

Programming for Geo Informatics - Lab 7

To create beautiful maps in Python : Cartography

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Static maps

Read the data

```
In [8]: import geopandas as gpd

airports = gpd.read_file(r"A:\IIST GEO INFORMATICS\Programming for geoinformatics L
countries = gpd.read_file(r"A:\IIST GEO INFORMATICS\Programming for geoinformatics
ports = gpd.read_file(r"A:\IIST GEO INFORMATICS\Programming for geoinformatics Lab\
railroads = gpd.read_file(r"A:\IIST GEO INFORMATICS\Programming for geoinformatics
```

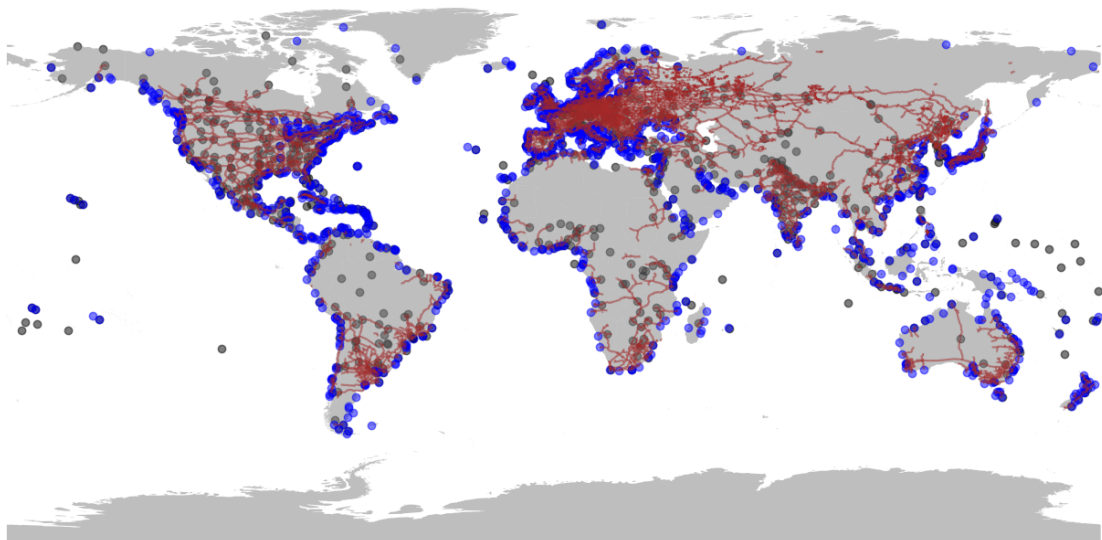
Create a static map with all layers

```
In [21]: import matplotlib.pyplot as plt

fig, ax = plt.subplots(figsize=(17, 17))
airports.plot(ax=ax, color='black', alpha=0.5)
countries.plot(ax=ax, color='grey', alpha=0.5)
ports.plot(ax=ax, color='blue', alpha=0.5)
railroads.plot(ax=ax, color='brown', alpha=0.5)
plt.title('Static map with all layers')
ax.axis('off')
```

```
Out[21]: (np.float64(-197.99999999999991),
np.float64(198.0),
np.float64(-98.68170503264994),
np.float64(92.31580568565008))
```

