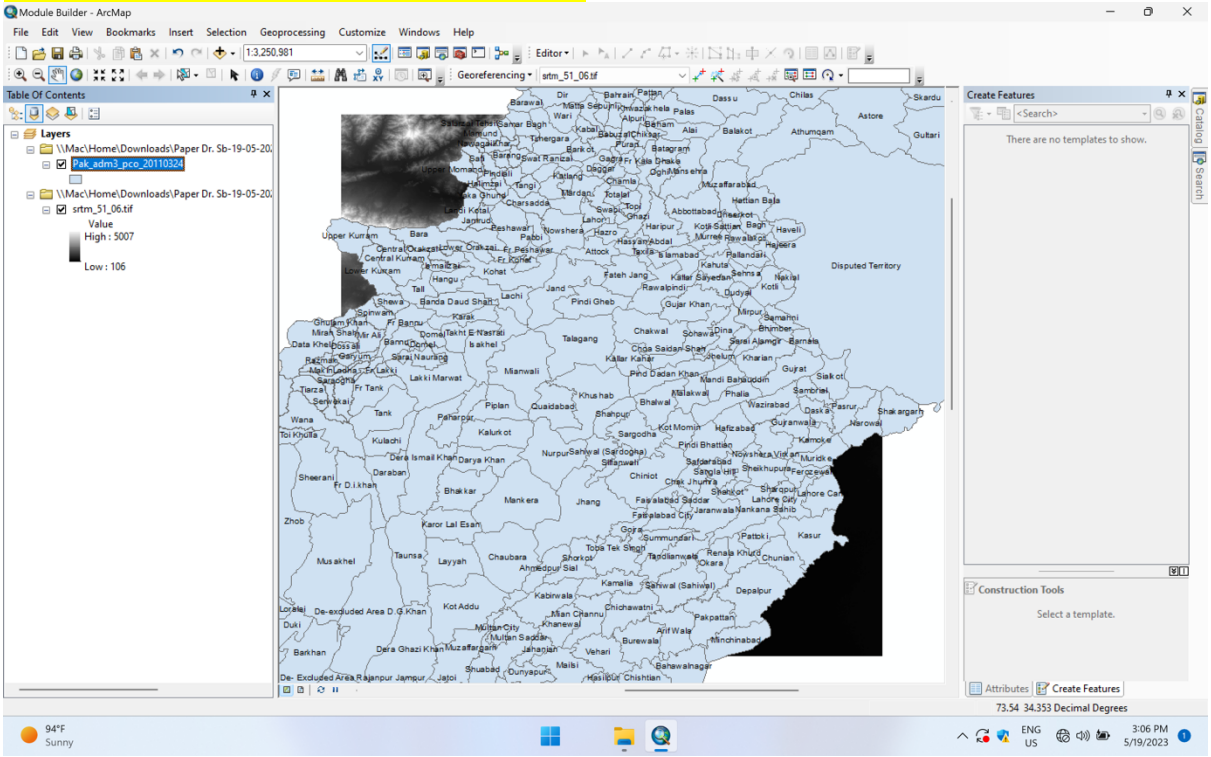
District	Names Started From	District	Names Started From
Abbottabad	A to C	Khyber Agency	S to T
Bajaur Agency	D to F	Malakand P.a.	U to V
Batagram	G to I	Mardan	W to X
Buner	J to L	Mohmand Agency	Y to Z
Haripur	N to O	Muzaffarabad	M
Hattian	P to R		



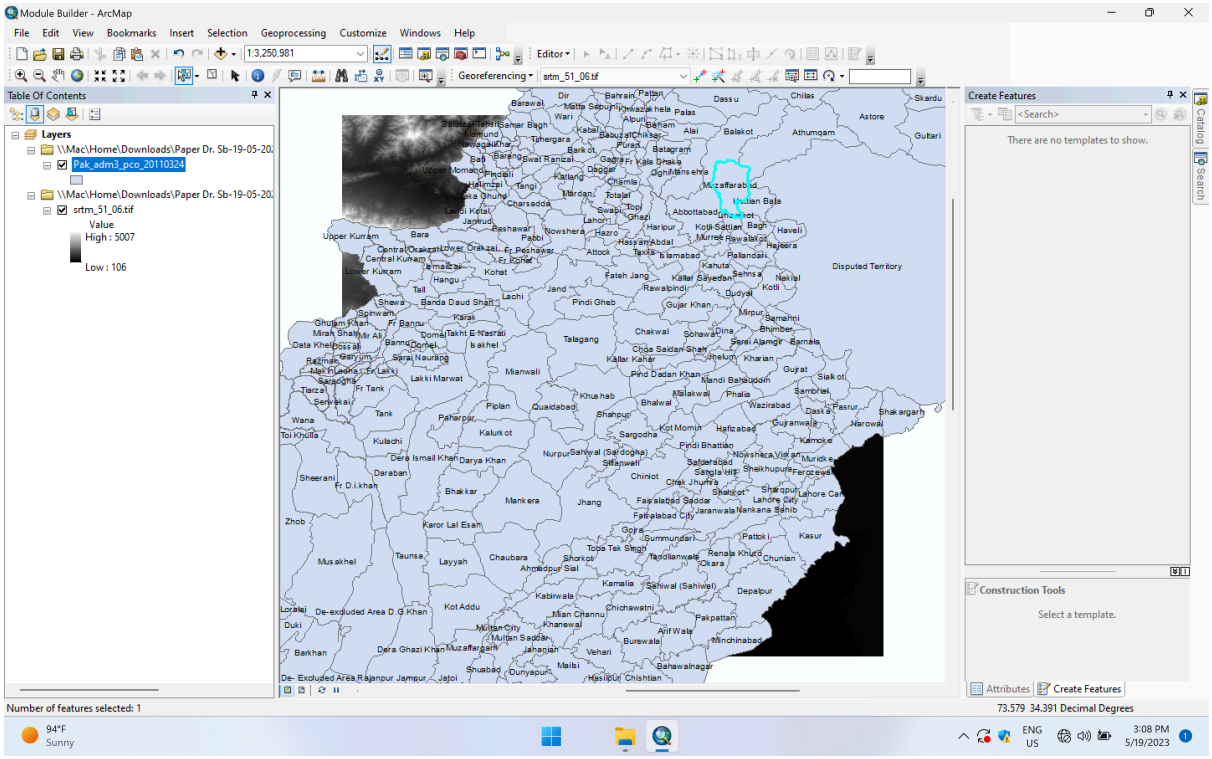
ii. Calculate the Maximum Flow using the formula using the conditional operator. (5)

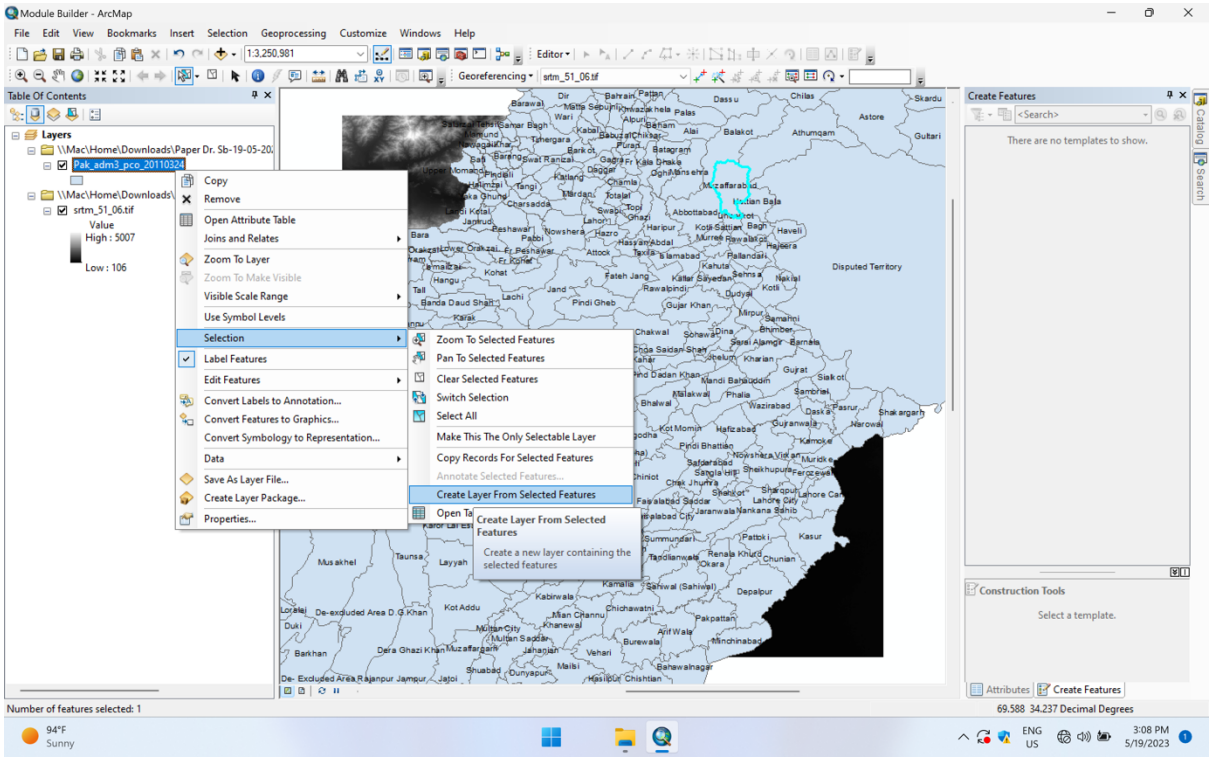
iii. Convert the output into Vector dataset and export the maximum flow as KML file. (5)

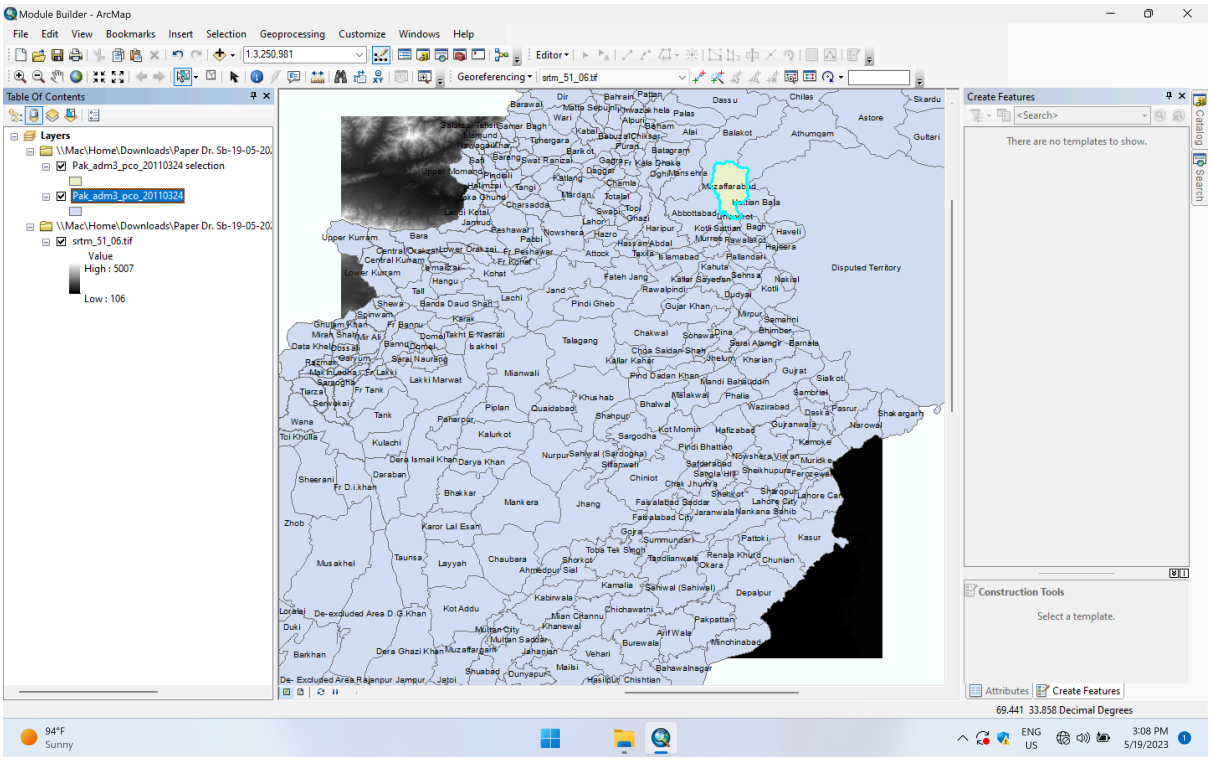
Importing both tif file and Pakistan shape file

