

Geographic Information Systems
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Lecture – 53
Map Composition

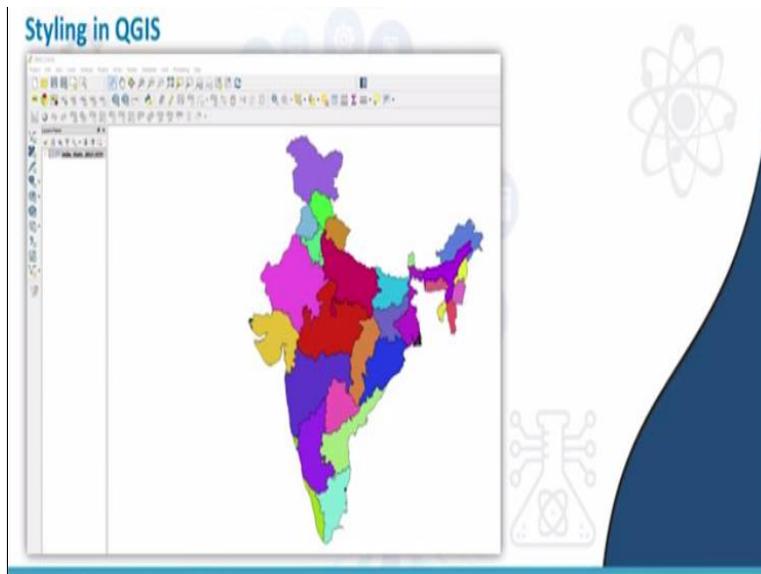
Welcome back to the course on geographic information system, this is module 11; GIS as a software and in this hands on session, we are going to look at map composition.

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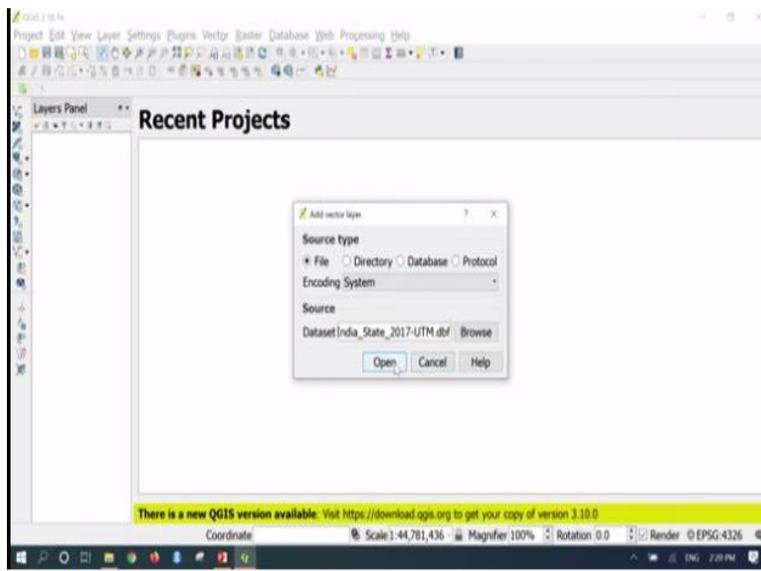
So, basically in this session we are going to look at the encompassing maps in QGIS and styling it and labelling it and adding map elements to the map composition page and finally, map composing and exporting it to image or PDF format.

