Portfolio and Reflection Report

Course: Principle of Cartographic Design & Production

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Personal Background

I graduated with a degree in Geographic Information Science and worked as a cartographer at the Guangxi Mapping Institute in China for three years after graduation. During this time, I participated in several key mapping projects. Through these three years of work experience, I gained extensive expertise in map design and production, particularly in projects such as the "One Village One Map" initiative and farmland protection mapping, where I created maps for 500 villages in Guangxi. These projects played a crucial role in advancing the digitalization of rural planning and industrial layout, helping to fill the gap in basic mapping infrastructure in rural areas of Guangxi.

Map Portfolio

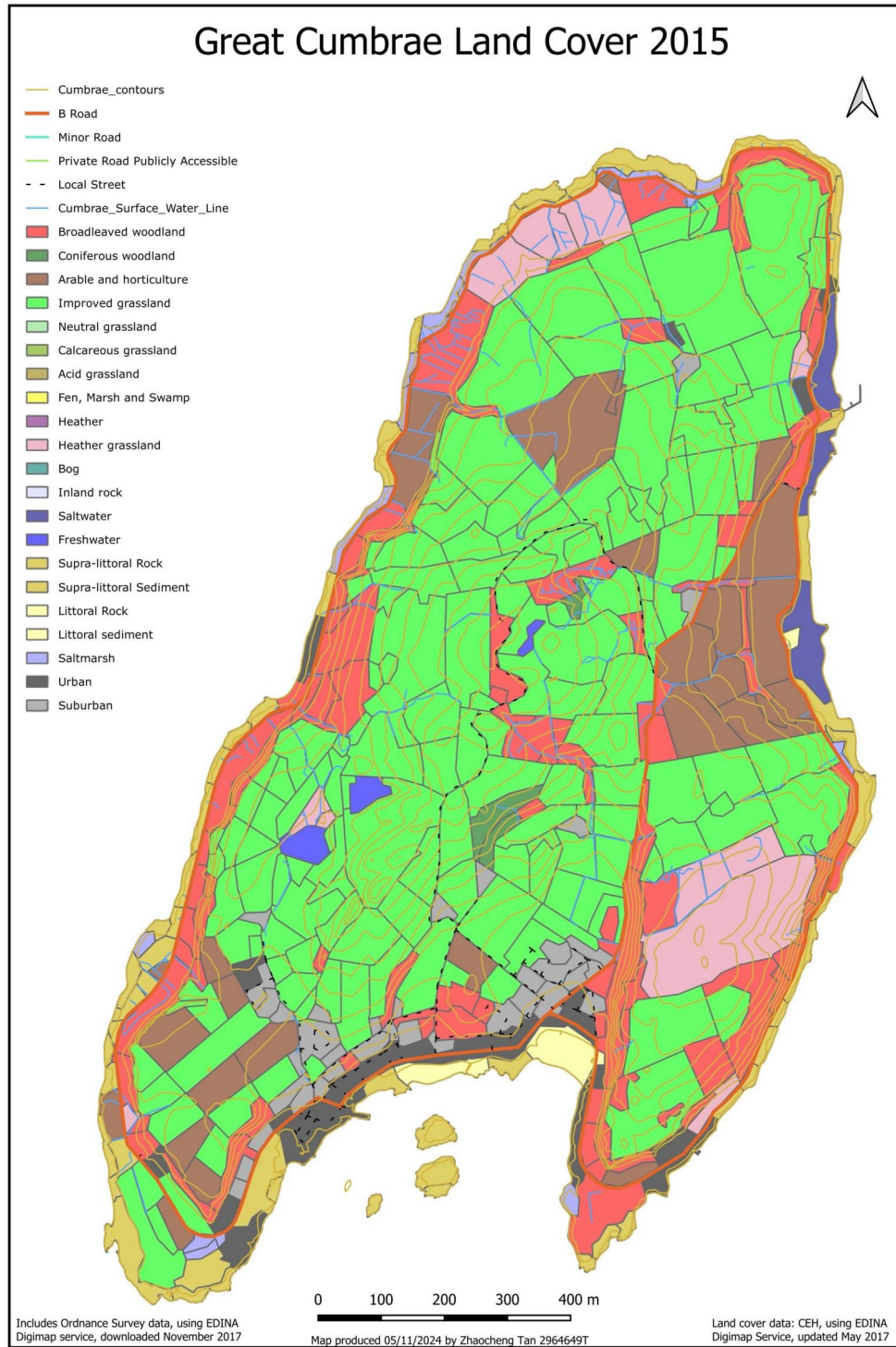## Map 1: Thematic Map of Land Cover on Great Cumbrae Island