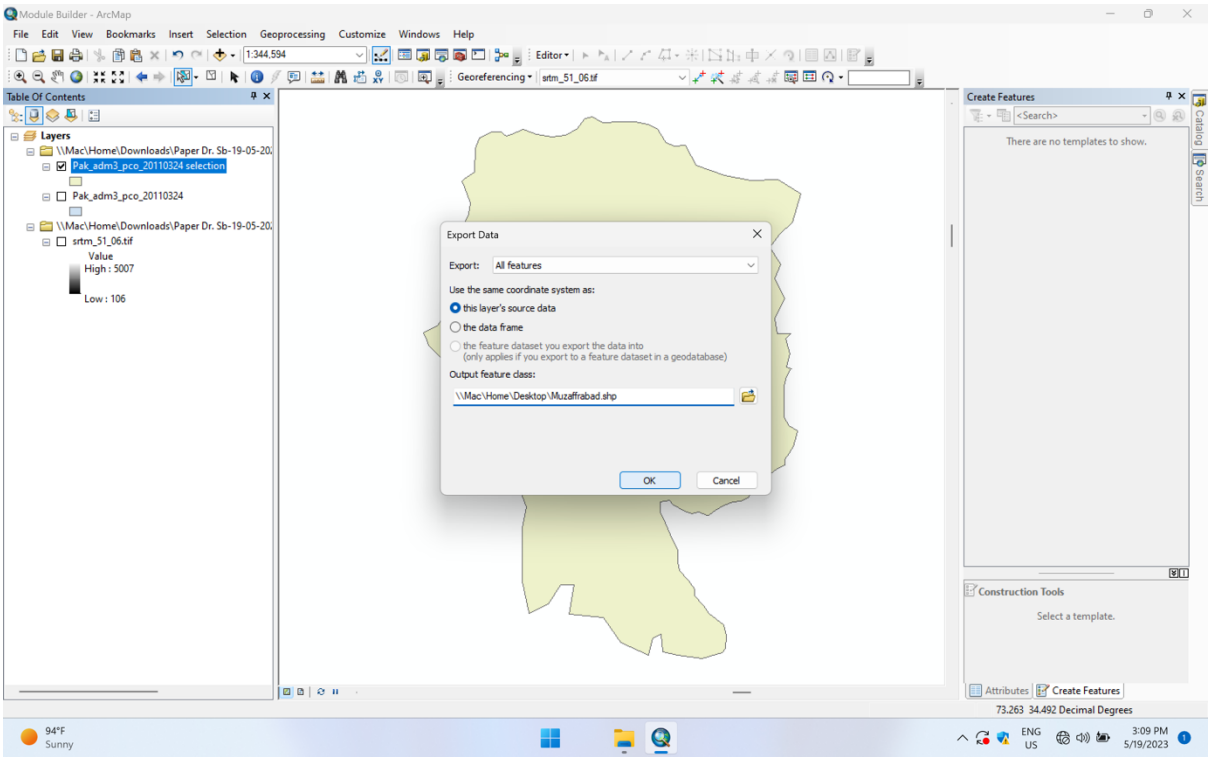


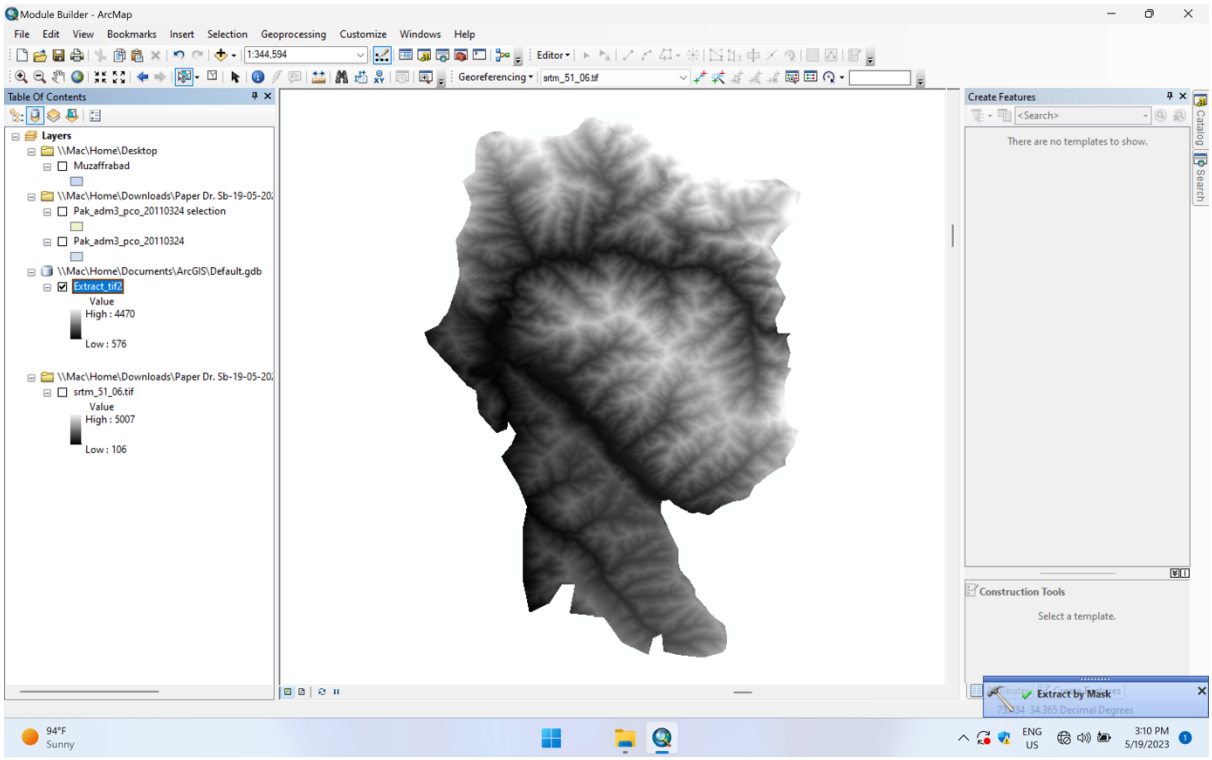
M-> Muzaffarabad -> Muhammad Zain



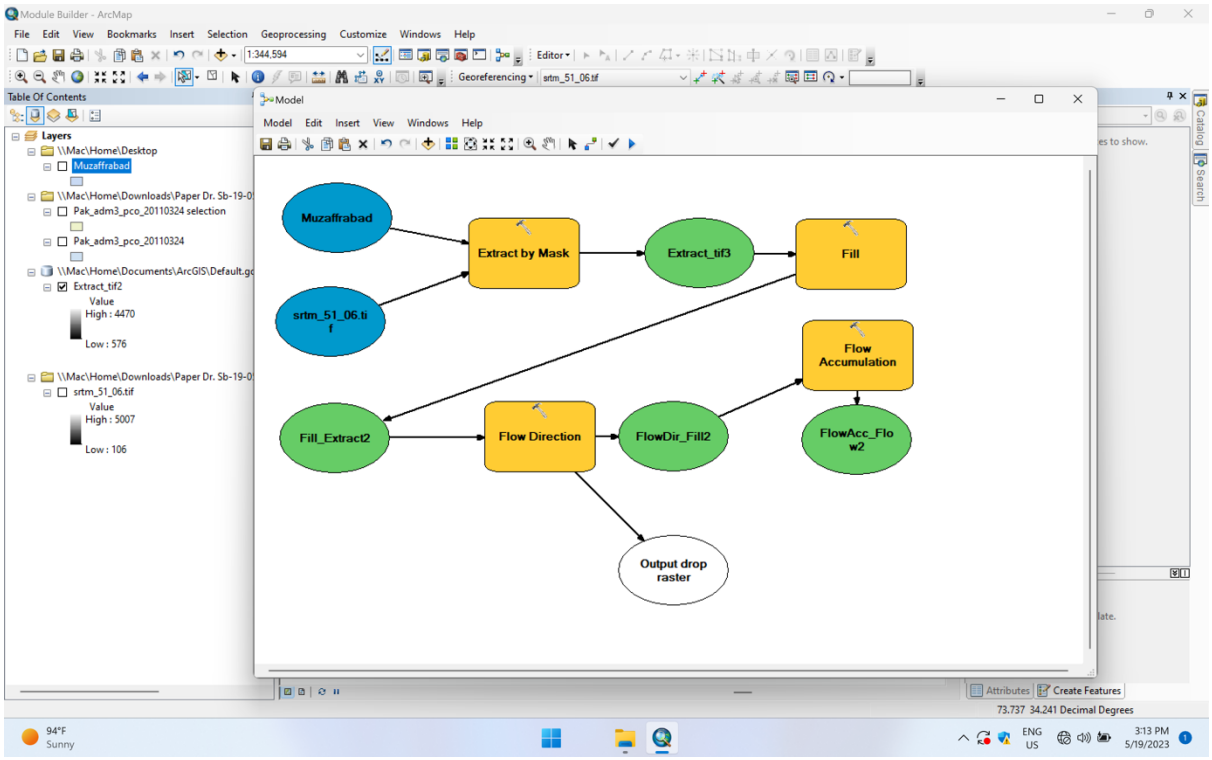



Module Builder - ArcMap
File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help
Table Of Contents
Layers
Pak_adm3_pco_20110324 selection
Pak_adm3_pco_20110324
srtm_51_06.tif
Value
High : 5007
Low : 106
Create Features
There are no templates to show.
Construction Tools
Select a template.
Attributes
Create Features
69.441 33.858 Decimal Degrees
94°F
Sunny
ENG
US
3:08 PM
5/19/2023

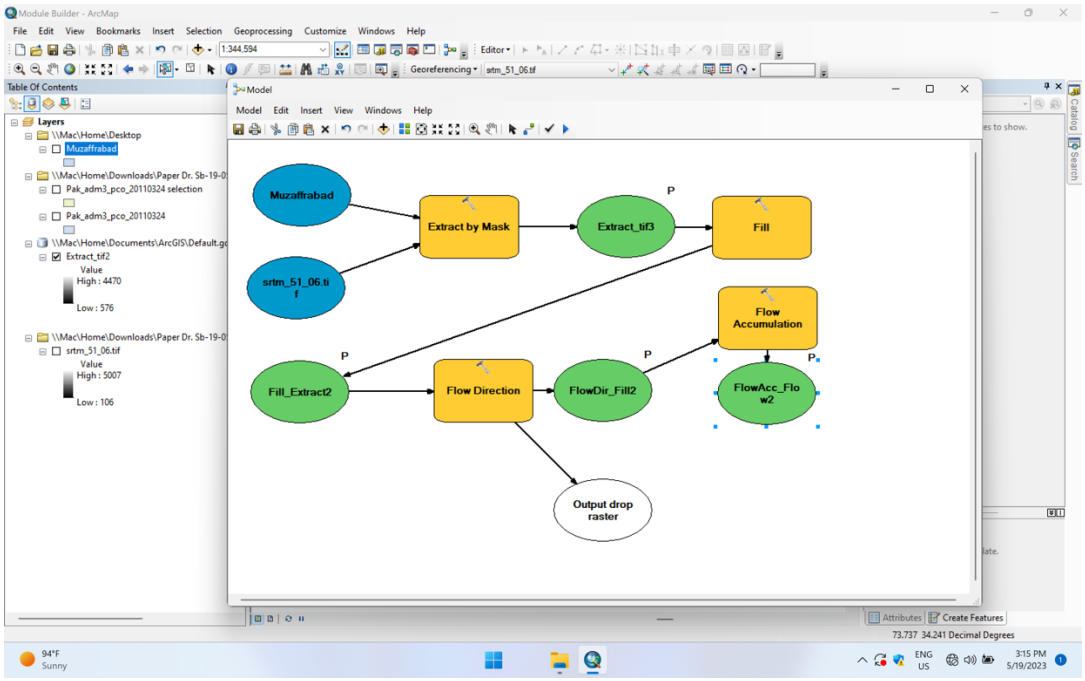

Module Builder - ArcMap
File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help
Table Of Contents
Layers
Pak_adm3_pco_20110324 selection
Pak_adm3_pco_20110324
srtm_51_06.tif
Value
High : 5007
Low : 106
Export Data
Export: All features
Use the same coordinate system as:
this layer's source data
the data frame
the feature dataset you export the data into
(only applies if you export to a feature dataset in a geodatabase)
Output feature class:
\\Mac\Home\Desktop\Muzaffrabad.shp
OK
Cancel
Create Features
There are no templates to show.
Construction Tools
Select a template.
Attributes
Create Features
73.263 34.492 Decimal Degrees
94°F
Sunny
ENG
US
3:09 PM
5/19/2023



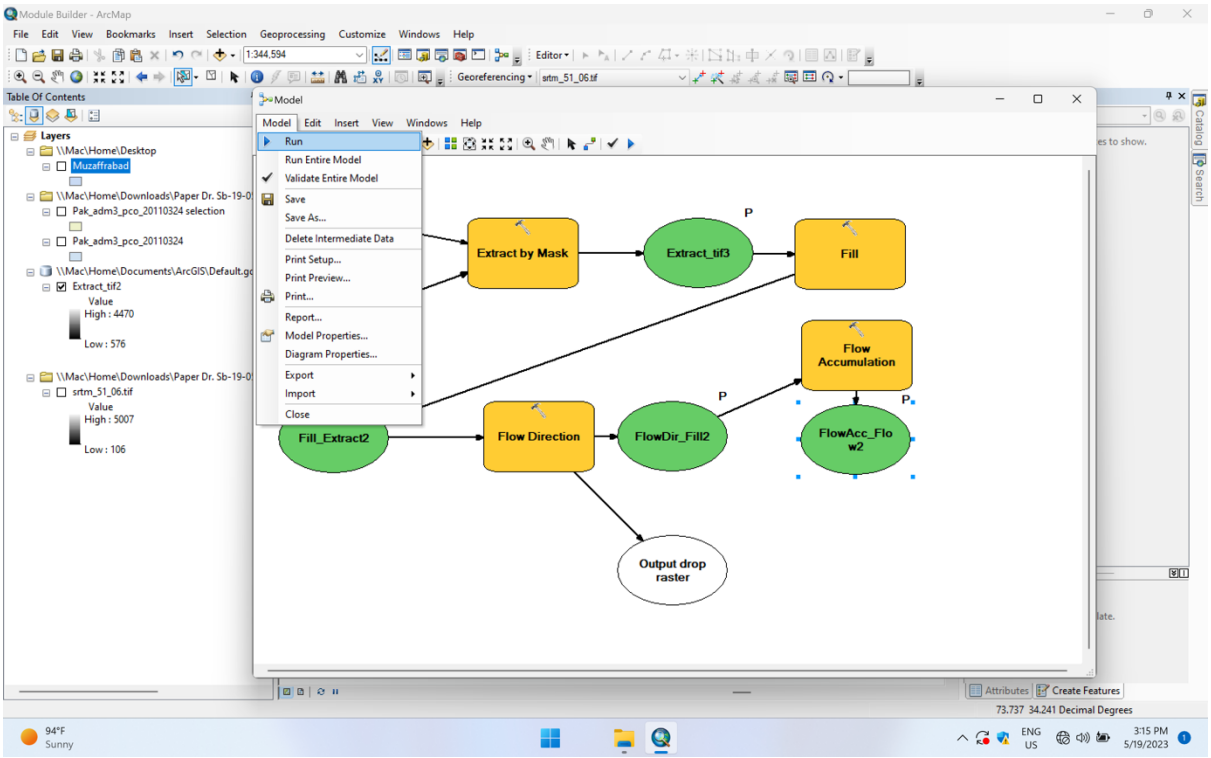
Importing Simple Muzaafarabd file and srtm file and generated the model as given