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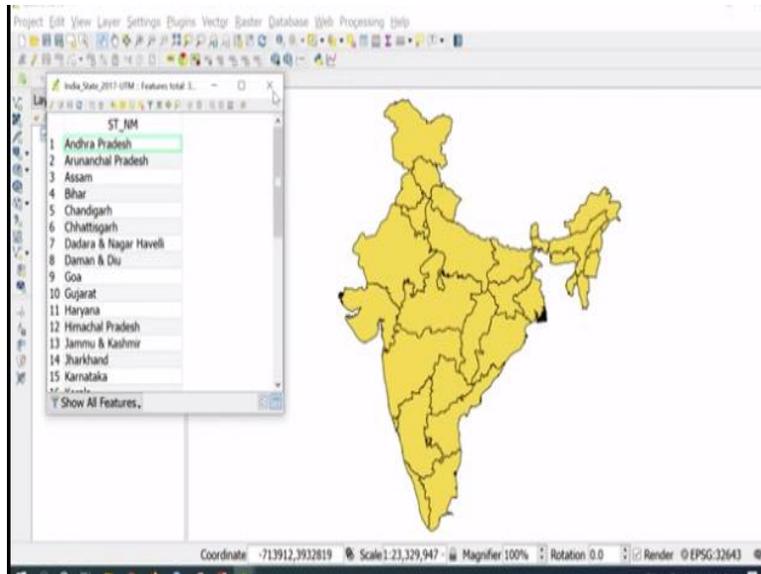
So, basically we will take a shape file, we will import a shape file to the QGIS and style it something like this and finally, we will export this composed map to an image or PDF, you will directly jump into QGIS software now.

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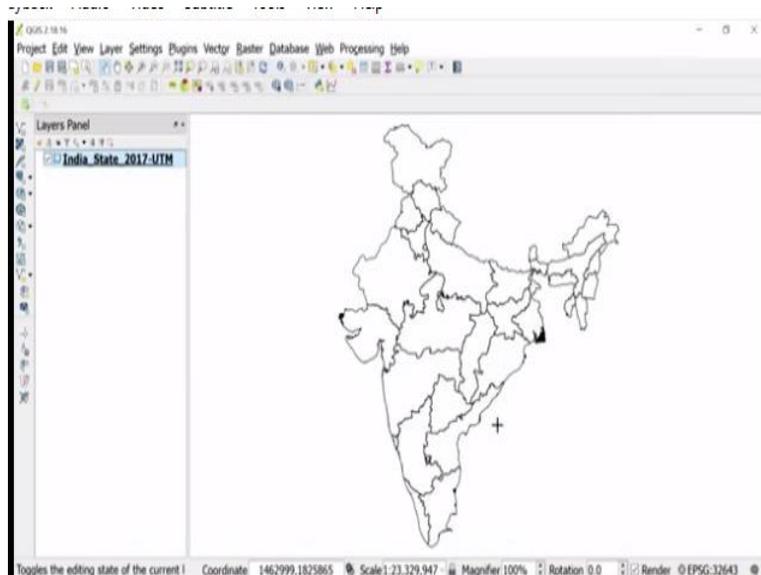
So, this is the learning page of QGIS software, here we will try to add a layer by going to layers; add layer, add vector layer are we will browse to desktop NPTEL and here data sets; vector datasets, we will go to India State 2017, this is a file we are using for this particular exercise; map composition exercise and we will try to open this.

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So, now the shape file containing all states of India is appearing in the map window. Similarly, the name of the shape file which appears in the layer panel left side, so to inspect the attribute information of the table, I will, we will go to the layer panel, right click and open attribute table. Here, the attribute information such as the state name of every state of the country is mentioned, so how to style this particular layer using the state name and label it, we will see in this exercise and finally, how to compose the maps.