Figure 1 Thematic map of the land cover of Gran Cumbre Island

Map Description

This is a thematic map displaying the land cover of Great Cumbrae Island, including geographical features such as land cover categories, road networks, water systems, and contour lines.

Process

The process mainly involved data loading and processing, symbolization design, and adjusting the map layout. Throughout the process, I primarily used basic QGIS skills, such as symbolization and map layout design.

Reflection

The color differences in land cover are not clear enough, which could affect recognition. The symbol design is confusing and makes it easy to mix up information. The map also has too much emphasized information, making it look cluttered. To improve readability, I plan to adjust the land cover colors and reduce the prominence of contour lines, water systems, and roads by increasing their transparency.

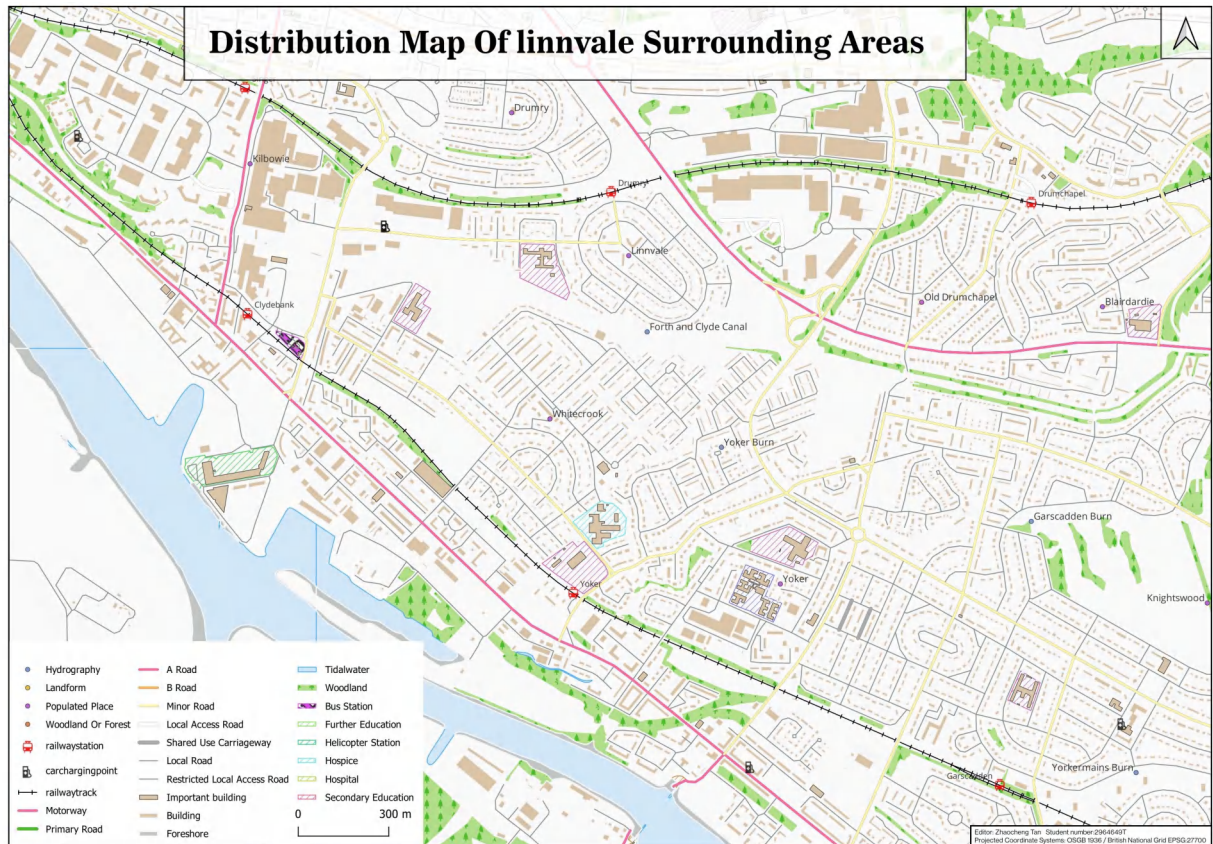## Map 2: Distribution Map of the Area Surrounding Linnvale

