


# IMAGE CLASSIFICATION

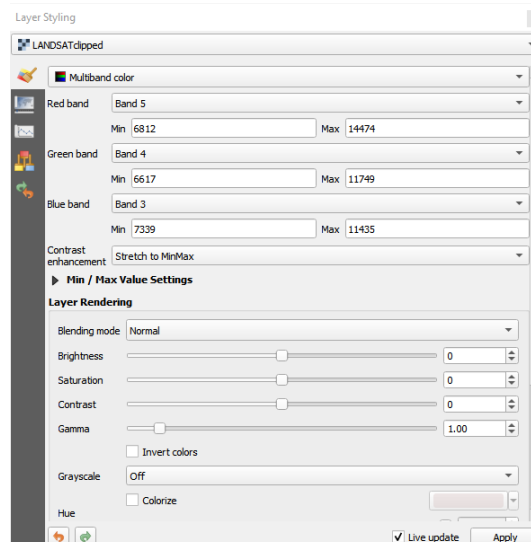
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Image classification is a process of categorizing pixels within an image into predefined classes. It involves training a model to recognize patterns and assign specific labels to unseen images.

In this tutorial we will learn to do supervised classification.

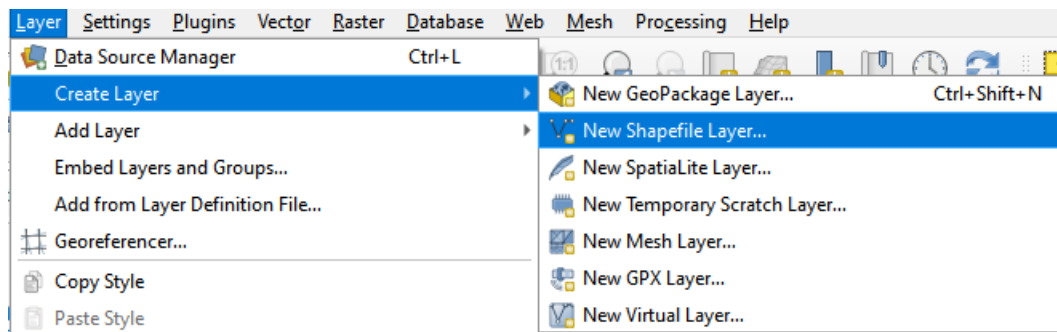
1. Launch QGIS
2. Navigate to the folder containing Landsat Data in window explorer, drag and drop it onto the QGIS map canvas or layer panel
3. Click on the layer styling icon 
4. Change the band composition to create FCC for Landsat image as >> 5, 4, 3 under R,G,B bands respectively. Click Apply