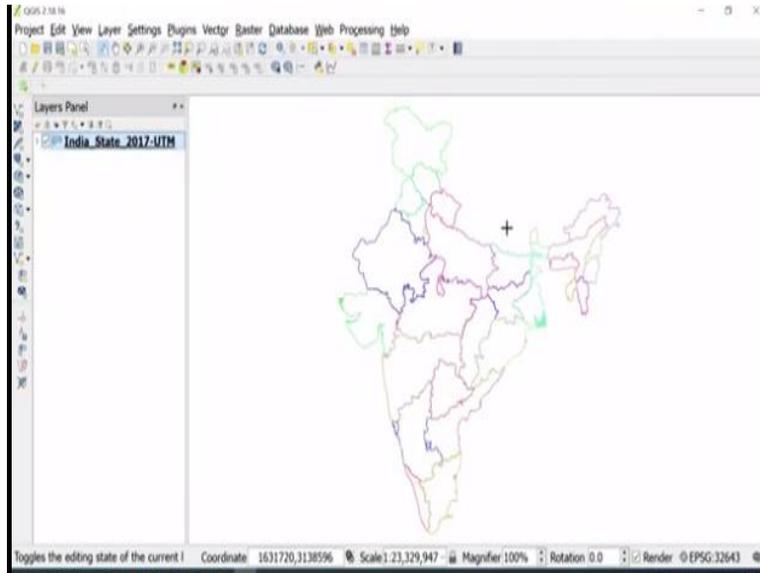
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So, I will close the attribute table now, so how to style it; so it is very easy, just go to the layer panel, right click, go to properties, here there is a tab called style. So, here it gives multiple options for styling, so one thing what you can do if you want as transparent layer, you can go to

simple fill; symbol layer type. So, here it gives some multiple options, if you want a simple lines, then you can go to simple line outline and then press okay. Then entire map will be in the transparent way with the only boundaries are visible, this is how we can style it the map.

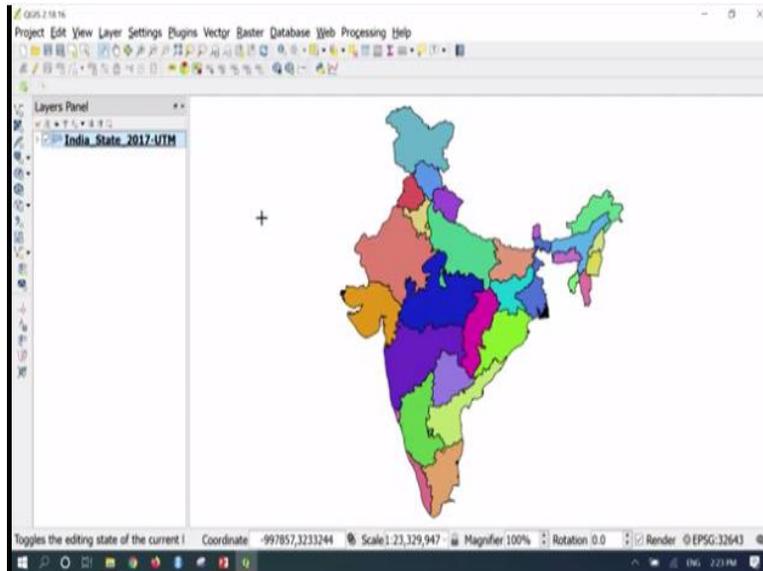
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So, if you want to style it based on the different colours again, we can go to properties and go to categorised, so based on; so, if you select categorised, so it gives multiple options based on the graduated or rule based or 3D based or 2D based on inverted polygons, multiple option it gives, currently we will explore the categorised option, you will go to categorised and based on the attribute we can do the styling.

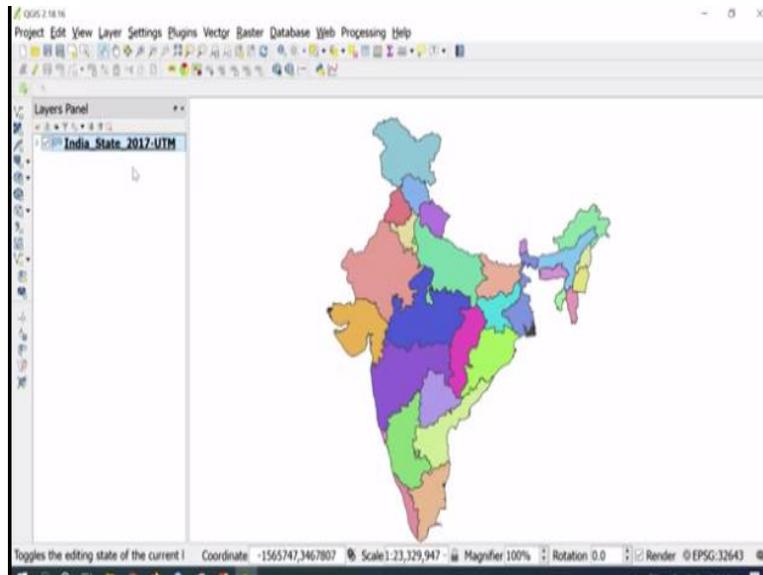
So, since it has only 1 attribute, we will do it based on the state name and just place; press on classify, based on the each state name, it classifies, so here so, if you want any change in the legend you can do, you can edit the legend, since it is a state name, which is properly it took from the attribute, we do not have to do that and then press apply, each state name boundaries visible, you can see, each state is style in a different manner.