Figure 2 Distribution Map of the Area Surrounding Linnvale

Map Description

This is a map showcasing the surrounding environment of Linnvale, including important features such as the road network, gas stations, subway stations, as well as hospitals and school areas. It is designed to help unfamiliar users accurately locate their destination.

Process

The process mainly involved downloading, loading, processing data, symbolization design, and adjusting the map layout. First, I downloaded the necessary vector data from Ordnance Survey OpenMap Local and loaded the layers into QGIS. Then, I designed symbols for roads, areas, and buildings based on UK road classification principles, with different levels of roads highlighted. For area symbols, I chose

different fill styles, such as patterned fills, to distinguish between different types of areas. Point symbols were created using multi-layered symbols.

Reflection

The pattern fill style used for area symbols, such as the bus station area symbol, is not aesthetically pleasing. While the symbol's meaning is clear, the color tone and symbol size contrast sharply with the overall color design of the map, making it somewhat jarring. Additionally, I did not add labels to some important features, such as key buildings, which led to a decrease in the map's readability.

Map 3: Hillshade Terrain Map of Auchlyne with the surrounding area
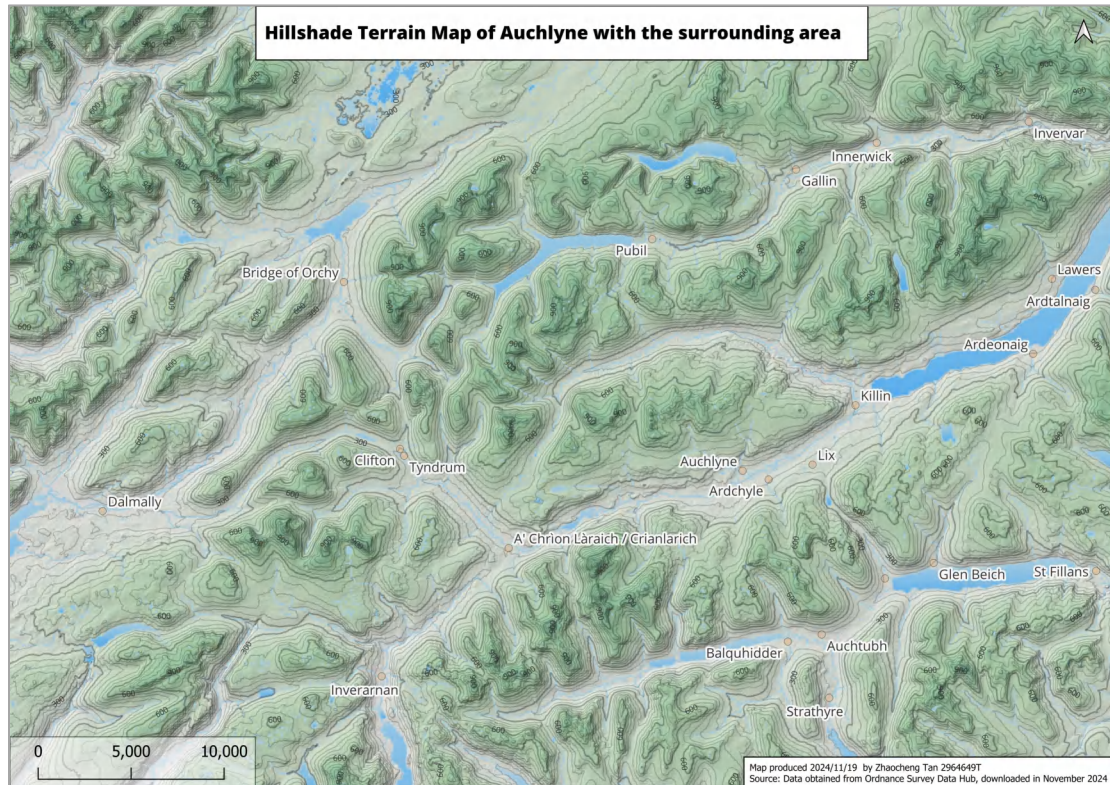