Static map with all layers



Create legend with quantile/natural breaks/equal interval classification scheme : Use one of the attributes to classify it into various categories and create a visualisation

```
In [40]: import mapclassify as mc

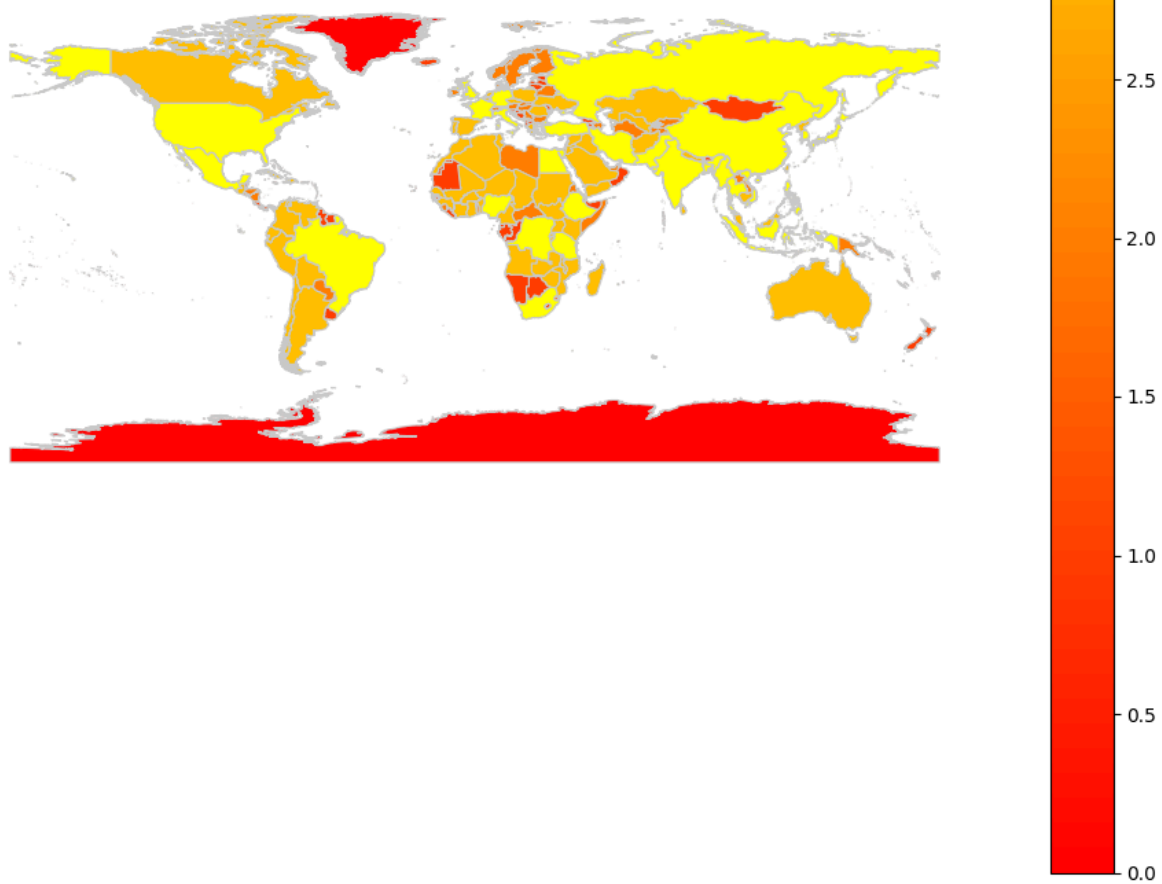
attribute = 'POP_RANK'

countries['quantiles'] = mc.Quantiles(countries[attribute], k=5).yb
fig, ax = plt.subplots(figsize=(12, 12))
countries.plot(column='quantiles', cmap='autumn', linewidth=0.8, ax=ax, edgecolor='
ax.axis('off')
plt.title('Classified Map with Quantiles')
plt.show()

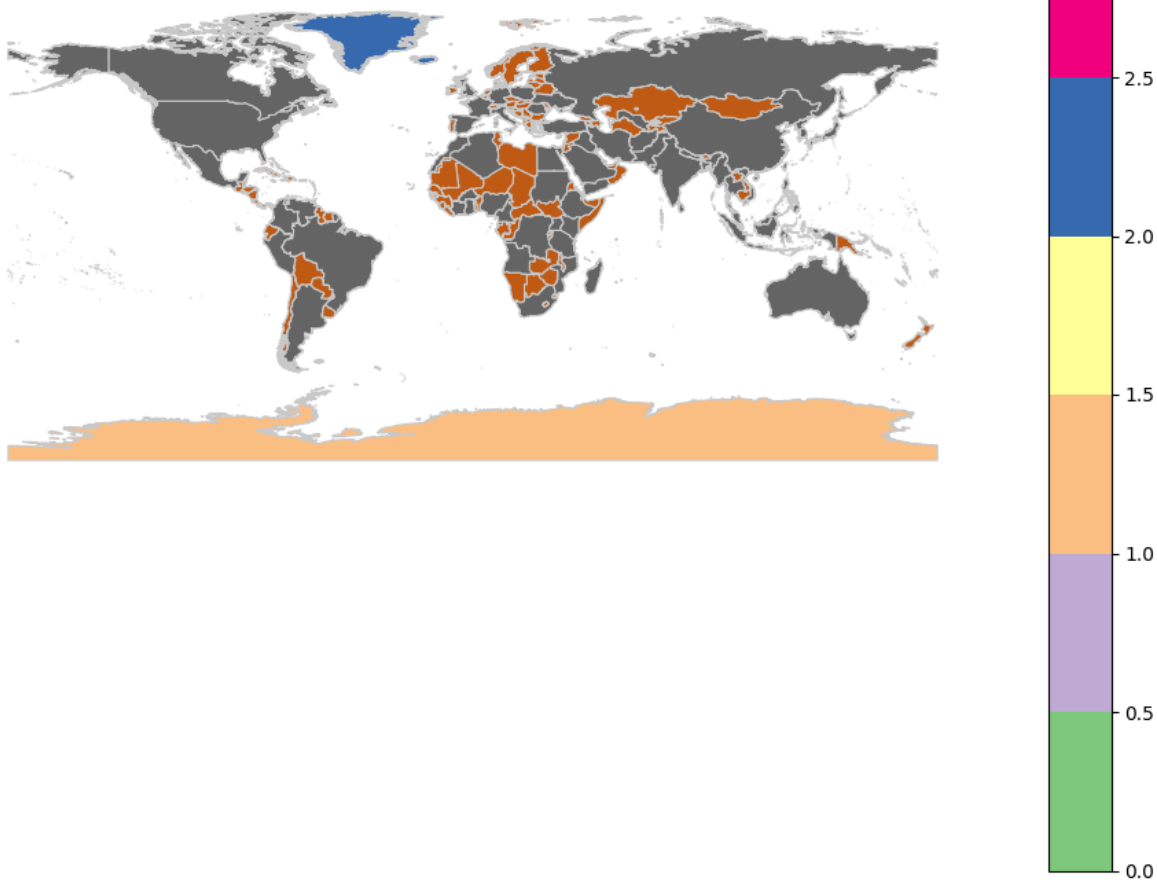
countries['natural_breaks'] = mc.NaturalBreaks(countries[attribute], k=5).yb
