



Department of Computer Technology

Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

Session 2025-2026

Vision: Dream of where you want.	Mission: Means to achieve Vision
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Program Educational Objectives of the program (PEO): (broad statements that describe the professional and career accomplishments)

PEO1	Preparation	P: Preparation	Pep-CL abbreviation pronounce as Pep-si-IL easy to recall
PEO2	Core Competence	E: Environment (Learning Environment)	
PEO3	Breadth	P: Professionalism	
PEO4	Professionalism	C: Core Competence	
PEO5	Learning Environment	L: Breadth (Learning in diverse areas)	

Program Outcomes (PO): (statements that describe what a student should be able to do and know by the end of a program)

Keywords of POs:

Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

PSO Keywords: Cutting edge technologies, Research

“I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life.” to contribute to the development of cutting-edge technologies and Research.

Integrity: I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

Name and Signature of Student and Date

(Signature and Date in Handwritten)



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Session	2025-26 (ODD)	Course Name	PE-I - Geo-Intelligence for Smart IoT Devices Lab
Semester	5	Course Code	23IOT1523
Roll No	36	Name of Student	Darshil D. Amalkar

Practical Number	04
Course Outcome	Apply and demonstrate the use of proprietary and open-source GIS tools (e.g., QGIS) for creating, visualizing, and managing spatial datasets.
Aim	Produce a publication-quality map from vector layers, using Data View and Layout view.
Problem Definition	The task involves producing a publication-quality map from vector layers by using QGIS's Data View and Layout View to include appropriate cartographic elements such as legends, scale bars, and labels.
Theory (100 words)	<p>Making a map as being an artist. Every artist needs two spaces: a studio to create the art and a gallery to display it. In the world of GIS, these two spaces are Data View and Layout View.</p> <p>Data View is your creative studio. This is the interactive workspace where you get your hands dirty with the geographic data itself. You add your vector layers (like roads, rivers, or building footprints), decide on their colours and styles, add labels, and explore the spatial relationships. You are essentially creating the painting here. The focus is purely on the data, not on how it will be presented on a final page.</p> <p>Layout View is your gallery frame. Once your artwork (the map) is ready, you switch to this view to prepare it for an audience. Here, you're no longer editing the data itself but arranging it on a virtual page. You design the final product by adding a title, a legend to explain the symbols, a scale bar to show distance, and a north arrow for orientation. This is where you frame your masterpiece for publication.</p> <p>You'll constantly switch between these two views. You might arrange elements in Layout View, only to realize a label is hard to read, so you'll pop back into your "studio" (Data View) to fix it before returning to the "gallery" (Layout View) to see how it looks.</p>