Figure 3 Hillshade Terrain Map of Auchlyne with the surrounding area

Map Description

This map displays the hillshade terrain features of Auchlyne and its surrounding area, highlighting the undulations and variations in the landscape.
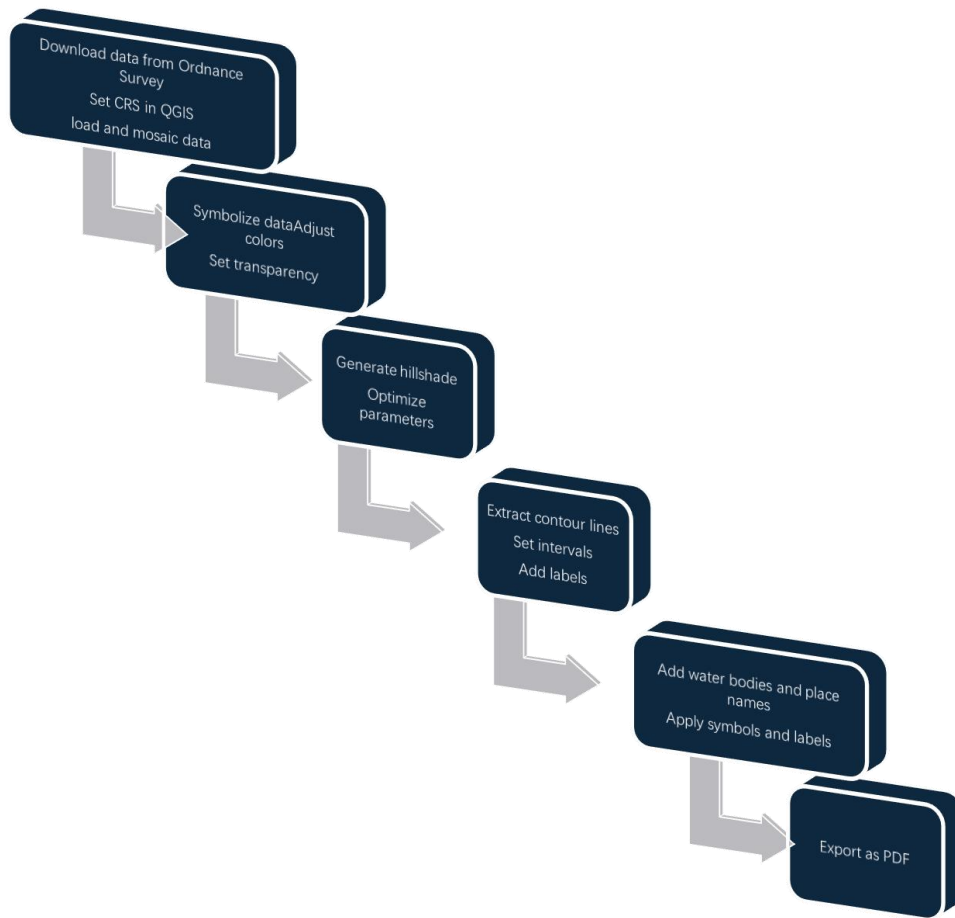
Process