fig, ax = plt.subplots(figsize=(12, 12))
countries.plot(column='natural_breaks', cmap='Accent', linewidth=0.8, ax=ax, edgecol
ax.axis('off')
plt.title('Classified Map with Natural Breaks')
plt.show()

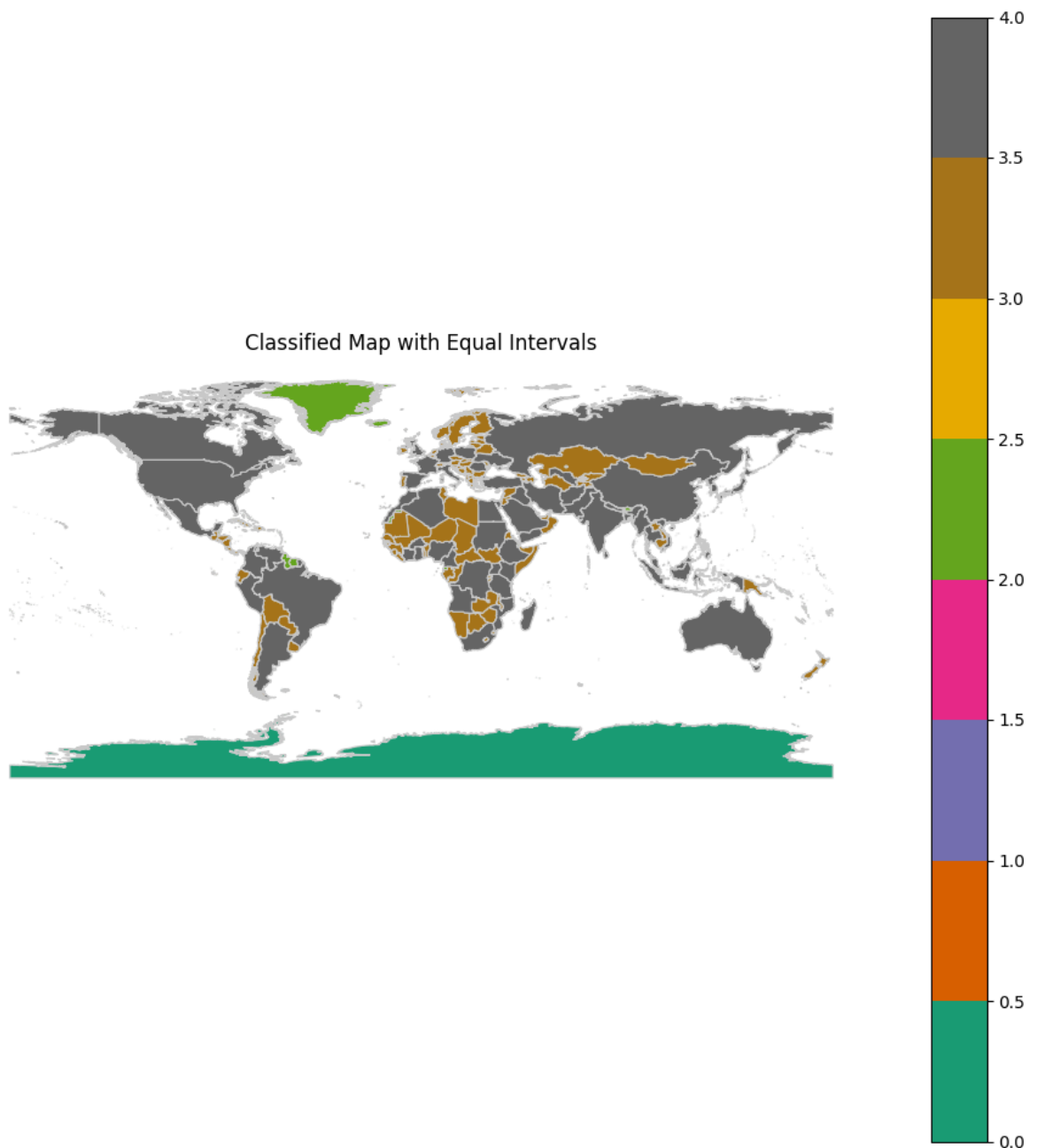
countries['equal_intervals'] = mc.EqualInterval(countries[attribute], k=5).yb
fig, ax = plt.subplots(figsize=(12, 12))
countries.plot(column='equal_intervals', cmap='Dark2', linewidth=0.8, ax=ax, edgecol
ax.axis('off')
plt.title('Classified Map with Equal Intervals')
plt.show()
```

Classified Map with Quantiles



Classified Map with Natural Breaks





Interactive map using folium

```
In [63]: import folium
from IPython.display import display
import matplotlib.image as image

int_map = folium.Map(location=[20, 0], zoom_start=2)
folium.GeoJson(countries).add_to(int_map)
folium.GeoJson(airports).add_to(int_map)
folium.GeoJson(ports).add_to(int_map)
folium.GeoJson(railroads).add_to(int_map)
folium.LayerControl().add_to(int_map)
int_map.save(r"A:\IIST GEO INFORMATICS\Programming for geoinformatics Lab\lab 7\fol
```

```
screenshot = image.imread('sc.png')  
plt.imshow(screenshot)  
plt.axis('off')  
plt.show()
```



Learning Outcomes

1 . Learnt how to use shape files to create interactive maps using folium. 2 . Learnt how to create static maps using matplotlib.