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<p>Procedure and Execution</p> <p>(100 Words)</p>	<p>Implementation Steps:</p> <p>Part 1: Setting the Stage with a Basemap</p> <p>Before we can start drawing, we need a reference for our work. A basemap gives us the real-world context, like roads and cities, so we know where we are.</p> <ol style="list-style-type: none">1. First, open up QGIS. You'll see a clean, blank project waiting for you.2. On the left side, find the Browser Panel. Look for a section called XYZ Tiles and expand it.3. Inside, you'll see OpenStreetMap. This is a fantastic, detailed world map that's perfect as a starting point.4. Simply drag and drop OpenStreetMap onto the main, empty map canvas. Just like that, the world is at your fingertips! <hr/> <p>Part 2: Drawing Your Own Features (Digitizing)</p> <p>Now that we have our foundation, let's create a blank layer where we can draw our own custom shapes.</p> <ol style="list-style-type: none">1. Navigate to the top menu and go to Layer → Create Layer → New Shapefile Layer.2. A window will pop up. Here, you'll define your new layer:<ul style="list-style-type: none">○ Input a Name: Give your layer a descriptive name, like Parks or Streets.○ Select a Geometry Type: Choose what you want to draw. Will it be Points (for single locations), Lines (for roads or rivers), or Polygons (for areas like lakes or buildings)?○ Add Attributes (Optional): If you want to store information about each feature (like its name), you can add attribute fields here.3. Click OK. Your new, empty layer will now appear in the Layers Panel.4. To start drawing, you must enter "Editing Mode." Right-click your new layer and choose Toggle Editing. A little pencil icon will appear next to it.5. Now, look for the "Add Feature" tool on the toolbar (the icon will look like a point, line, or polygon). Select it, and you can start clicking on the map to draw your features. Continue drawing until you've covered your entire area of interest.6. Quick Tip: In the Layers Panel, you can drag layers up or down. Make sure your points are on top of lines, and lines are on top of polygons, so nothing gets hidden!
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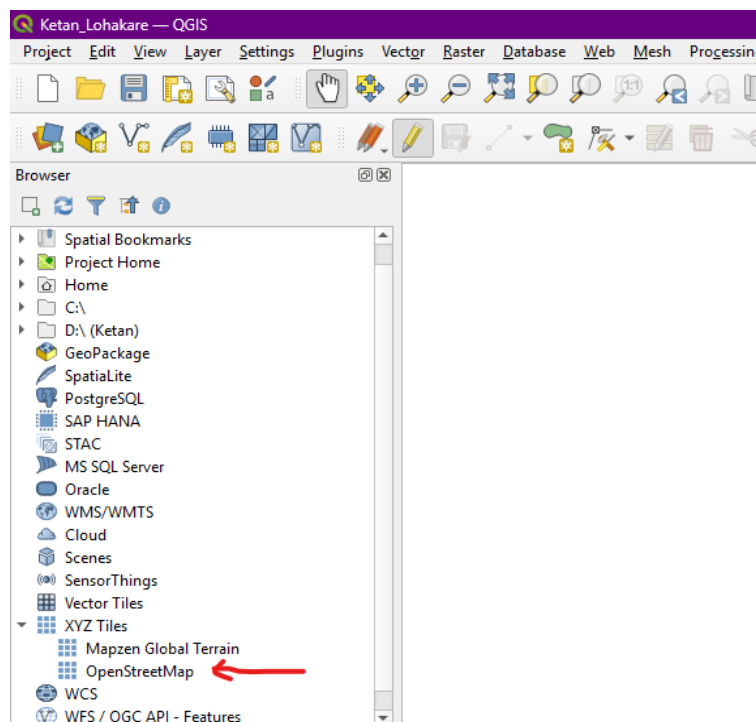
Part 3: Framing Your Masterpiece with the Print Layout

Once you've finished drawing and your map looks just right, it's time to prepare it for sharing. The Print Layout is where you add professional touches like a title, a legend, and a scale bar.

1. When your map is ready, go to **Project** → **New Print Layout**.
2. Give your layout a unique name (e.g., "Yavatmal City Map") and click OK. A new window will appear—this is your design canvas.
3. From the toolbar on the left, find the **Add Map** tool.
4. **Click and drag a large box** across the blank white page. Your map from the main QGIS window will instantly appear inside it.
5. From here, you can add other elements to finish your design. When you're happy with it, you can easily **export your final map as a PDF or an image**, ready to be shared with the world!

Stepwise Screenshots with steps:

- Open new project and look for the OpenStreetMap.