Figure 4 Map Production Flowchart

Reflection

When adjusting the hillshade parameters, it would be helpful to refer to the parameter settings used in similar high-quality maps to reduce blind trial and error, allowing for faster selection of optimal parameters. Moving forward, I will continue to study the principles of terrain analysis tools, which will help me fine-tune parameters more precisely.
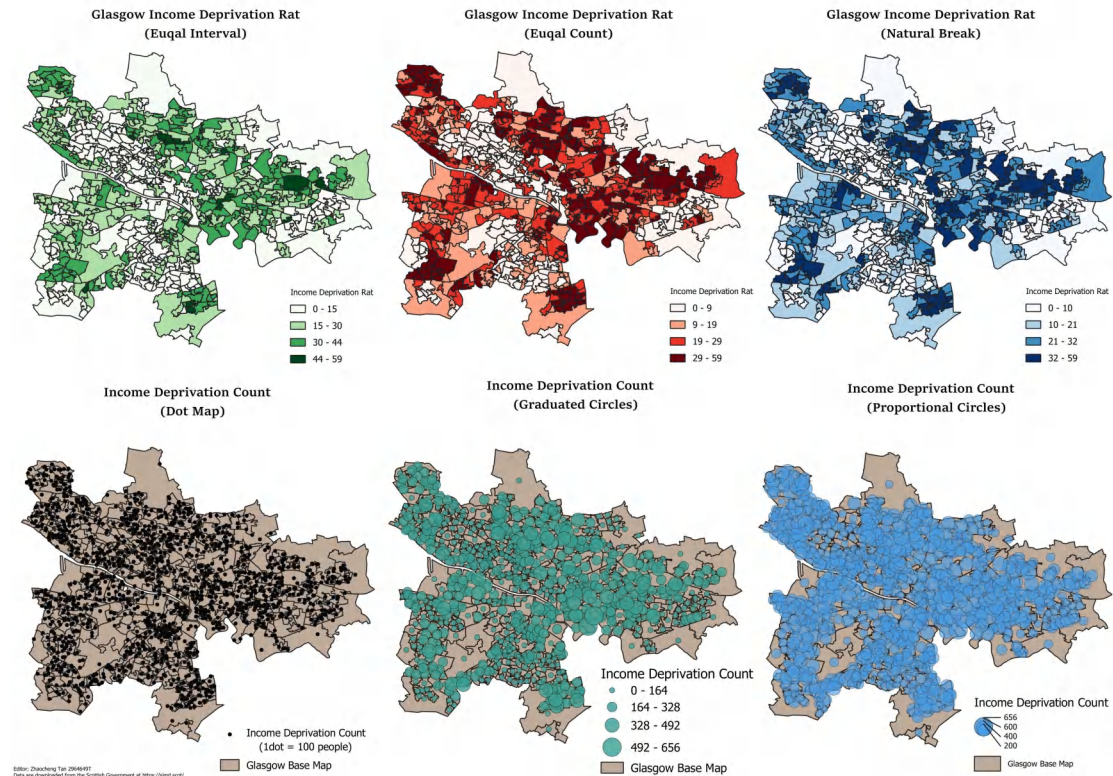
Map 4：Glasgow Income Deprivation Maps

Figure 5 Glasgow Income Deprivation Maps

Map Description

1. **Map 1 (Equal Interval):** Divides the rate into 4 equal intervals.
2. **Map 2 (Equal Count):** Divides the data into 4 equal-sized intervals.
3. **Map 3 (Natural Breaks):** Divides the data into 4 intervals using natural breaks.
4. **Map 4 (Dot Density):** Dots represent a set number of deprived people.
5. **Map 5 (Graduated Circle):** Circles of varying sizes represent different numbers of deprived people.
6. **Map 6 (Proportional Circle):** Circle size is proportional to the number of deprived people.

Process

I used QGIS to import the income deprivation data and boundary shapefiles, then linked them using the "Join Attributes" function. Next, I applied different symbolization techniques for each map: Graduated Symbols for the choropleth maps and Dot Map plugin for the dot density map. I also used Graduated Circle and Proportional Circle techniques for the circle maps.

Reflection

Each map has a title, but the overall set lacks one. The color design followed the Moodle example, lacking personal creativity. In the future, I'll reference good designs but also add my own ideas and understanding.