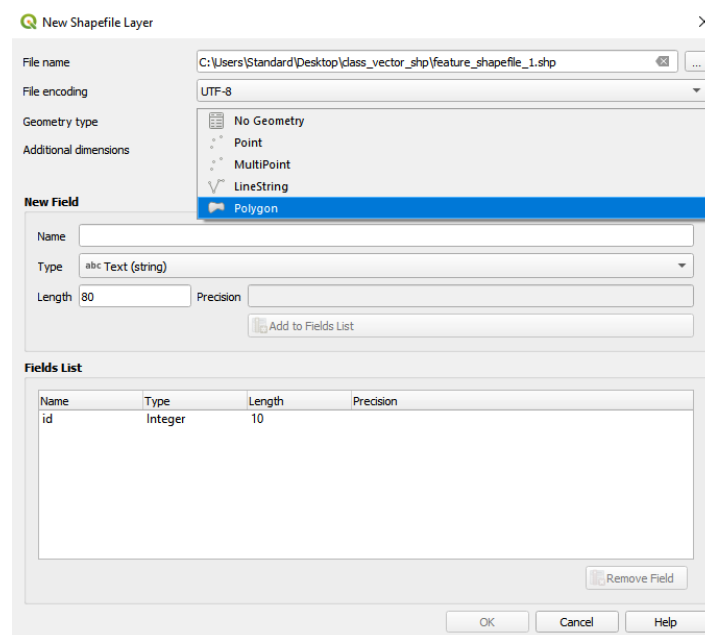
Visualize the image



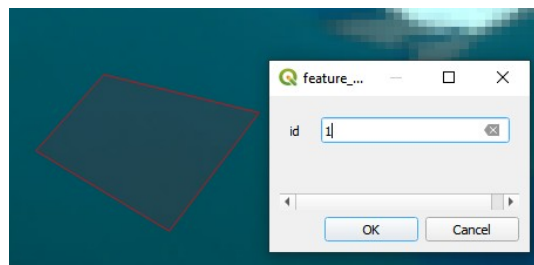
5. Create shapefile to collect sample signature as training point



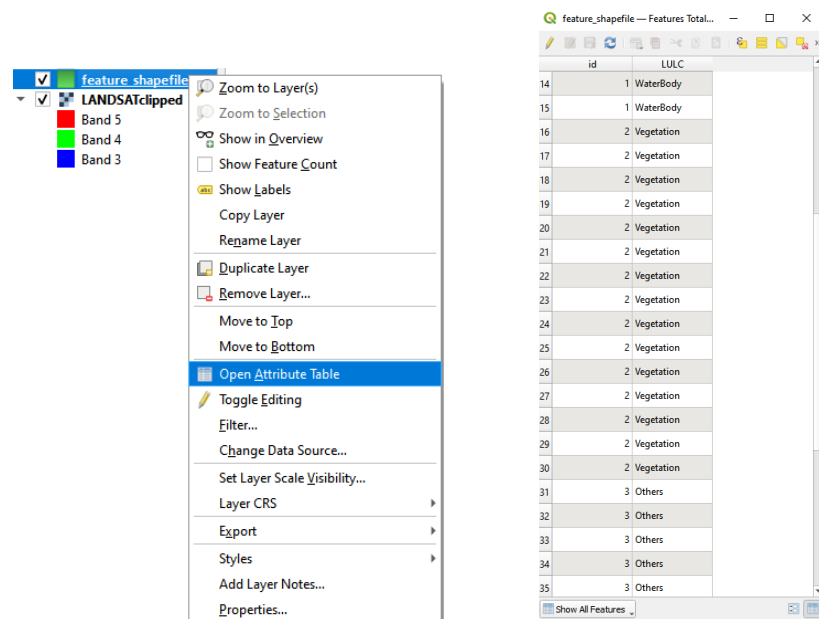
6. Shapefile Layer opens >> Enter file name to be save >> Select Geometry type as polygon >> click OK



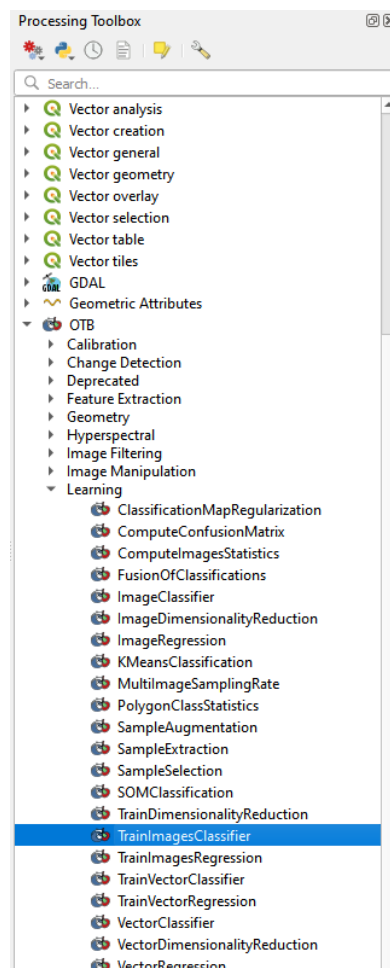
7. Click on the icon Toggle Editing  >> Click icon  to add feature