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So, if you want to fill colours, again go to properties, styles, graduated, so change the colour, classify and then press okay, so entire state names are styled now with the different colours. So, if you are using any attribute information, if some population of the state or so any other attribute information is there that also can be style using this style button.

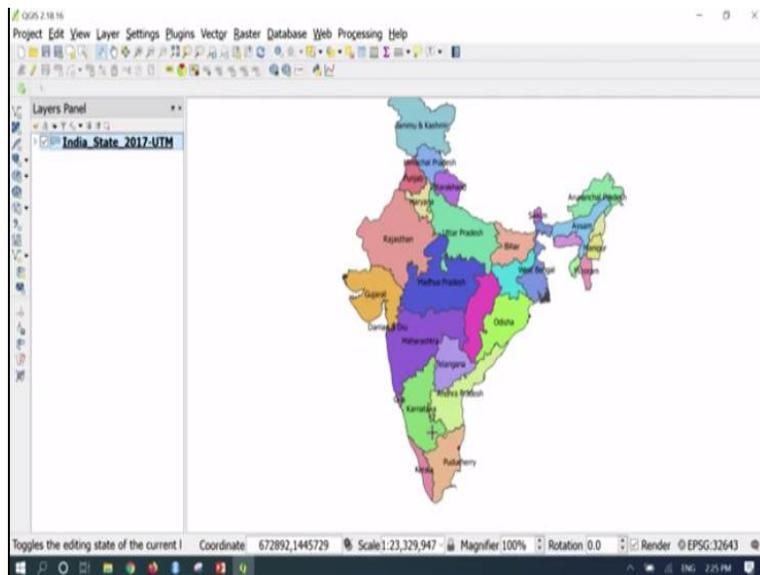
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So, right click properties, so how to style; based on the categorised, based on the state name, using the; by changing the symbol, you can add the colour, so if you want to change the colour, you just go to a symbol, double-click on that using the simple fill, here you can change the outline and fill colour and finally, by pressing okay and apply we can change the colour of the state.

So, here we styled the entire country map into a different colours, so if you want to change the properties, transparency of this to look little better, so you can change the layer properties, so I will make it 25% transparent, so it will look little lighter, so this is how we can label the entire map, so this is how we can style the entire map. So, if you want to label it, suppose if you want to know the state name by labelling it, so how to do that?