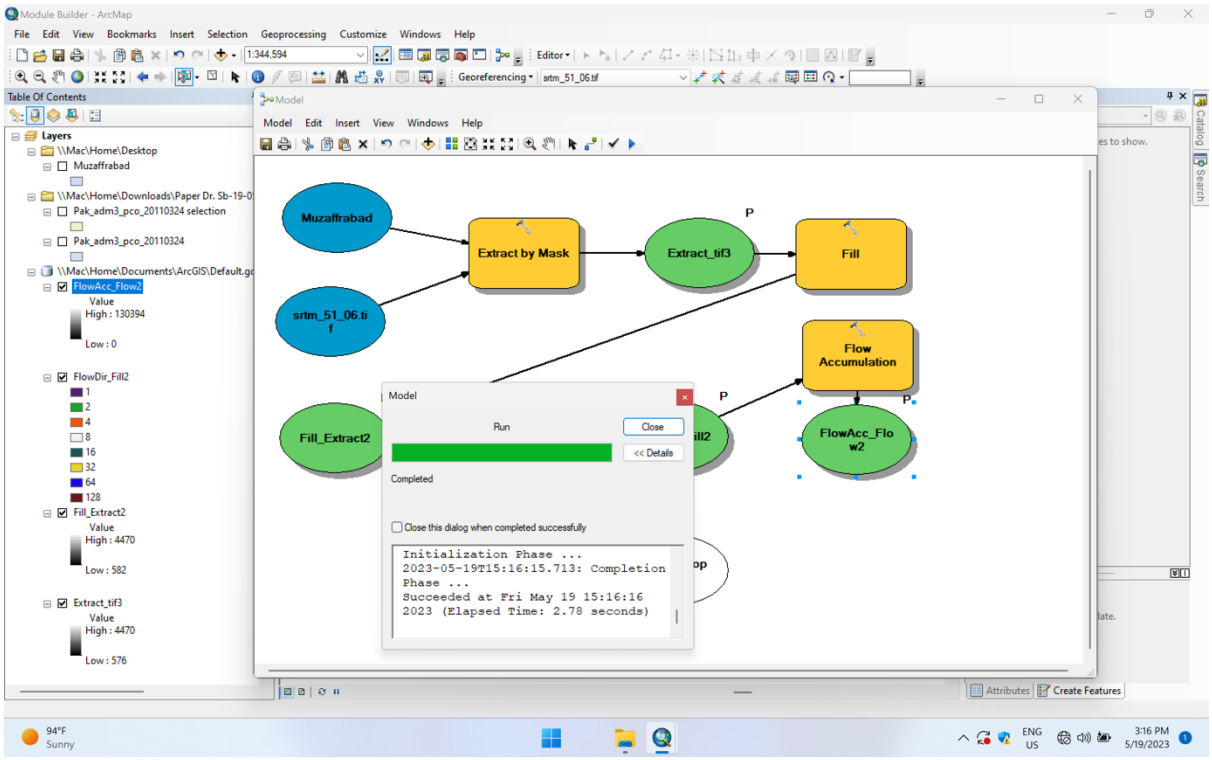


Model Parameter and add to display on all of the outputs

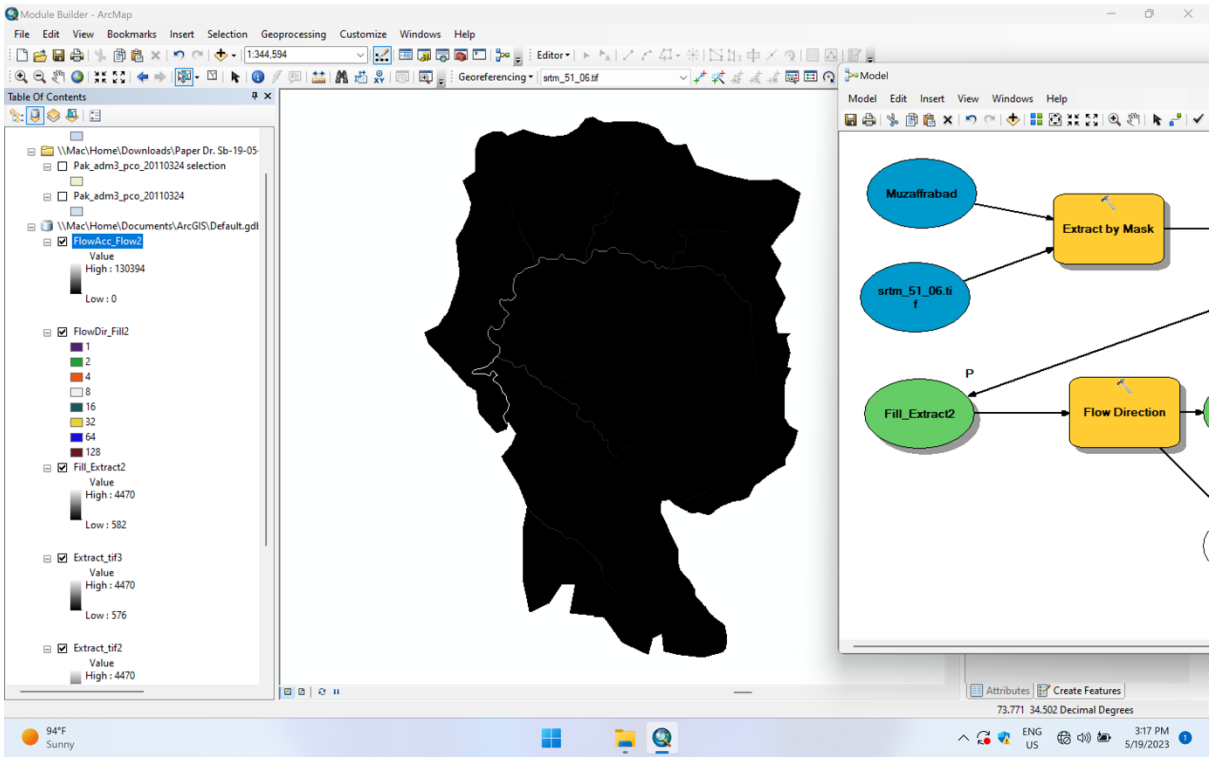


Testing

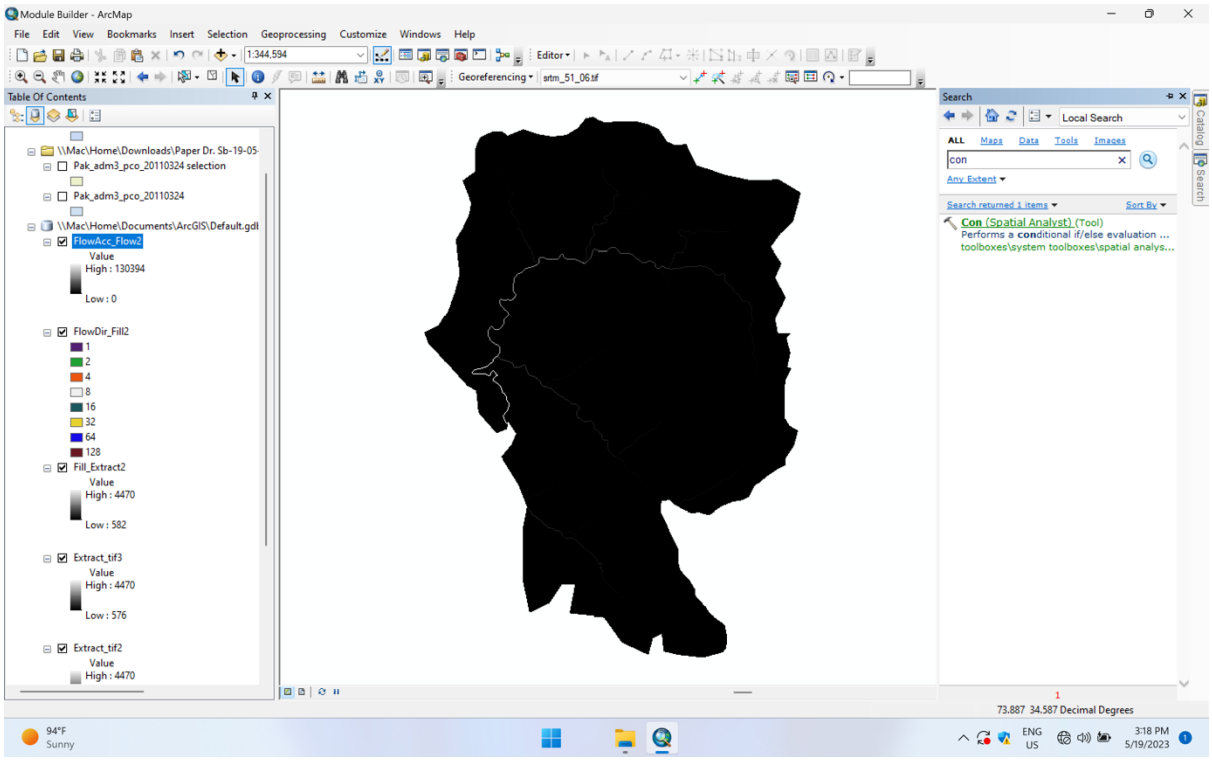

Module Builder - ArcMap
File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help
Table Of Contents
Layers
Muzaffrabad
Pak_adm3_pco_20110324 selection
Pak_adm3_pco_20110324
Extract_tif2
Value
High : 4470
Low : 576
srtm_51_06.tif
Value
High : 5007
Low : 106
Model
Model Edit Insert View Windows Help
Run
Run Entire Model
Validate Entire Model
Save
Save As...
Delete Intermediate Data
Print Setup...
Print Preview...
Print...
Report...
Model Properties...
Diagram Properties...
Export
Import
Close
Extract by Mask
Extract_tif3
Fill
Flow Accumulation
Fill_Extract2
Flow Direction
FlowDir_Fill2
FlowAcc_Flow2
Output drop raster
P
Attributes
Create Features
73.737 34.241 Decimal Degrees
94°F
Sunny
ENG
US
3:15 PM
5/19/2023



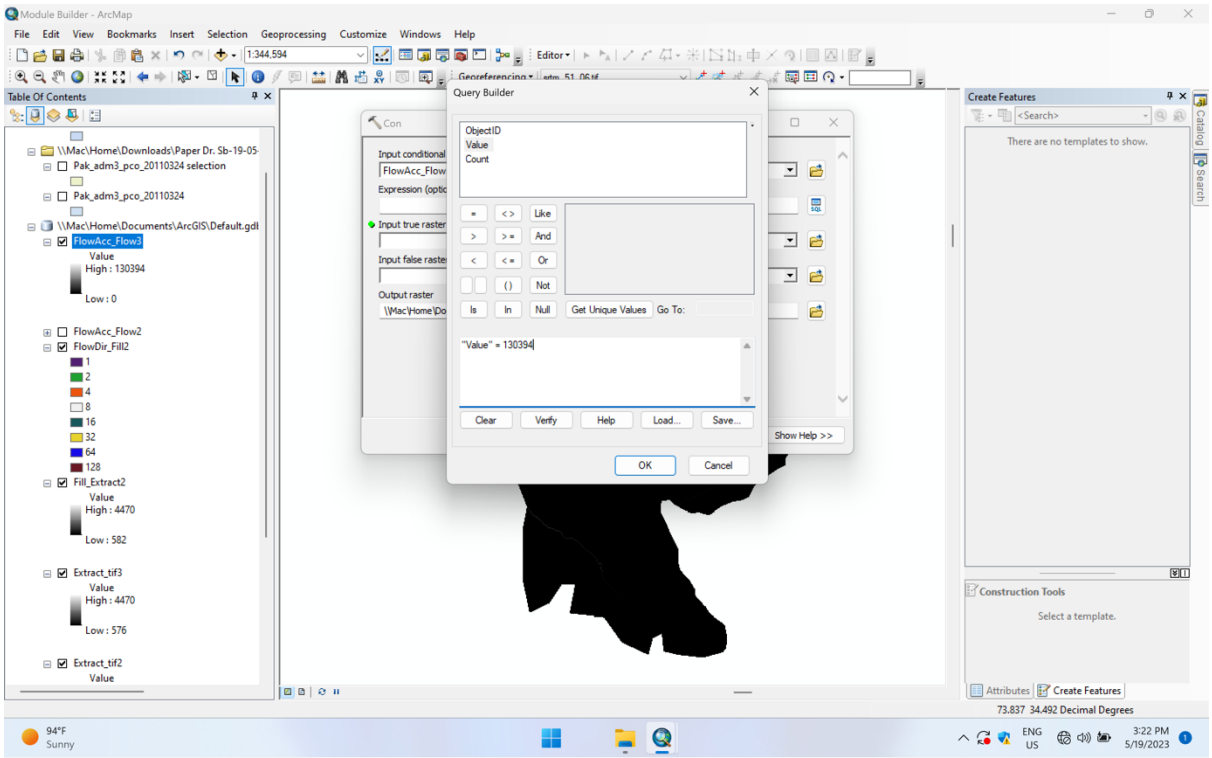
I have generated extracted tif 2 manually but after running the model Its again generated extract by mask file with tif 3 and fill flow direction and accumulation files automatically