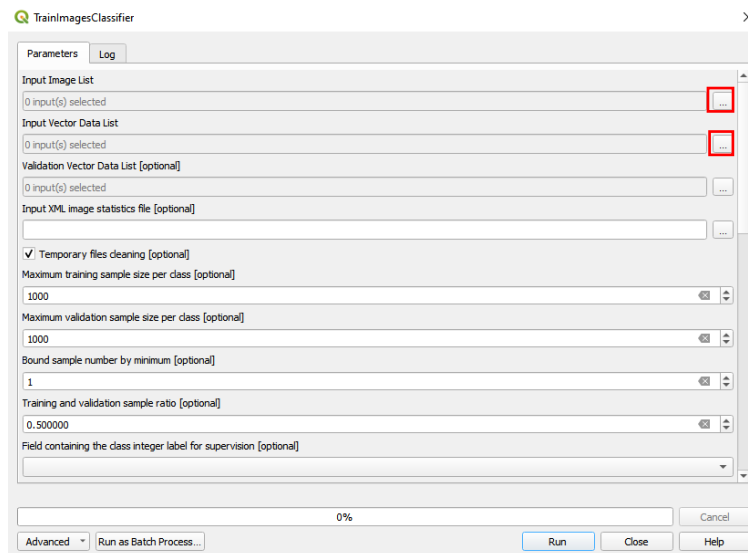
8. Repeat the same process to collect sample signature as per Land Use Land cover class (LULC)
9. Right click and open attribute table >> for different class id under LULC



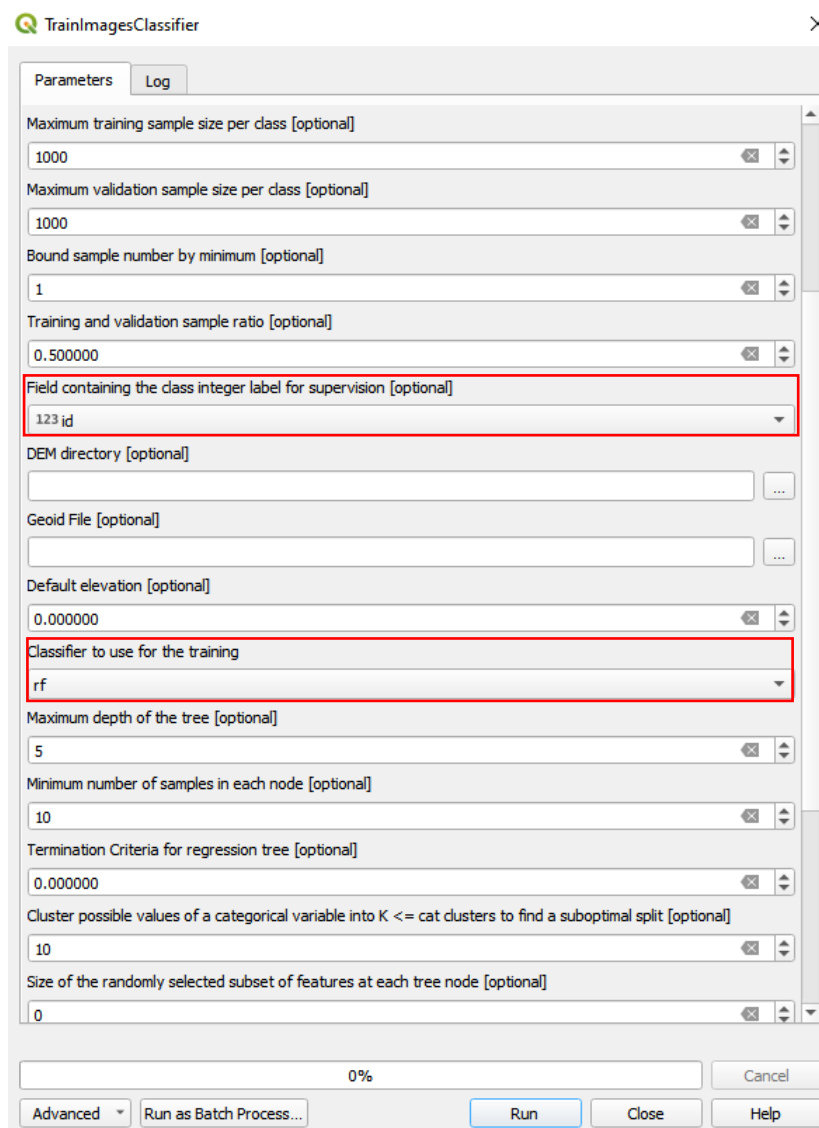
10. Open processing toolbox >> Expand OTB tool >> Learning >> TrainImagesClassifier