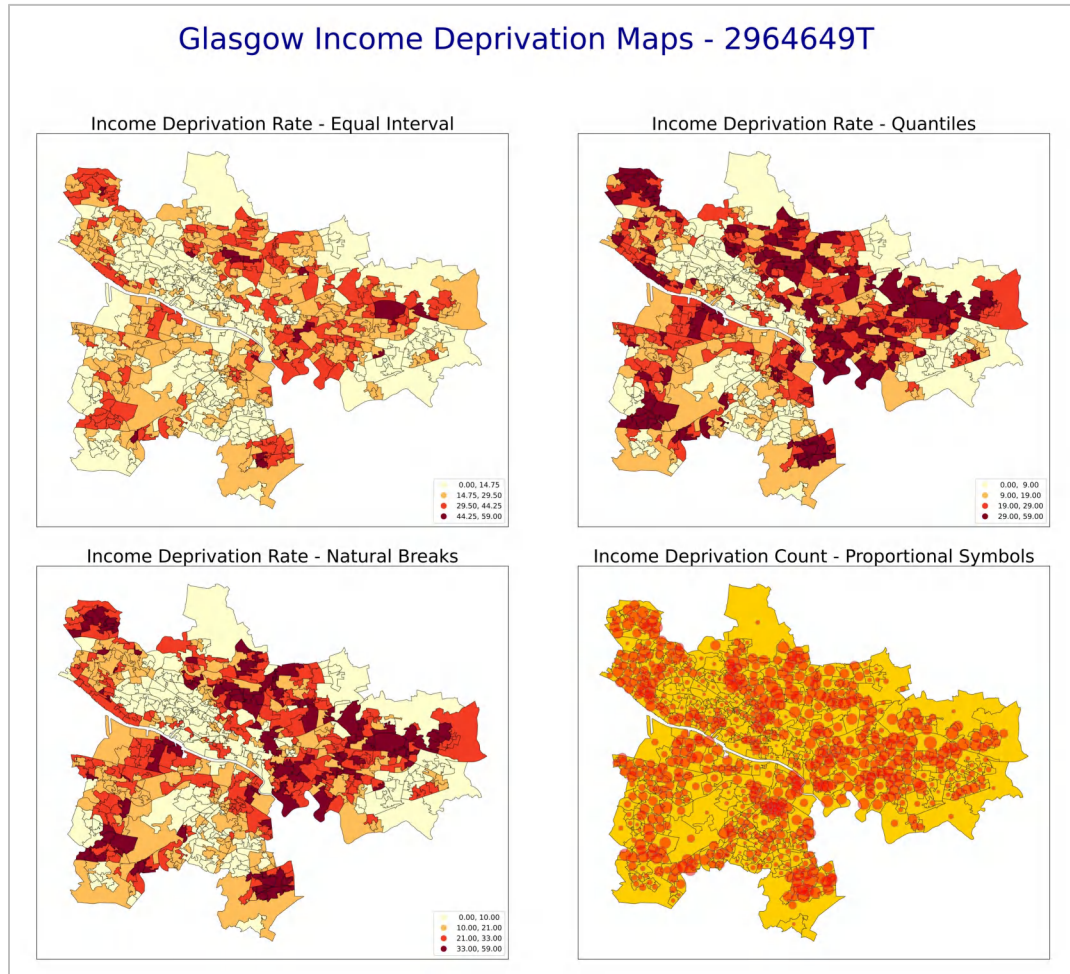# Map 5: Glasgow Income Deprivation Maps - Part2

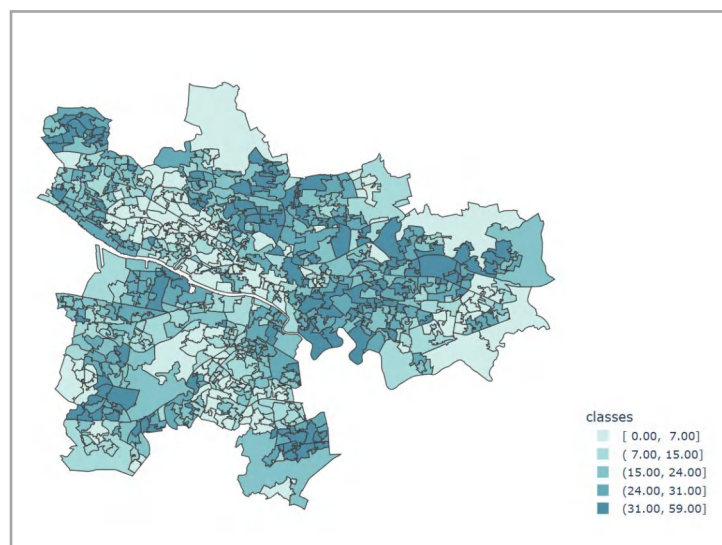
Figure 6 Glasgow Income Deprivation Maps - 2964649T

Figure 7 Interactive Income Deprivation Map of Glasgow

Map Description

This project created five maps visualizing income deprivation data for Glasgow:

- **Map 1 (Equal Interval Map):** Income deprivation rate classified into equal intervals.
- **Map 2 (Equal Count Map):** Income deprivation rate classified with the same number of areas in each interval.
- **Map 3 (Natural Breaks Map):** Income deprivation rate classified using natural breaks.
- **Map 4 (Proportional Circle Map):** Proportional circle symbols representing deprivation counts.