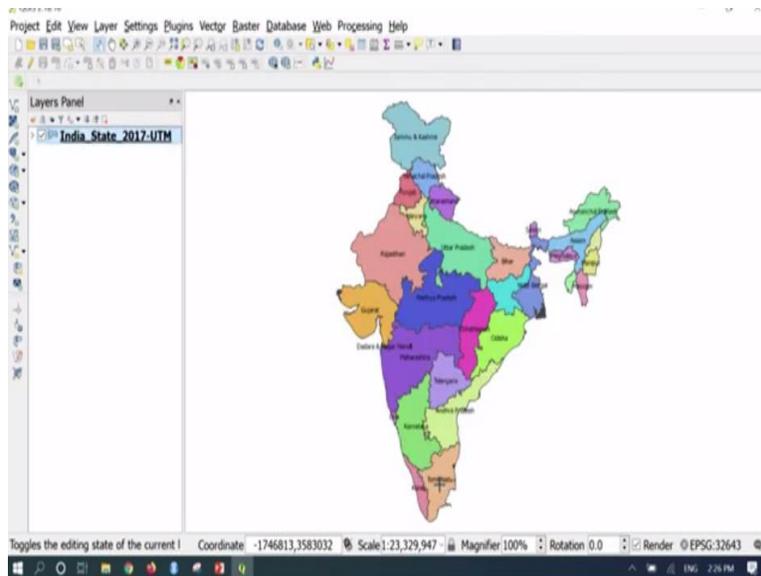
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Just go to the layer left side, properties, it gives the option for labelling, so there are multiple options here in the label properties; one is style, one more is label. So, here right now it is under no label, so you can change it to show labels based on the layer, so once you click that, so it gives the option based on the attribute table, since it has only 1 attribute, we will name it based on the state name.

So, here state name, I have chosen and then press apply, then if you go and see the map, so all entire map, it is labelled using the state name. So, if you want to zoom it and check with the details, we can do it. So, I will zoom it to Gujarat, based on the zoom level, the label feature will get adjusted to the polygon, you could see that.

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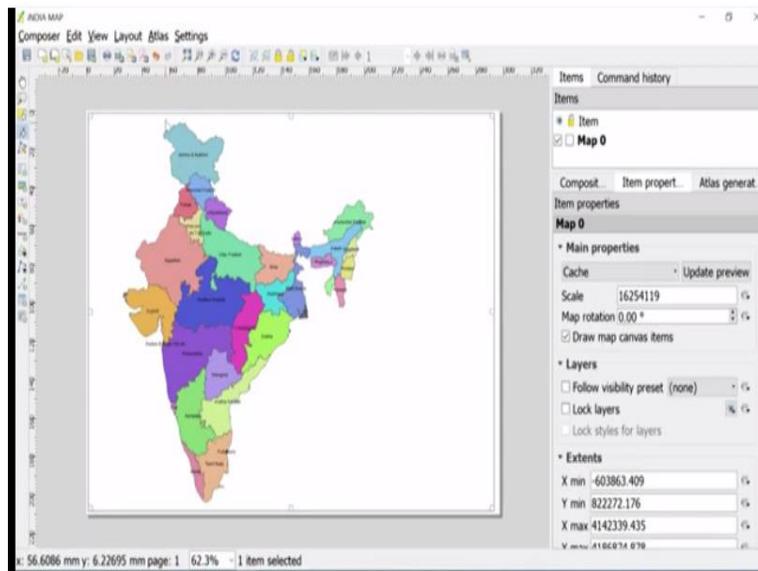
Similarly, we can change the label properties, so if you go to properties; so the label properties such as texts, so if you want to change the font, so suppose if you want to use Times New Roman or Tahoma; Tahoma you can do that or if you want to increase the font size of that instead of 8.25 we can keep it 10 and style in the sense we can keep it bold, italic and transparency of the label also can be changed little bit, colour of the label can also be changed.

So, all these properties can be changed accordingly, so right now all labels have become italic, so I will change back to normal; this is how we can change the text labelling. Suppose, if you want to do some kind of buffers around the label or if you want to do add some backgrounds or if you want to do add some shadow information or placement of the labels, so that also can be adjusted here.

So, all these things I will keep it as a default option since, this is suiting the map nicely, so I will go to zoom 2 layer, so currently this is visible, what I will do since the font is little bit bigger, I will go to text and make it 7, so now the font is adjusting properly to the map, so this is how we can label and style the maps in using QGIS. So, finally what we need to do is that compose this map, so that we can print, take a print or publish it web online or to put it into a report.

So, for that we simply we cannot take a screenshot of this and put it because it need to be in certain DPI; dots per inch the final images.