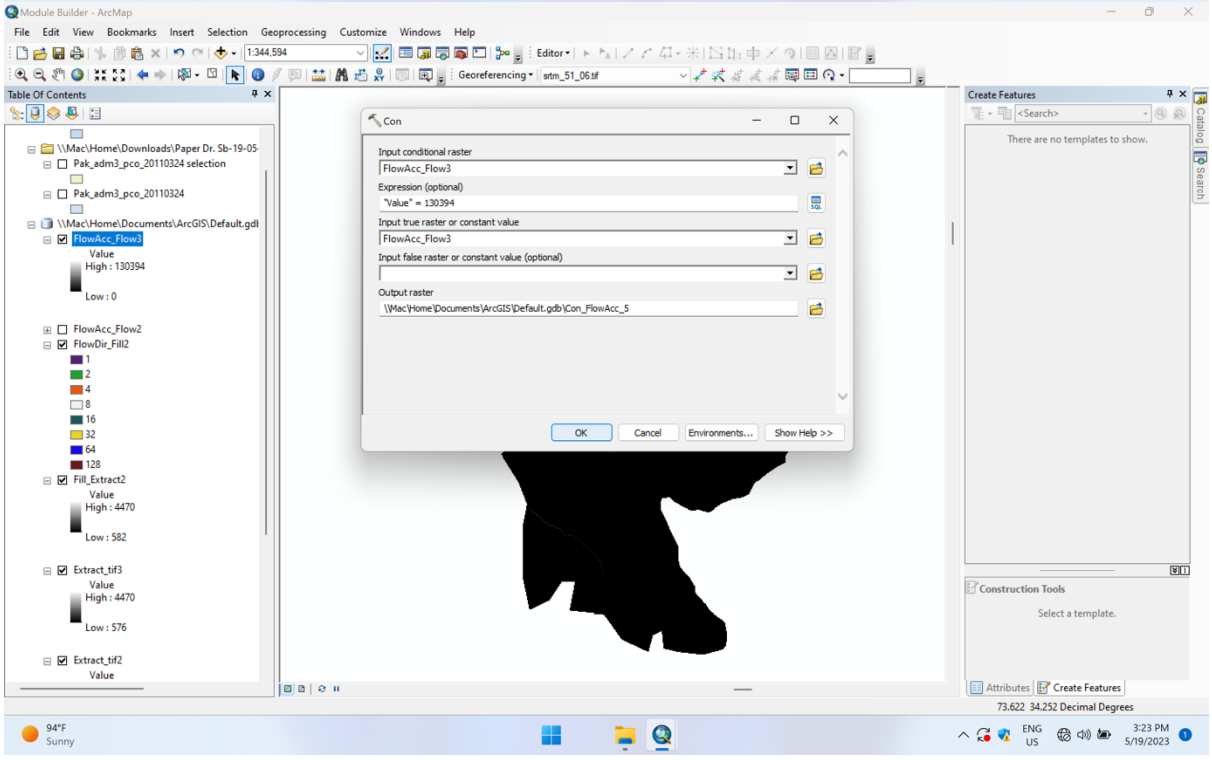


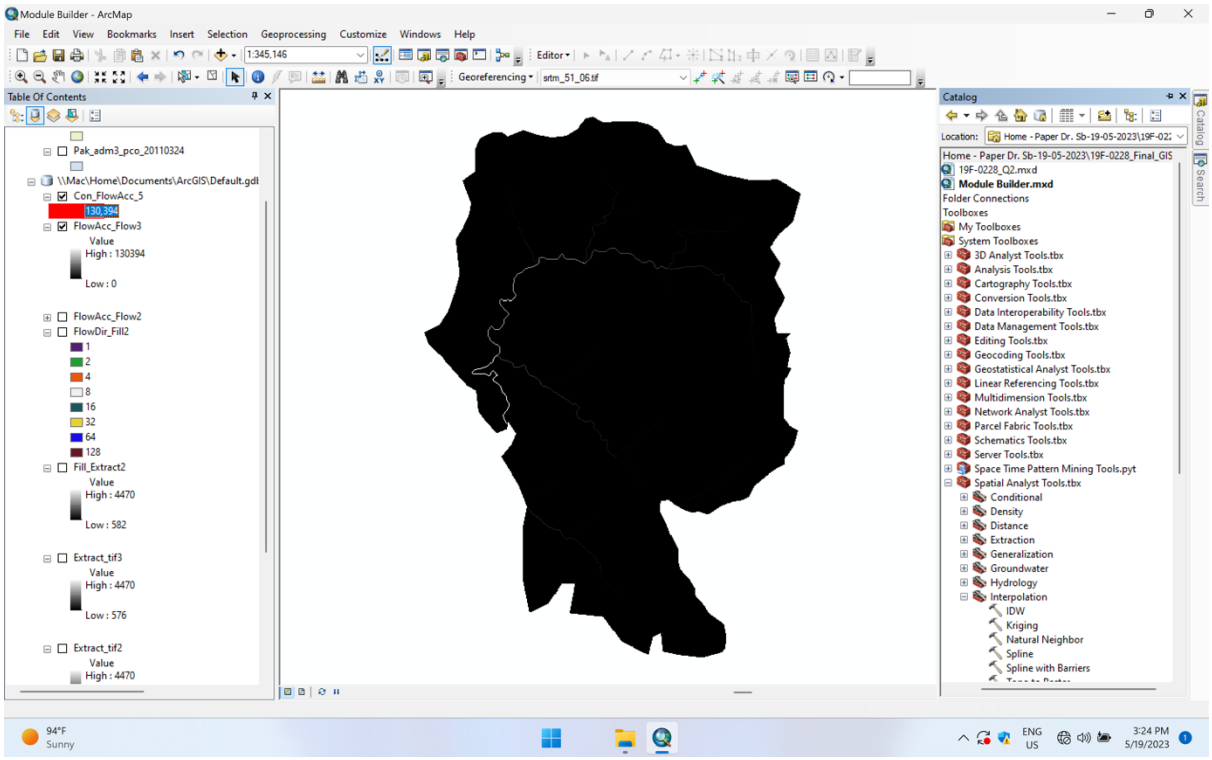
Performing the condition for max



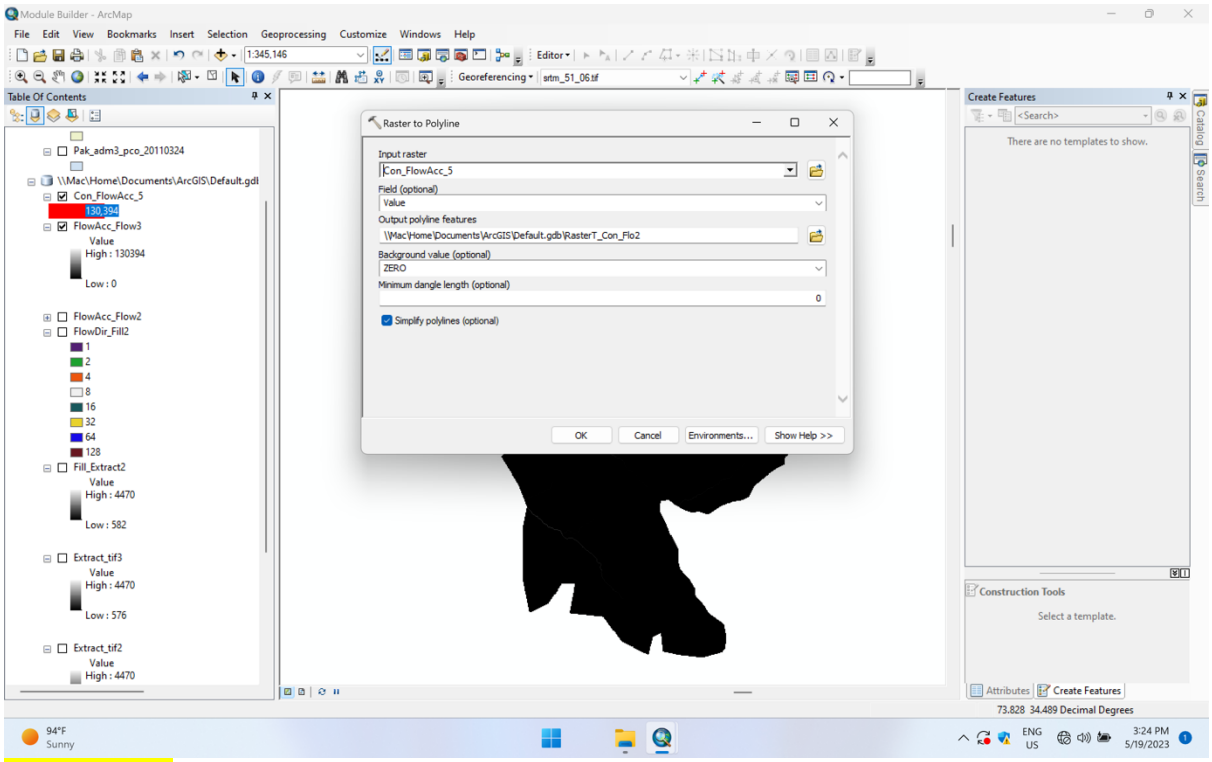
Maximum Flow


Module Builder - ArcMap
File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help
Table Of Contents
Query Builder
ObjectID
Value
Count
"Value" = 130394
Clear Verify Help Load... Save...
OK Cancel
Create Features
There are no templates to show.
Construction Tools
Select a template.
73.837 34.492 Decimal Degrees
94°F Sunny
3:22 PM 5/19/2023

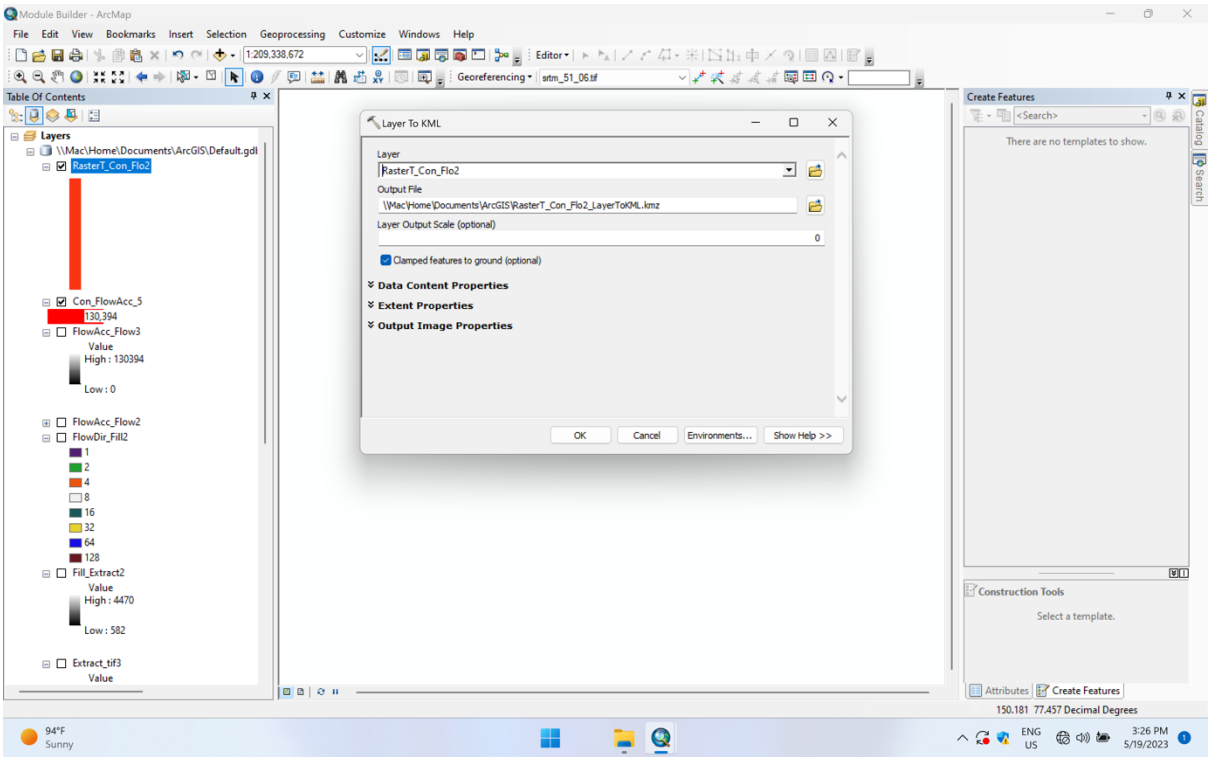

Module Builder - ArcMap
File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help
Table Of Contents
Con
Input conditional raster
FlowAcc_Flow3
Expression (optional)
"Value" = 130394
Input true raster or constant value
FlowAcc_Flow3
Input false raster or constant value (optional)
Output raster
\\Mac\Home\Documents\ArcGIS\Default.gdb\Con_FlowAcc_5
OK Cancel Environments... Show Help >>
Create Features
There are no templates to show.
Construction Tools
Select a template.
73.622 34.252 Decimal Degrees
94°F Sunny
3:23 PM 5/19/2023