- **Map 5(Interactive Income Deprivation Map of Glasgow):** This map visualizes income deprivation data for the Glasgow area and features interactive functionality. Users can hover over different areas on the map to view the income deprivation rate for that region.
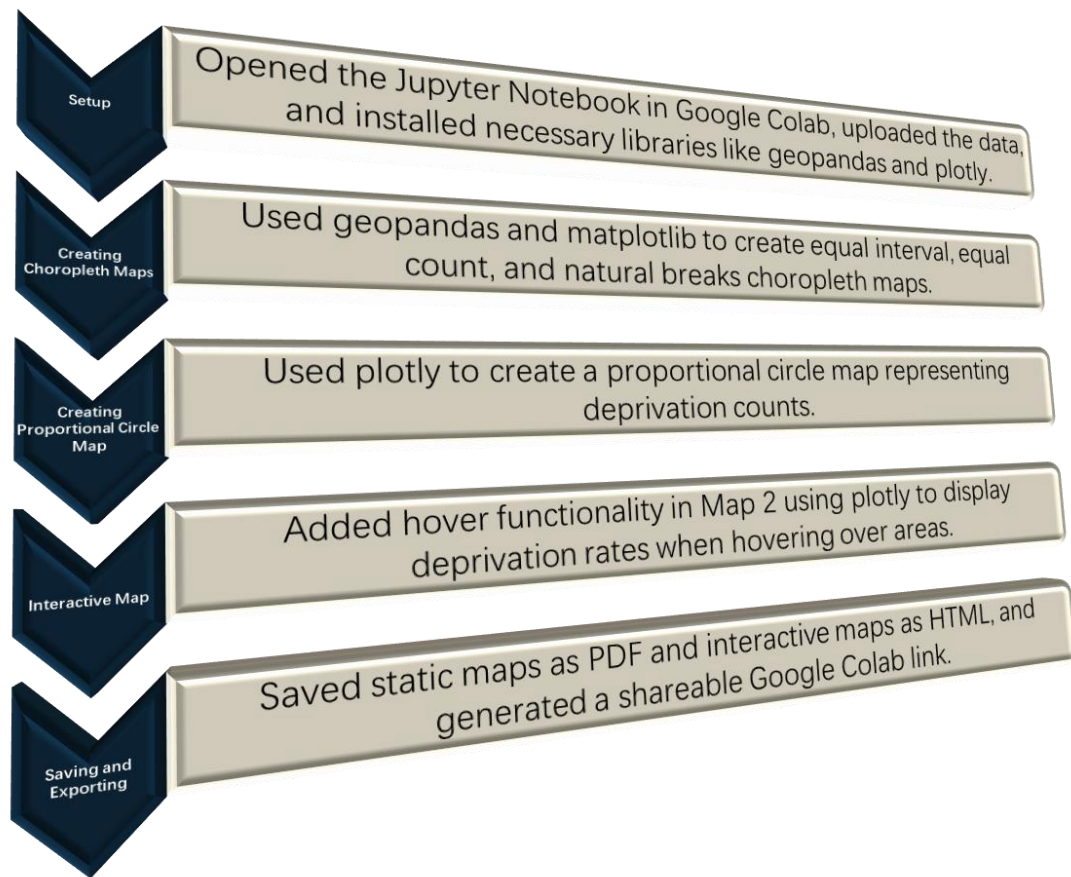
Process

Figure 8 Cartographic Process

Reflection

This was my first time creating maps with Python, and it gave me a new perspective on map-making. The biggest challenge was understanding the code and debugging, especially for the interactive map. I learned to use geopandas for data classification and visualization, and added hover functionality with plotly, which showed me the ease and flexibility of interactive maps.