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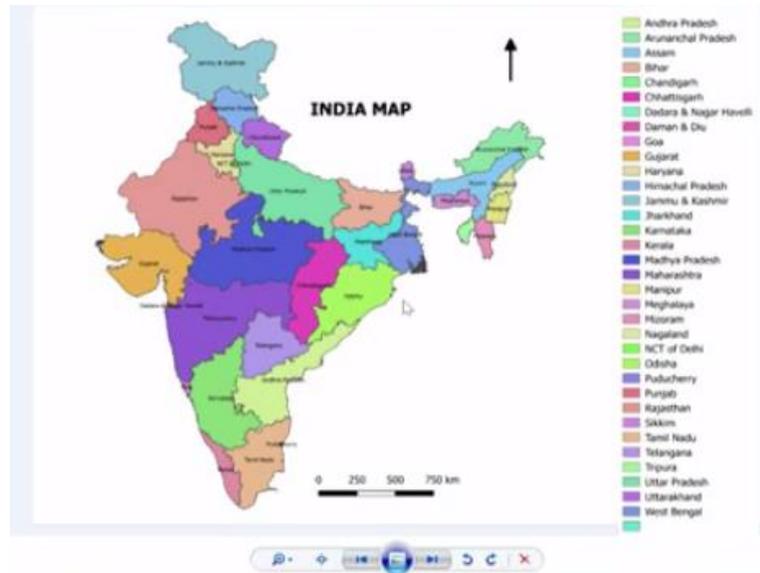
To do that we can go to project, compose manager there is an option in the project they call compose manager, you can create 1 compose manager, so once you click on compose manager, it gives the options to add compose manager, I will add a compose manager, I will give a name, India map and then press okay. So, now a new compose manager is opened, so here you can add the map and map elements, I will show you how to do this.

So, before going to the; before adding the map, we will see compose manager's page size and its properties, so if you go here, default it took as A4 size sheet, so this one you can change, you can do a customer; custom page size as well or A5 or A3 anything which is existing or custom things you can do it. So, I will keep as A4 sheet as a paper size and then we can add a new map here, so this is an option to add a new map, I will click here and then we need to drag and drop in the map window to add a map.

Once we drag and drop in the map page, the map will look something like this, so now if you go to item properties, so it took some random scale, so to adjust this one you need to go to an option called move item; move item here, so if you click on that you could move this map item anywhere in the map window that we added. So, if you rotate the mouse scroll button, so it will zoom in or zoom out.

So, if you want to zoom little bit, I mean slowly, you could press control and then scroll; control and scroll is the option to move zoom in or zoom out slowly, so currently I have adjusted the zoom level, so you could see the scale, the random scale is changed here. So, once you adjust the scale and the zoom level, then you can start adding the legend, the title, the North arrow and the other map elements, we will see how to do this.

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So, if you go to layout button, so here it gives options to add multiple map elements, so we will try to add a label, we will try to add a legend first and press here, the legends for entire map will get added, so here the title we can remove and if you want to change the so legend items, you could uncheck the auto update button and then go and say, edit here using pencil button, you can remove this options.

So, now it has option for different states, so whatever the state is mention that is visible in the right side using the legend. So, along with this you could add a label, so this is the India country map, so here in QGIS; instead of QGIS, automatically it gives as a QGIS, here we can give India map, so you can change the font size, we will keep it as 20 and make it bold and you can adjust the position of that title.

And then you can make it centre alignment, vertical alignment also in middle, so other properties such as frame, background these things can be added, so right now I am keeping it as default and

then next map element what we are going to add is that scale bar. If you click a scale bar and bring to the bottom, so this is the right bottom where we keep the scale bar usually, so automatically it took the scale, so here we can change the properties of scale bar.

Suppose, so if you; if it has a segment of; 2 and right side 4, left side 2 and right side 4, you can change this, left side I do not want to keep any segments, I can just make it 0 from the left and right side, I want to make it 3 segments only, then I can select 3 segments and fixed width also can be changed, this height of the scale bar also can be adjusted, so I will keep as 2, so that it looks legible.