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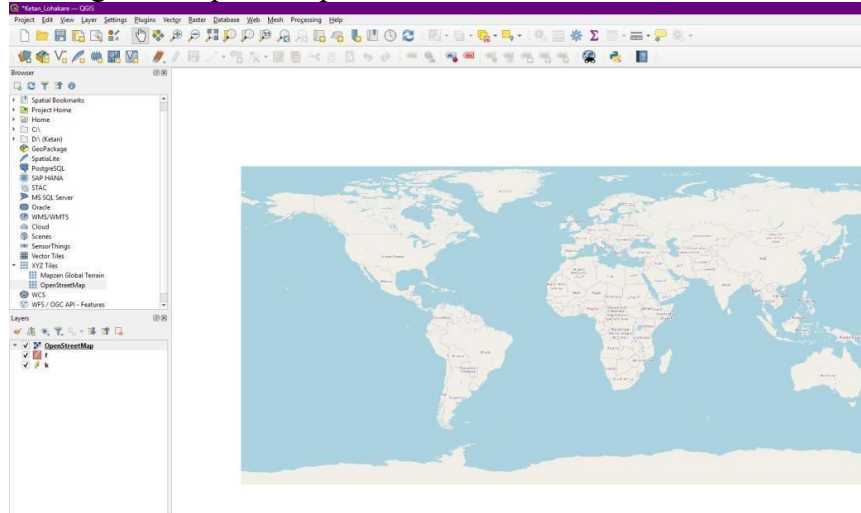
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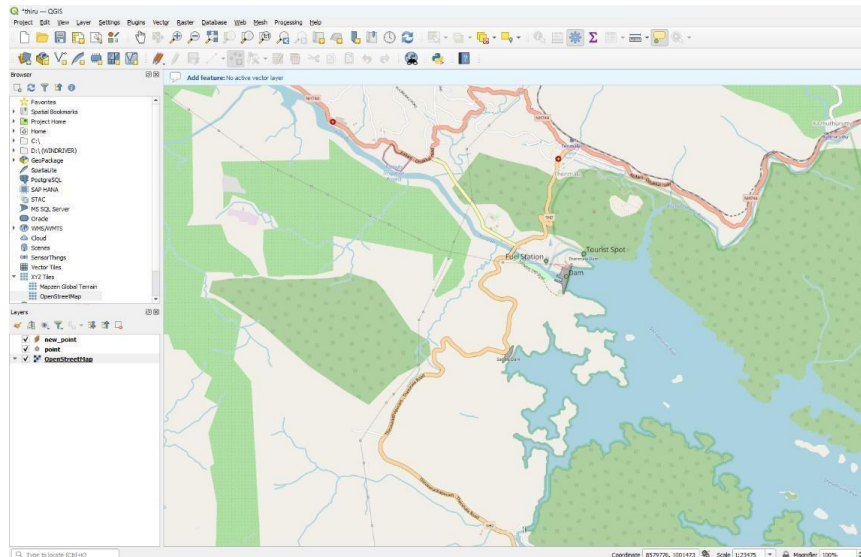
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• Drag and drop the map



• Go to Selected Area



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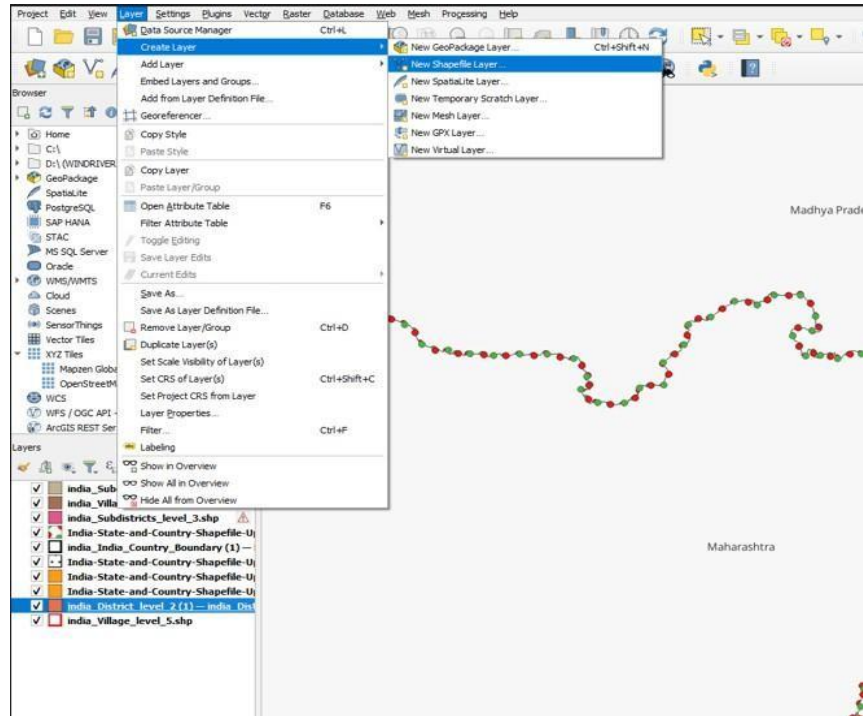
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• Create Vectors Files



• Create the vector (In this case Point vector is chosen)

New Shapefile Layer

File name:

File encoding:

Geometry type:

Additional dimensions:

New Field

Name:

Type:

Length: Precision:

Fields List

Name	Type	Length	Precision
id	Integer	10	

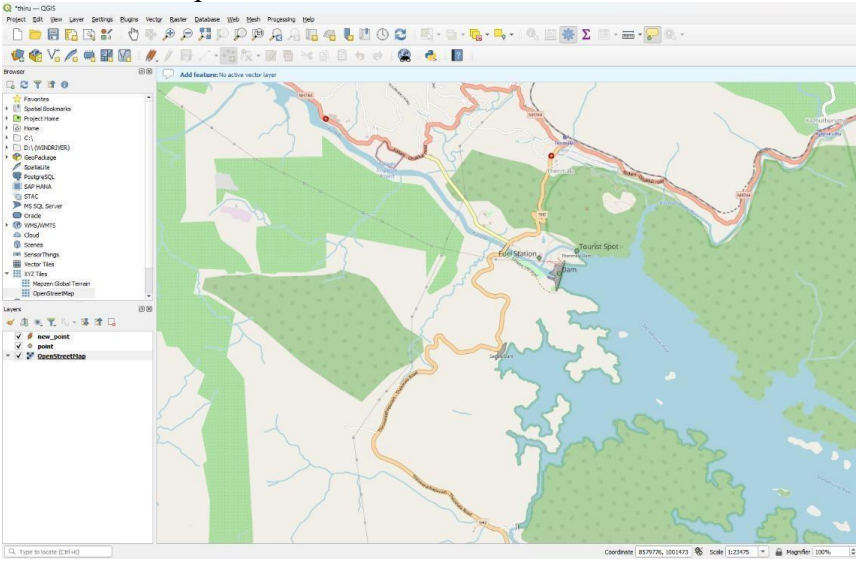
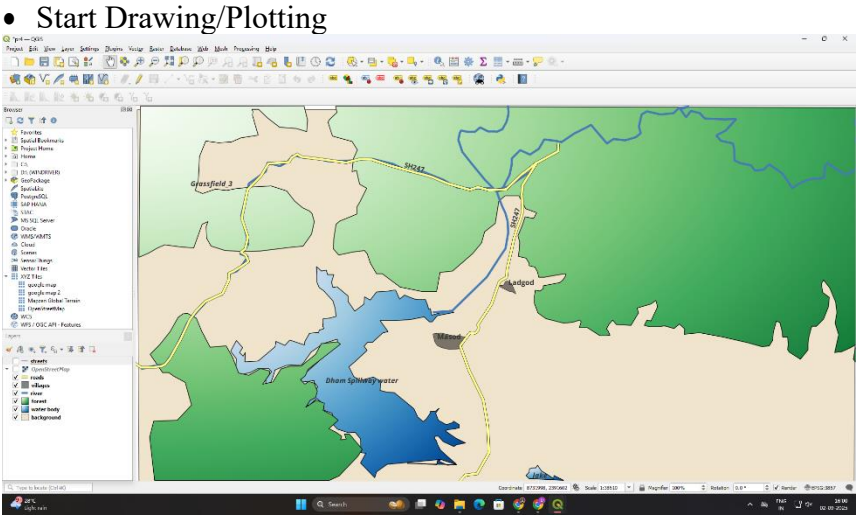
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	<p>• Point on Map</p>  <p>• Start Drawing/Plotting</p> 
<p>Output Analysis</p>	<p>Before exporting, perform a final quality check on your map. First, review your digitized features against the basemap for accuracy. Then, assess the visual clarity of your symbols and proofread all print layout elements, like the title and legend. This quick review ensures your map is professional, accurate, and ready to share.</p>
<p>Link of student Github profile where lab assignment has been uploaded</p>	<p>https://github.com/Darshil-yup/GIS_Lab</p>



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Conclusion	You've now successfully completed the entire map-making workflow, from setting a basemap and digitizing your own data to producing a final print layout. This fundamental process is the key to turning any geographic idea into a polished, professional map ready to be shared.
Plag Report (Similarity index < 12%)	<div><div><div>0%</div><div>Plagiarism</div></div><div><div>Exact Match</div><div>0%</div></div><div><div>Partial Match</div><div>0%</div></div><div><div>100%</div><div>Unique</div></div></div>
Date	19-08-2025