To show it into Google maps we have to export poly line into raster file



Layer to KML


Module Builder - ArcMap
File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help
Table Of Contents
Layers
RasterT_Con_Flo2
Con_FlowAcc_5
130,394
FlowAcc_Flow3
Value
High : 130394
Low : 0
FlowAcc_Flow2
FlowDir_Fill2
1
2
4
8
16
32
64
128
Fill_Extract2
Value
High : 4470
Low : 582
Extract_tif3
Value
Layer To KML
Layer
RasterT_Con_Flo2
Output File
\\Mac\Home\Documents\ArcGIS\RasterT_Con_Flo2_LayerToKML.kmz
Layer Output Scale (optional)
0
Clamped features to ground (optional)
Data Content Properties
Extent Properties
Output Image Properties
OK
Cancel
Environments...
Show Help >>
Create Features
<Search>
There are no templates to show.
Construction Tools
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Attributes
Create Features
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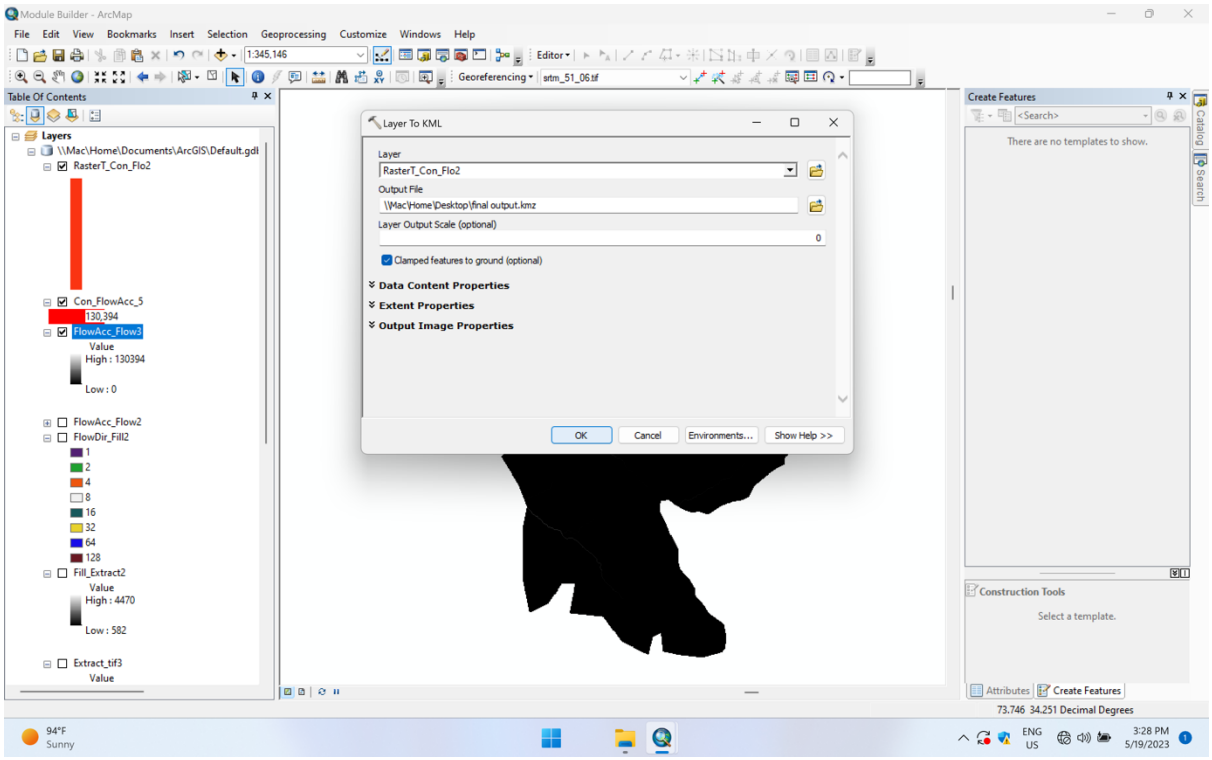
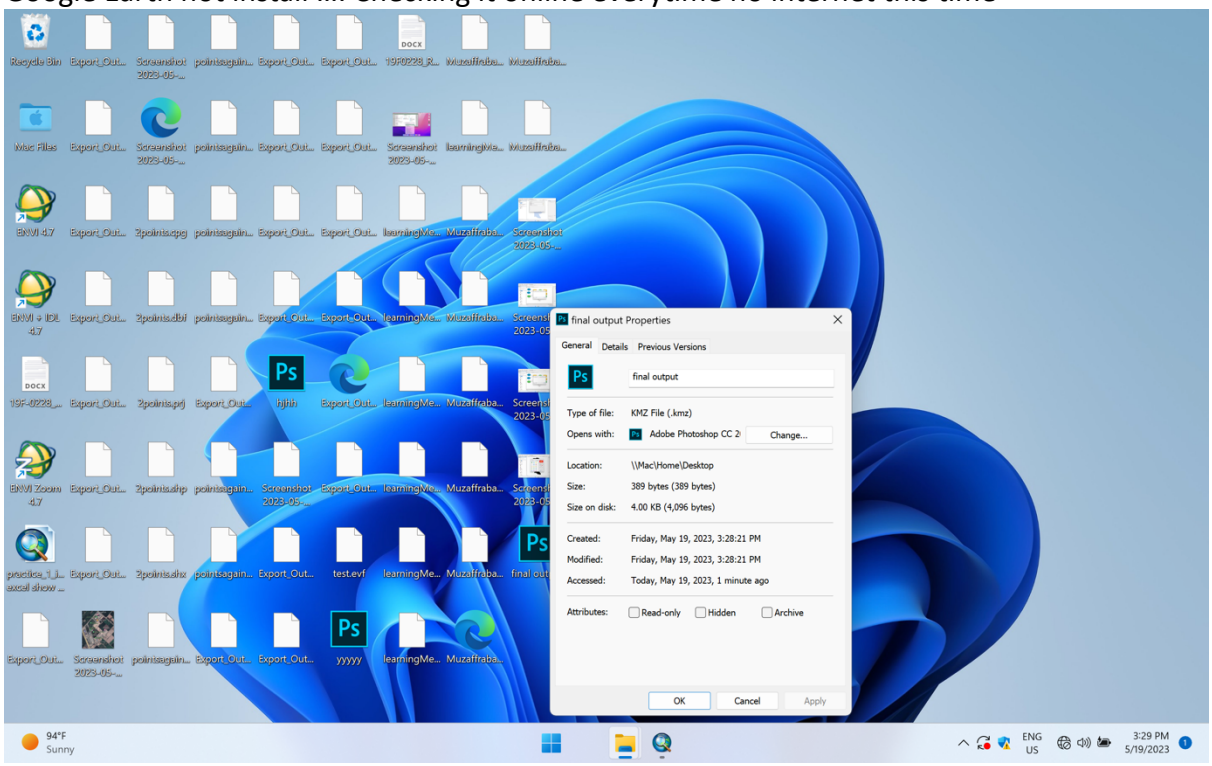
94°F
Sunny
ENG
US
3:26 PM
5/19/2023



THE FINAL KML FILE

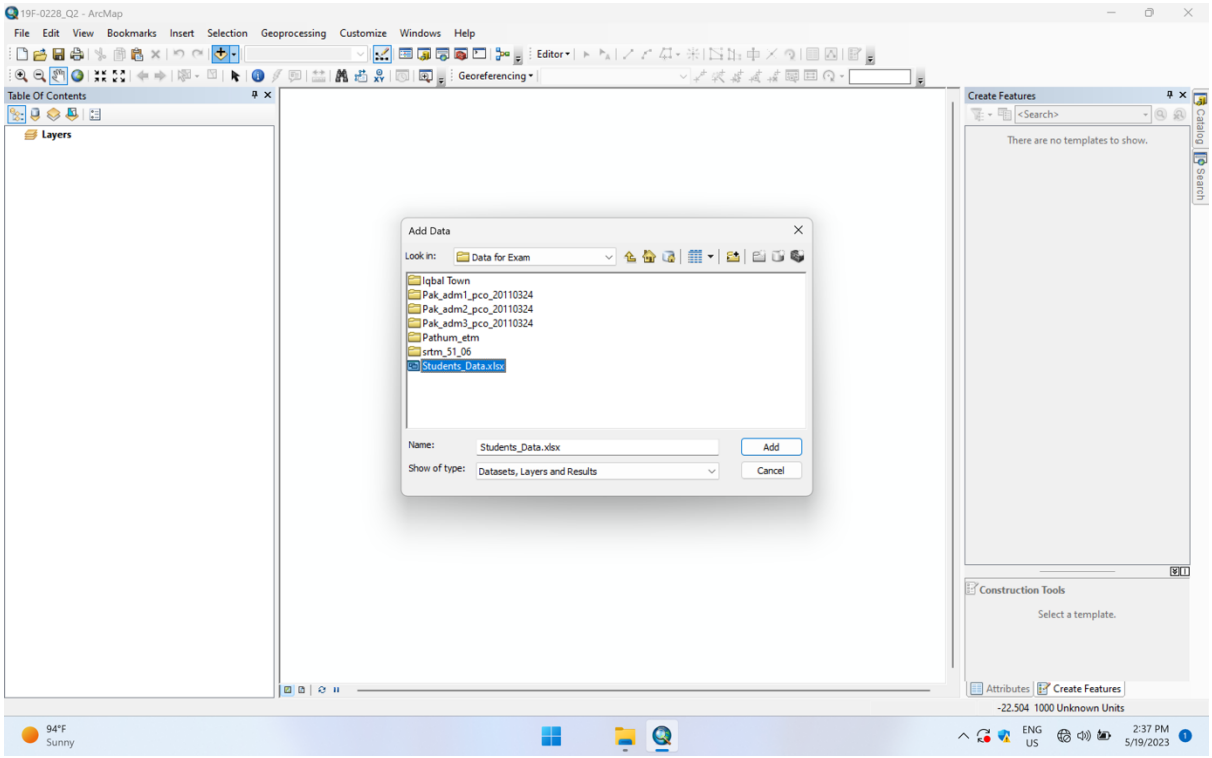
Google Earth not install …. Checking it online everytime no internet this time



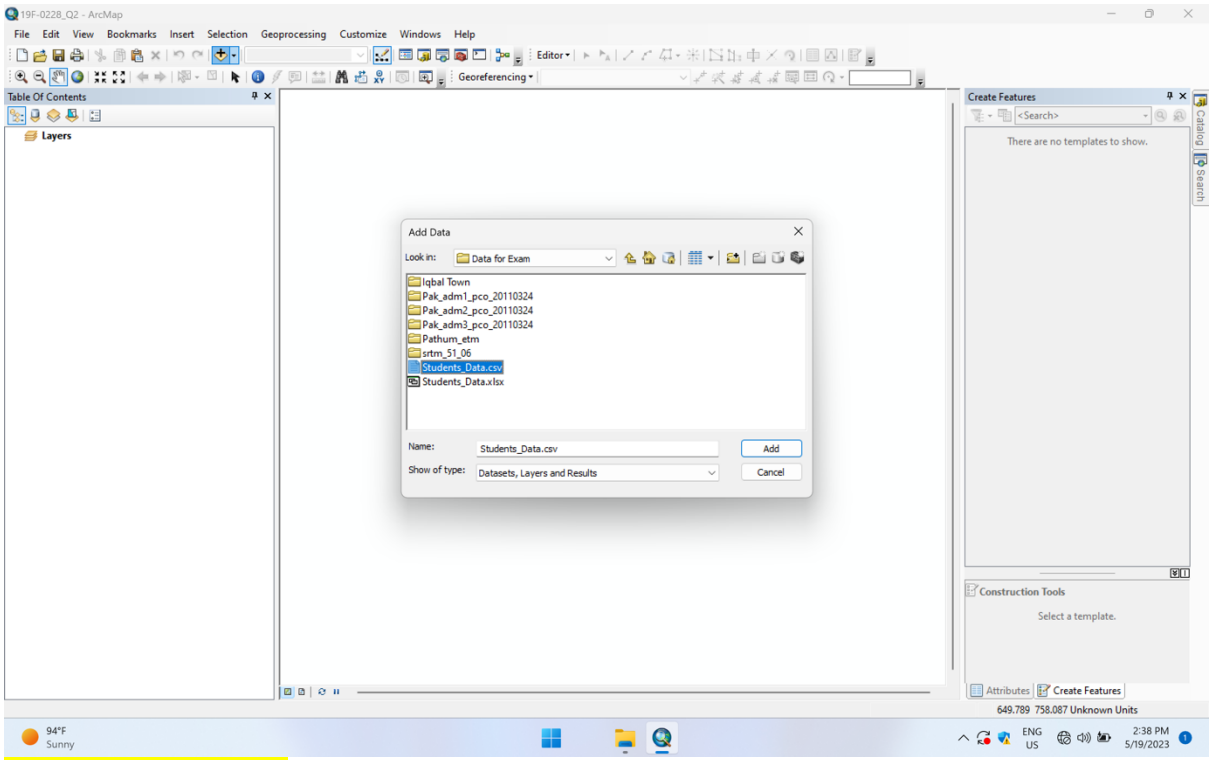
Question 3:

Plotting

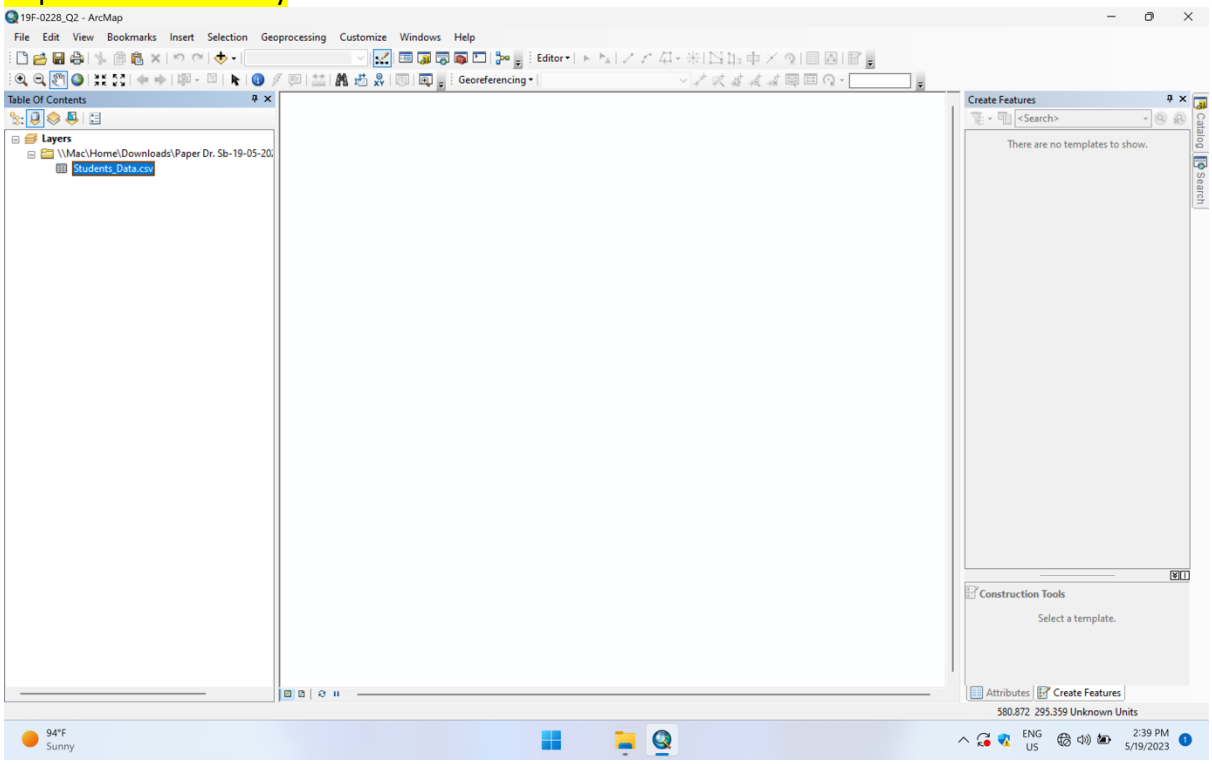
Exporting the datasets



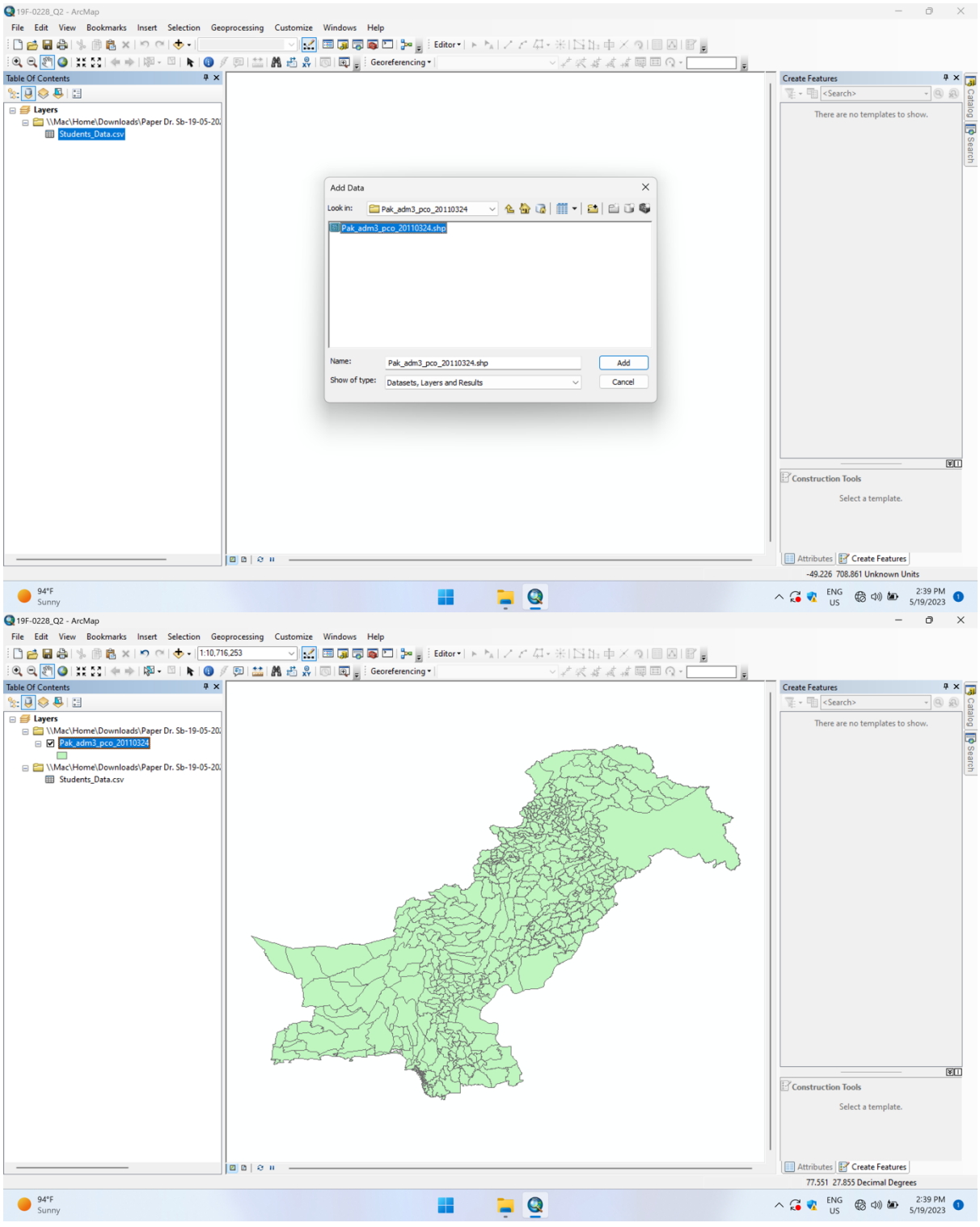
Error Occurred with XLS converted into csv file