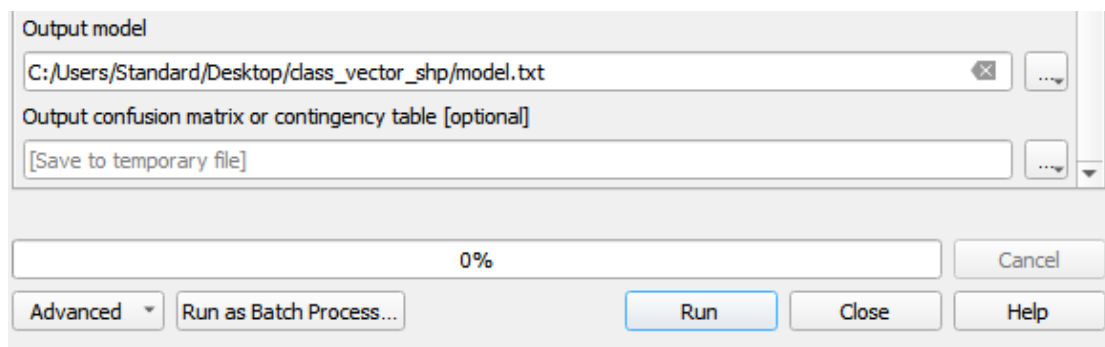
11. Select the input image >> LANDSAT >> Click OK
12. Select the input Vector >> Shapefile >> Click OK



13. All the other parameter are optional >> select the field containing class integer label for supervision >> id
14. Select the classifier to use for training as Random forest (rf)