And all other properties; similar properties can also be changed; the frame can be added or can be removed, the colour, all these settings can be done similarly, the one more important thing in the map composition is adding a North arrow, so if you go to layout and add arrow, so here you can add a North arrow, so you need to adjust in such a way that it the vertical is a North arrow or if you have an image somewhere in the system that also can be bought it here by; you can go to layout and add image.

And you can select the place where the North arrow is there and then choose an image, so image will come, any custom North arrow also be added. So, apart from this, the major map elements are done now, so we have added a map title, we have added the base map, we have added a legend, we have added the scale bar as well. So, after preparing the; after composing the map so, we can explore this map into any format which we need.

So, how to do that? You just need to go to export as image or export as PDF, so export as PDF, this can be done, so if you go to export as image, so it will ask you where do you want to export; I will say in desktop NPTEL folder, datasets, output, here I want to export as India map, so let it be in; so here also you can adjust, it is it a PNG or JPG or any other format or defaults also can be done.

So, right now I will export into a PNG format and then press okay, so this is the important thing, suppose if you want to publish a paper or if you want to use this particular image in some of the

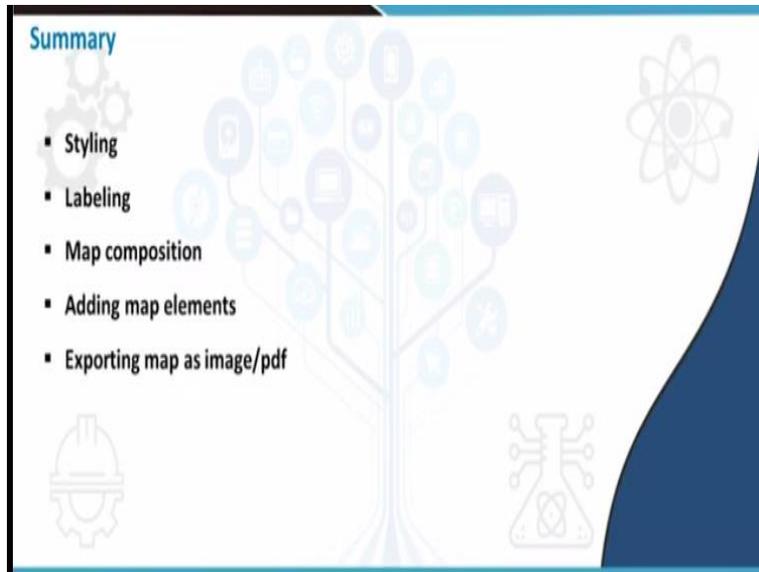
applications further, so those applications will specify the DPI; minimum DPI requirement, so based on that, page width and height also can be adjusted. So, while exporting, it gives the option to mention the DPI.

So, here I will mention the default DPI; I will change the default DPI to 600 DPI which is mostly preferred by measure of the paper for any of the applications, then I will select crop to the content, so otherwise the extra page it will appear in the map window and then press save. So, if you do that so, the image will be exported the folder, so let us go to the folder and check, so how the map has come up.

So, this is how the map will; the final map will look, so this can be inserted into any report or from any to; can be published in any website as well, so this is how we can export the map into an image format. Suppose, if you want to export it in to PDF format, you can just go to export as PDF, click on that, so it gives the options to export as a PDF, so if it has option to print, you can directly print as well.

I will go to desktop NPTEL, dataset, output folder and India map, so it get; it got exported into a PDF, we will see how the map is looking. So, if you open that, the map will look in a PDF as well, so this is how we can compose a map in a QGIS or we can label it, we can style it in QGIS environment.

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So, till now we have seen; as a summary we have seen how to style a map, shape file using QGIS and how to label it and how to compose using compose manager, how to add different map elements such as North arrow, title, legend etc., and finally exporting a map into a PDF format or an image format and finally, viewing the image. So, till now we have seen all these things, I hope you understood the today's sessions very much, thank you.