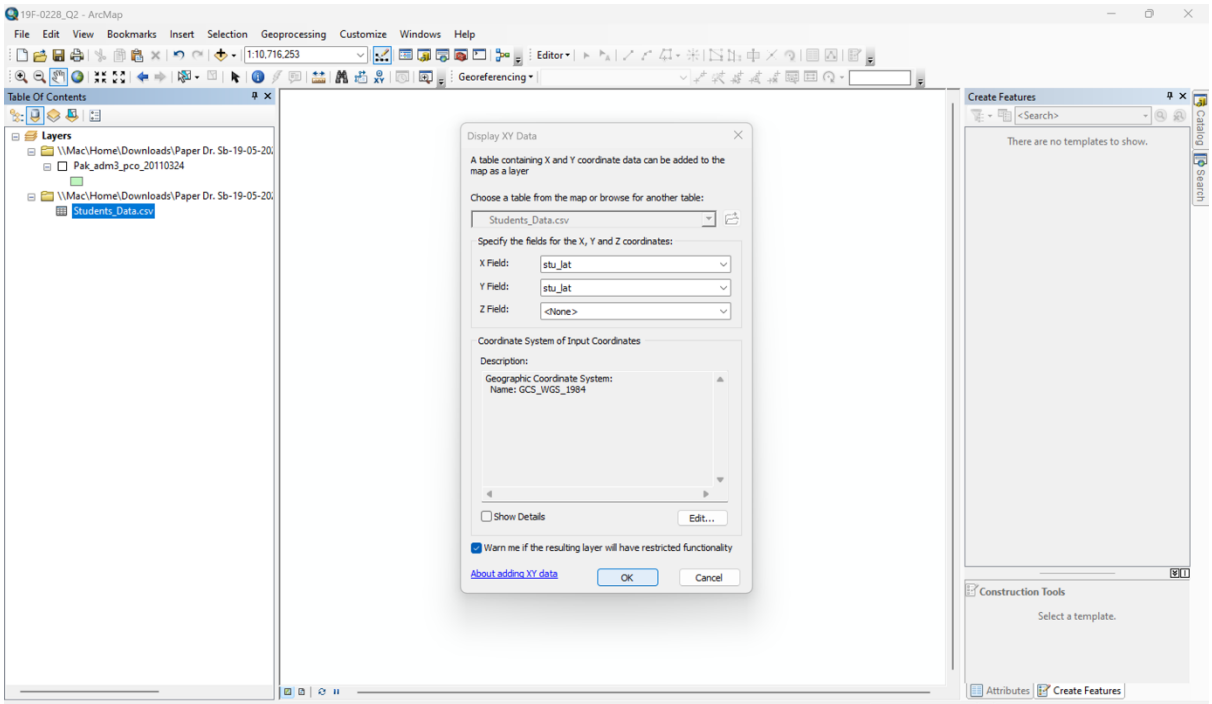
Imported Successfully

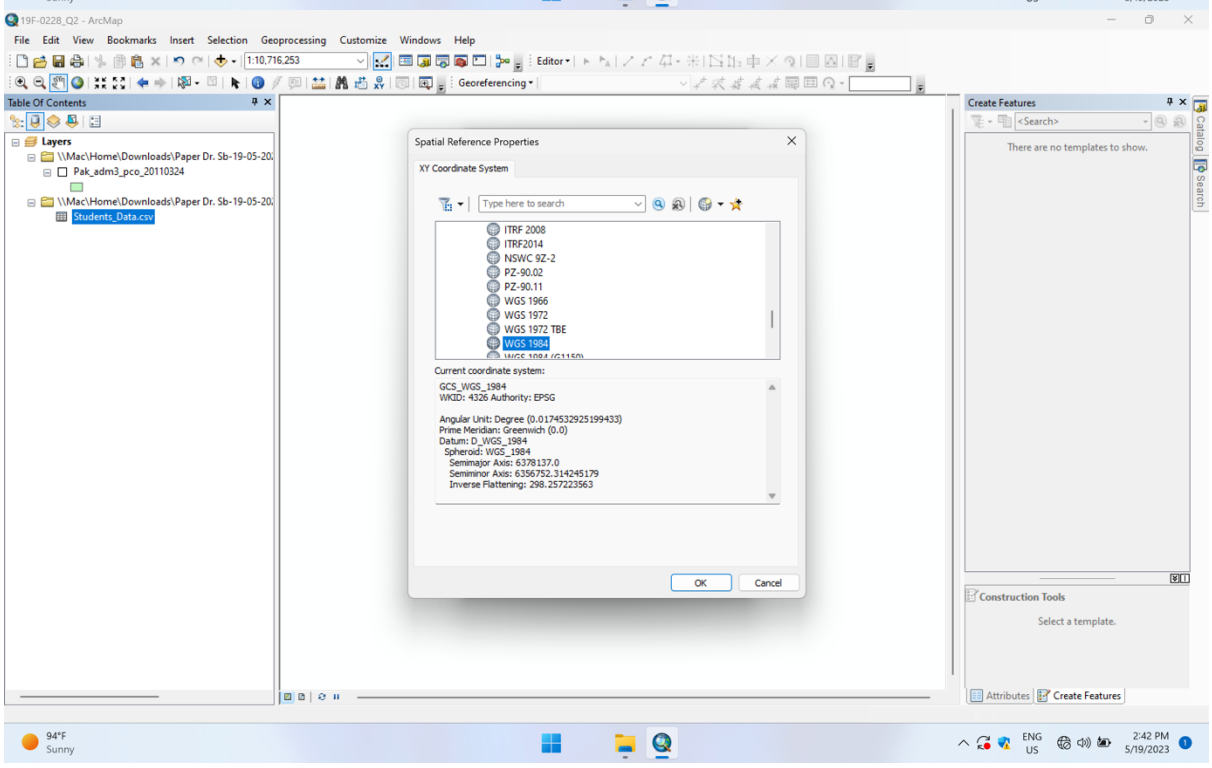


Importing Pakistan Map file

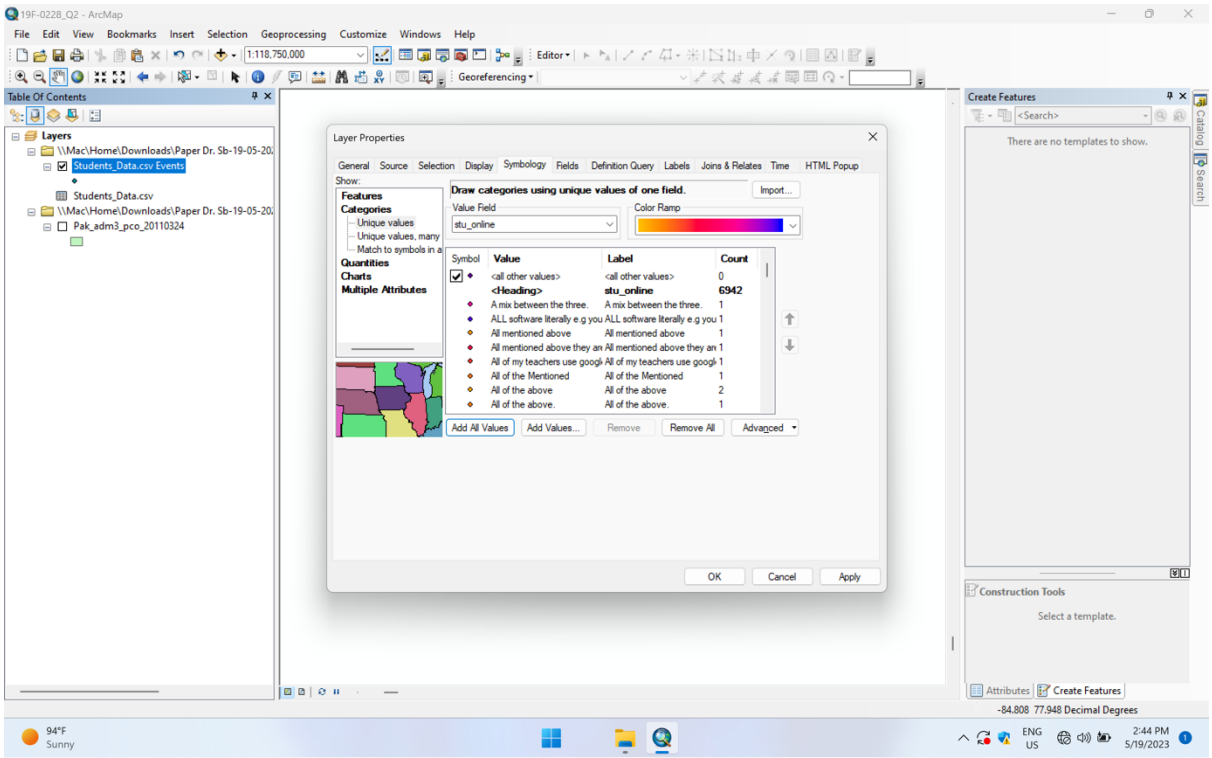


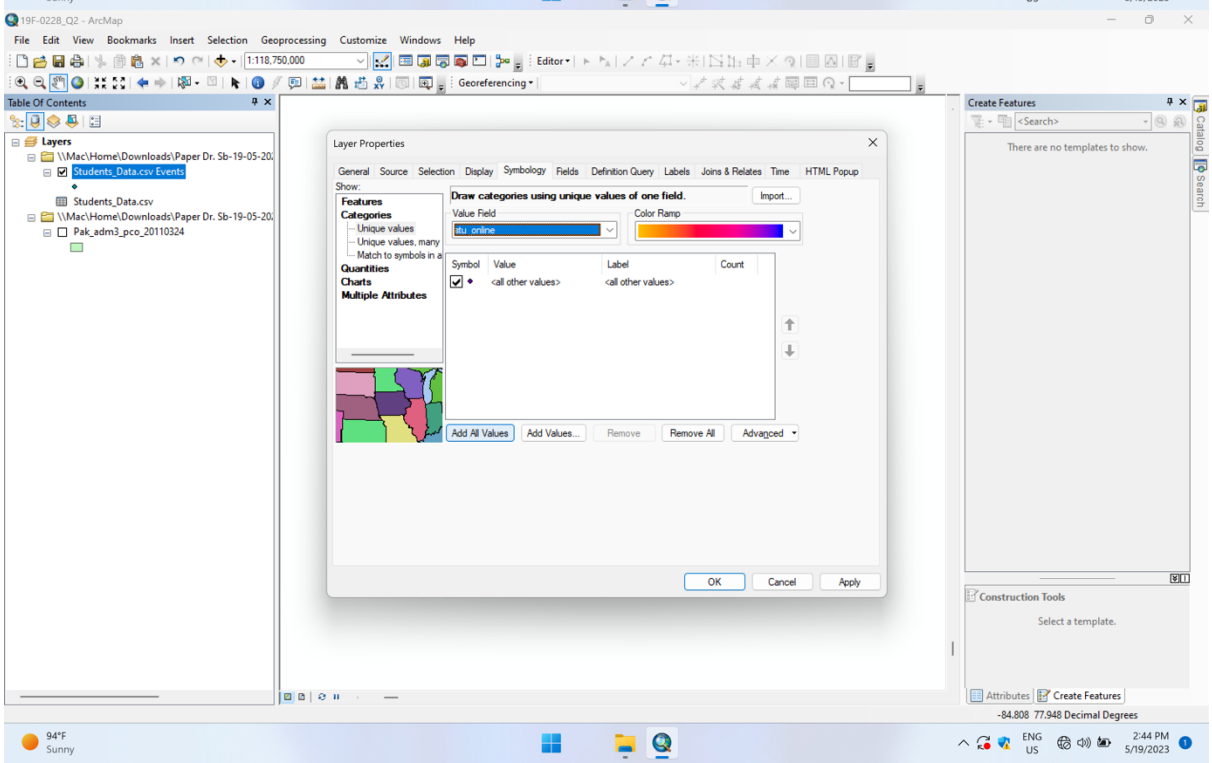
Displaying Overall students DATA



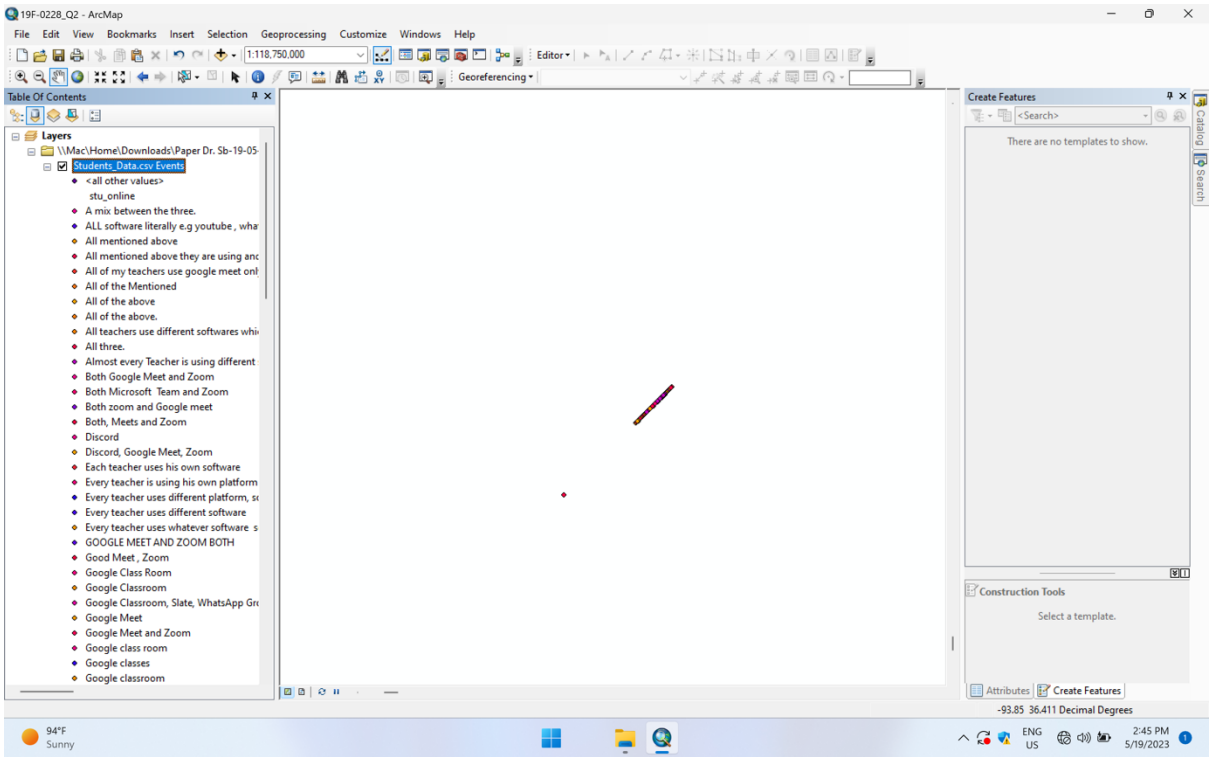


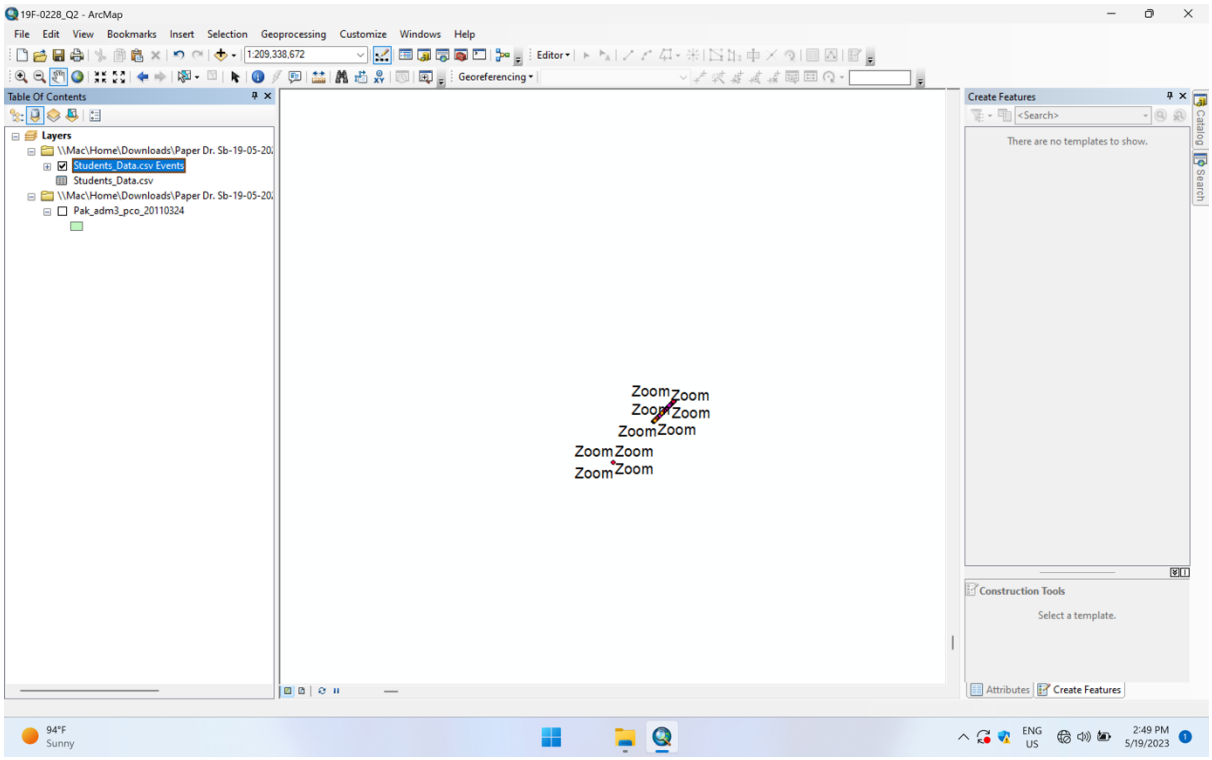
Online Learning



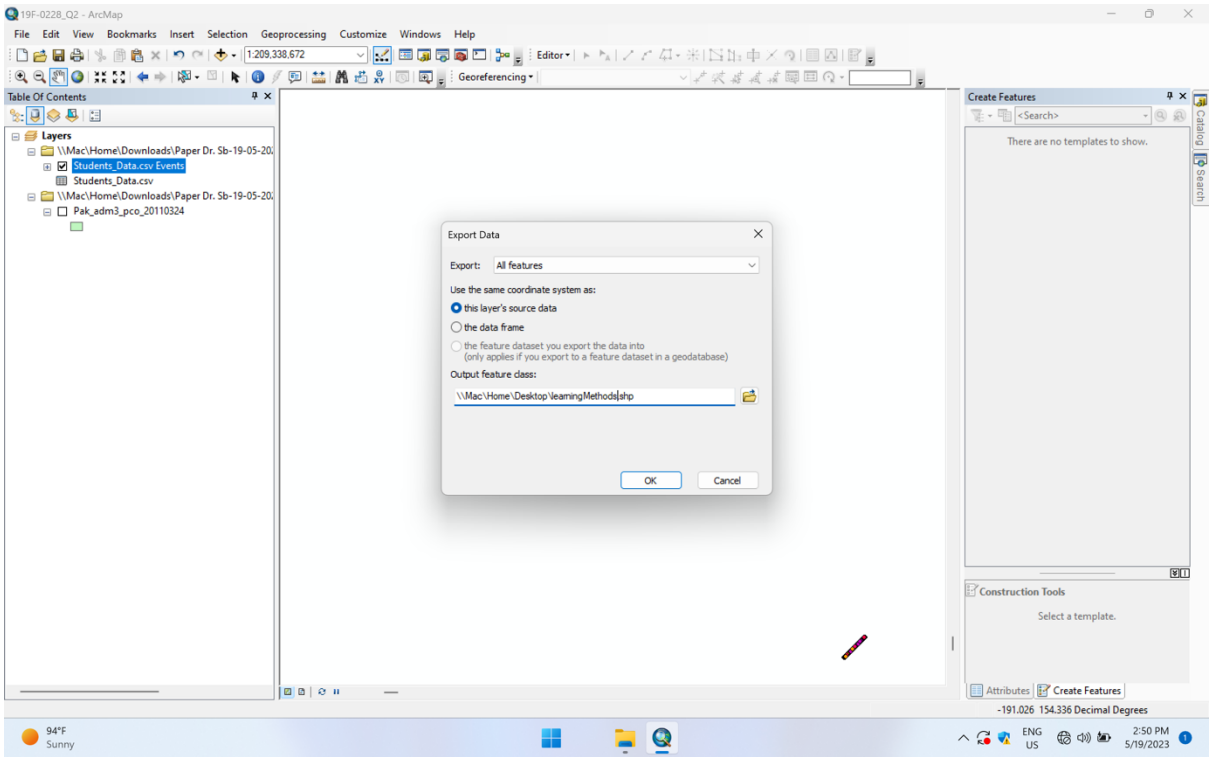


Categorized on the basis of learning methods



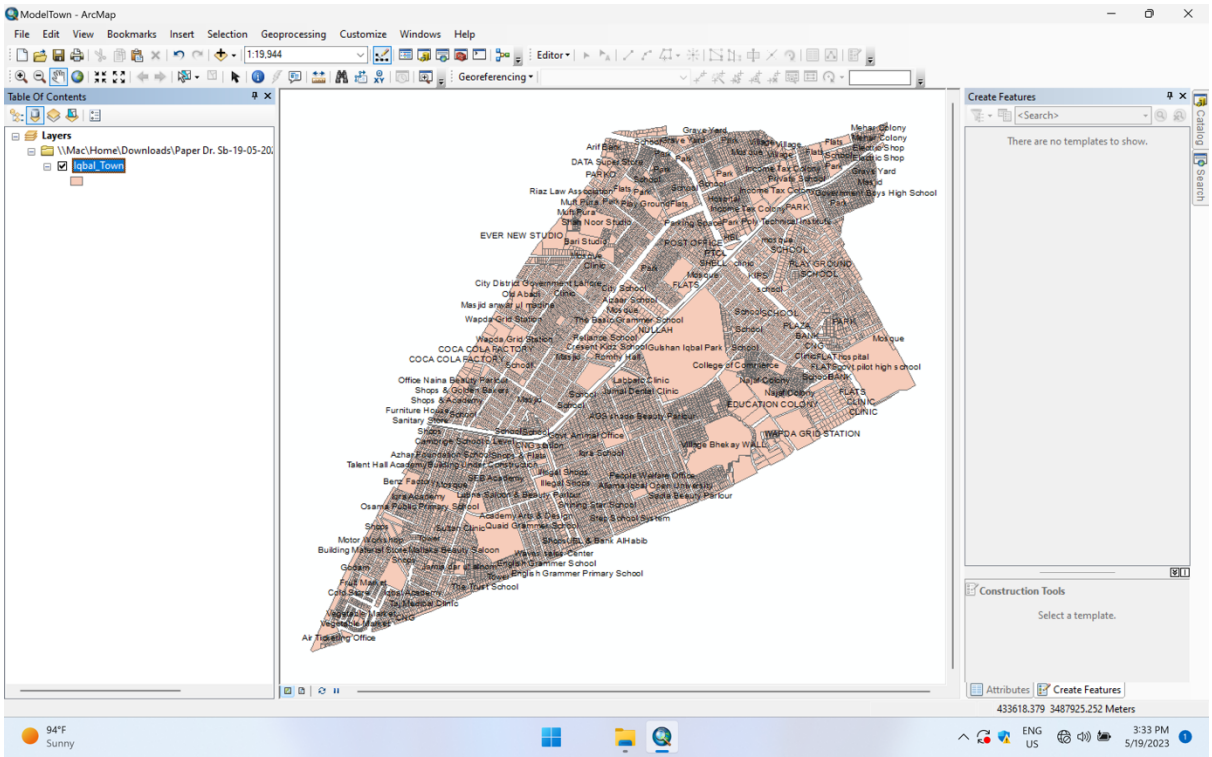


Exporting The shapefile

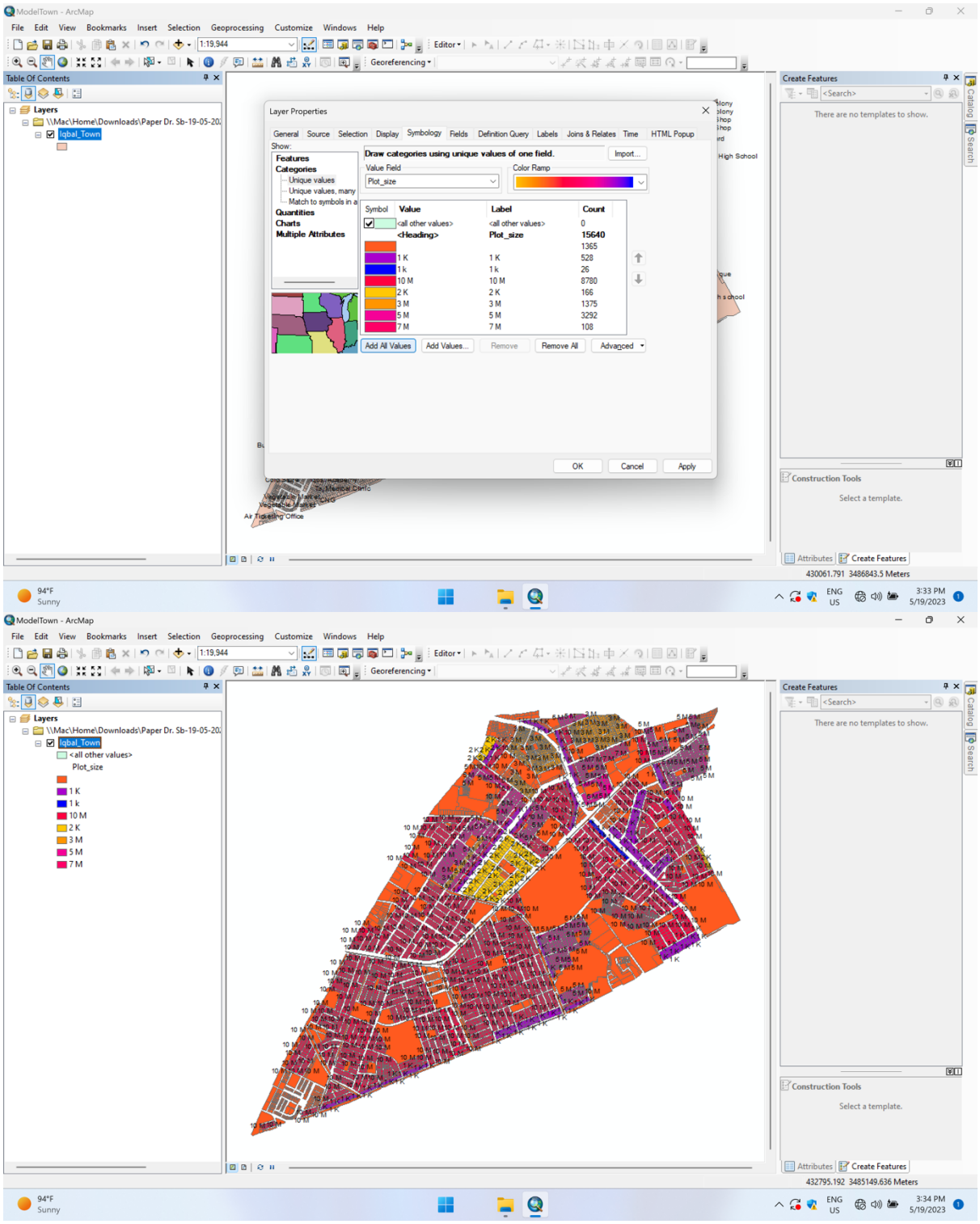


Question 4:

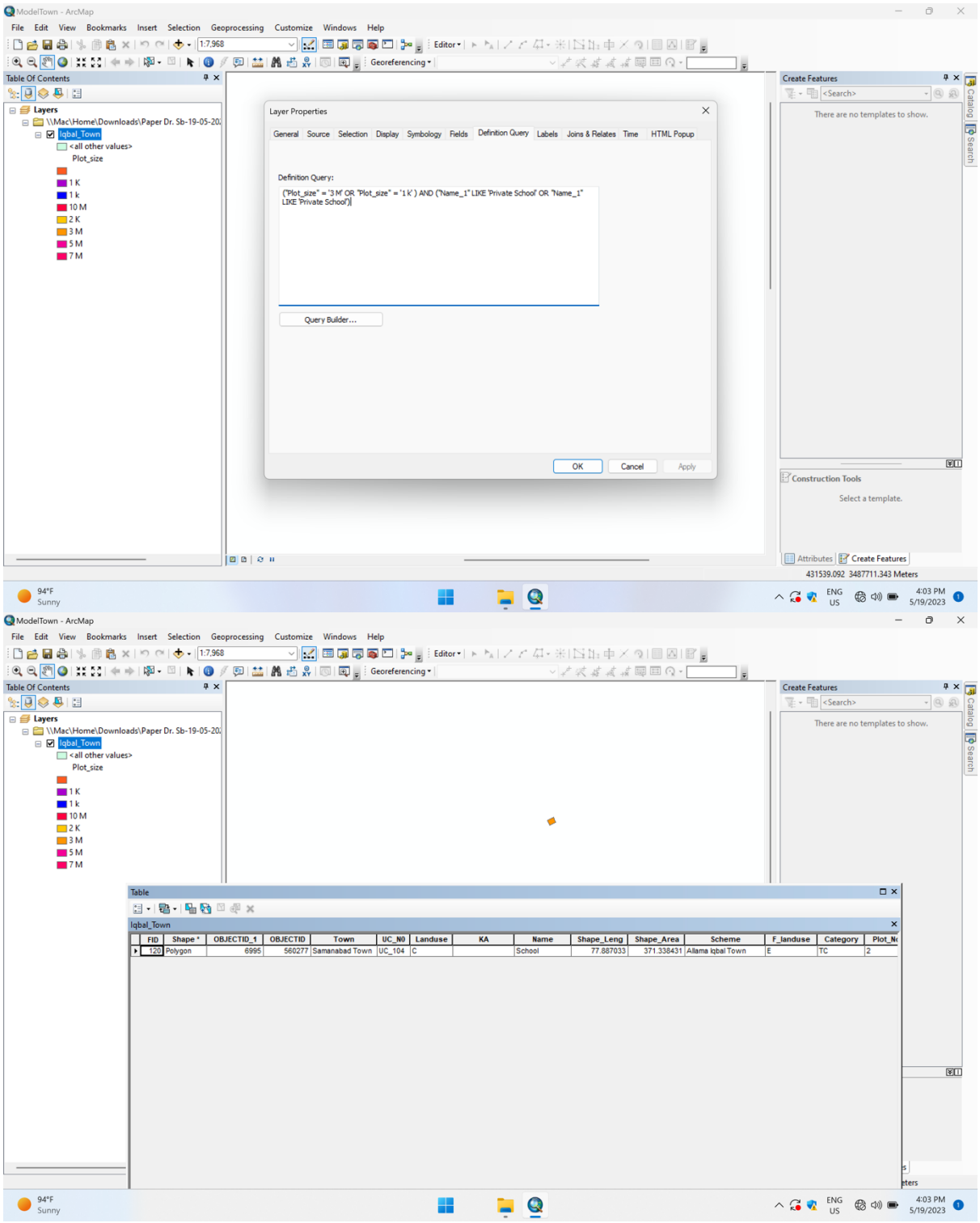
Iqbal Town



Categorized on the basis of plot sized

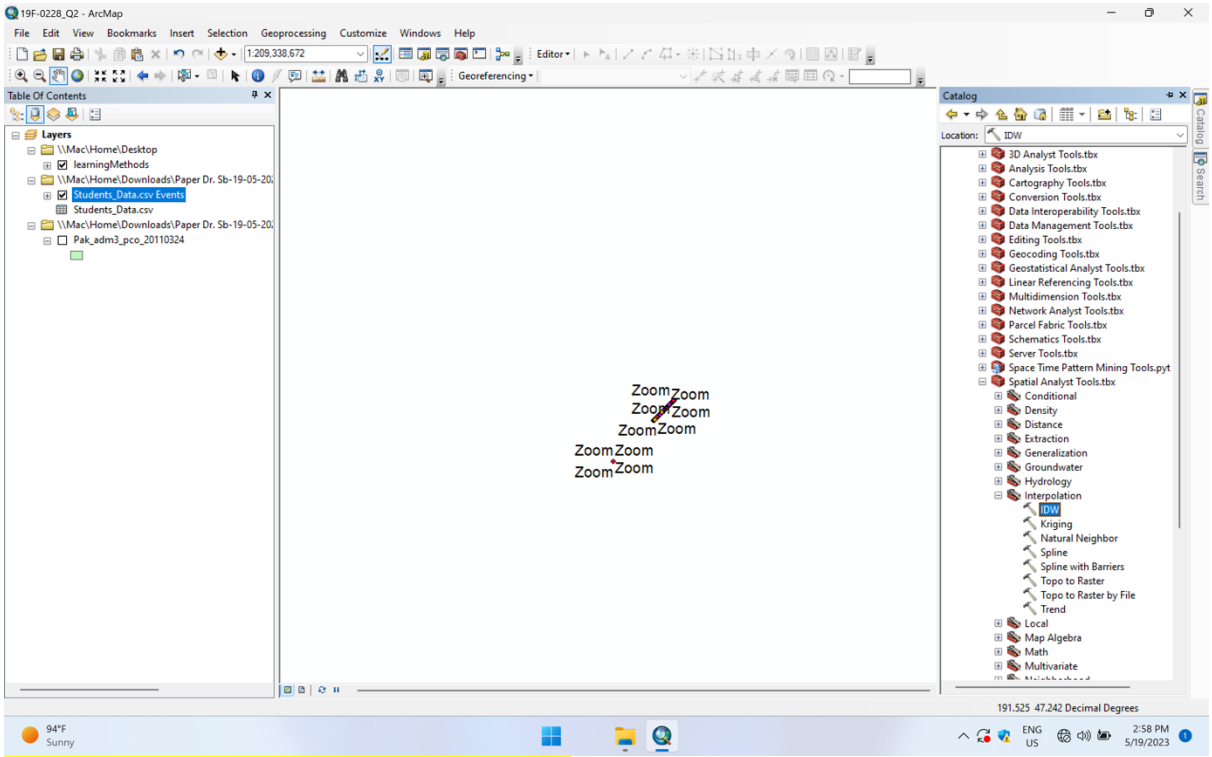


Query---for private school

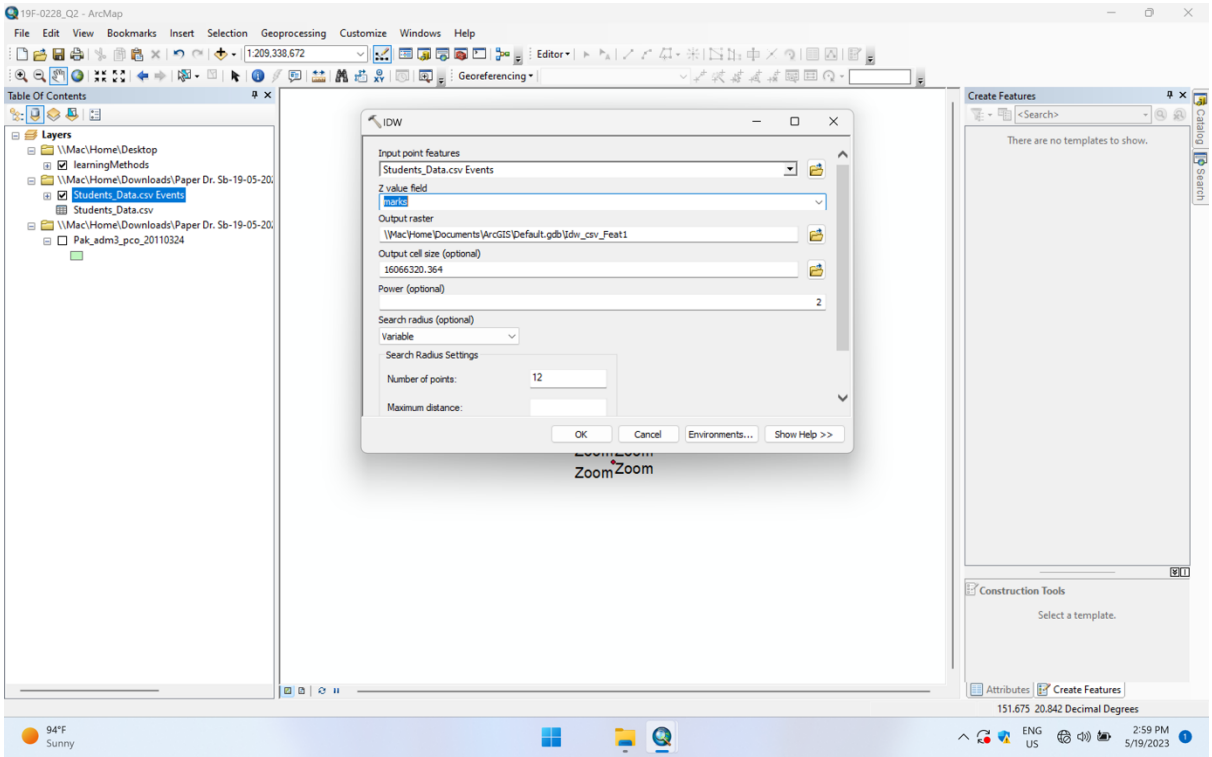


Question 5:

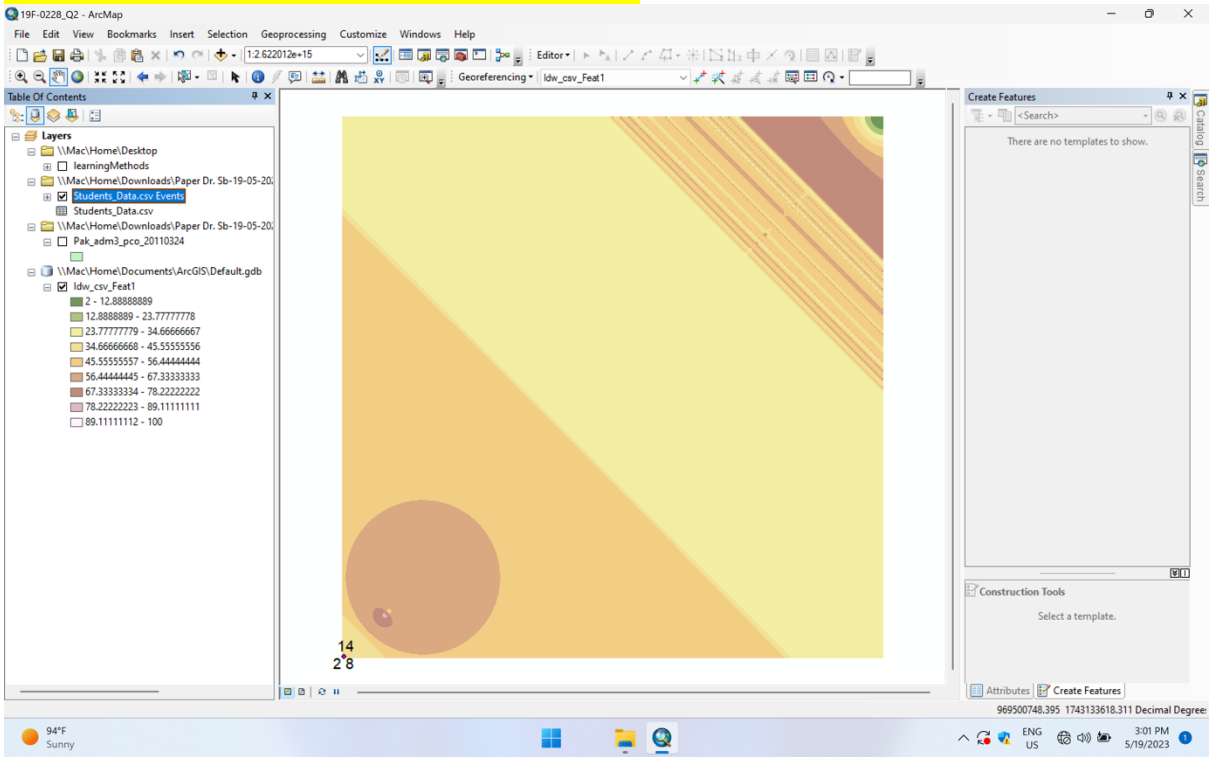
Interpolation



Interpolation basaed on the marks category



Final Result based on the marks labeled as marks



Question 6:

Add other points