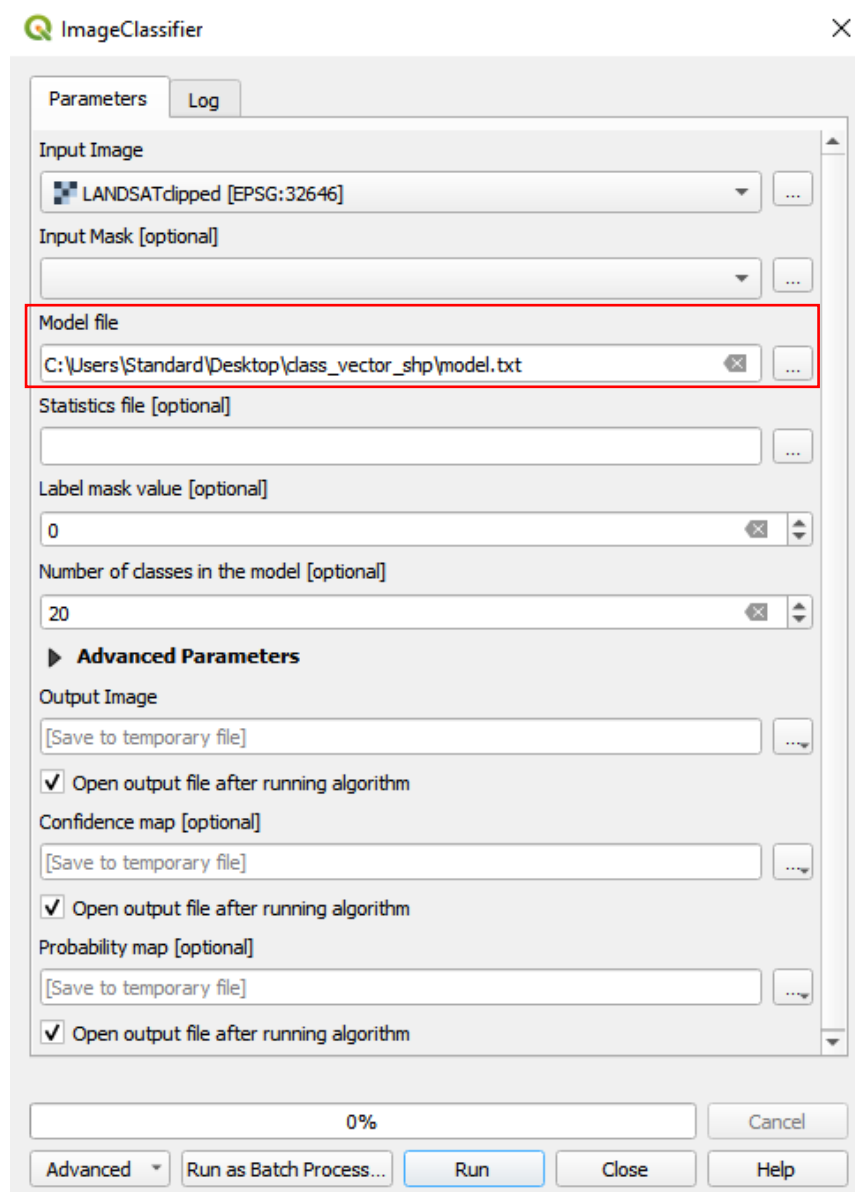


15. Save the output model as (.txt) format >> run >> close the tab




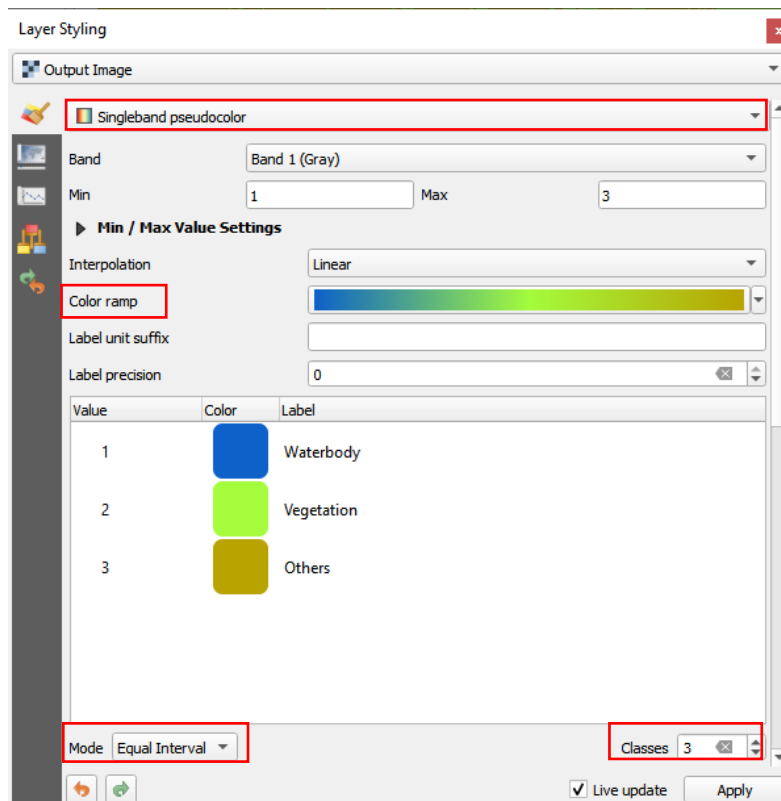
16. Again in processing toolbox >> Learning >> Select Image classifier

17. Select the image as input file >> Select the save model as model file >> Click Run



18. Output Image Obtained in Grey Scale

19. Click on layer styling icon  >> Select Singleband pseudocolour >> Select a suitable color from color ramp >> Change the mode as Equal Interval >> Change the number of class >> Change the label as per LULC id >> Click Apply



- Visualize the final image

