ASSIGNMENT 05 - CARTOGRAMS

TASK:

Make a series of cartogram (value-by-area) maps showing the total populaton in regions of Czechia – geographic contiguous cartogram (Map 1), geographic non-contiguous cartogram (Map 2), Dorling cartogram (Map 3) and Demers cartogram (Map 4).

In technical report answer following questions:

1. Compare all types of cartograms and try to explain which is more illustrative to show the value of selected phenomena.

DATA SOURCES:

- polygon layer of regions (ArcČR 4.1 geodatabase)

SOFTWARE:

- QGIS, ArcGIS Pro

SUBMISSION FORM:

- technical report
- 4 maps in PDF format
- ppkx

INSTRUCTIONS:

Part 1a – Geographic Contiguous Cartogram (Map 1)

- Set S-JTSK / Krovak East North projection (EPSG: 5514) in New QGIS Project
- Add a layer *kraje_CR* to Layers
- Install *cartogram* plugin (*Plugins-Manage and Install Plugins*)
- Run *cartogram* plugin* (*Vector-Cartogram-Compute cartogram*) on total_pupualtion field (other parameters are in default setting)
- Export the new layer (*krajeCR_cont_geo_cart*) to ESRI Shapefile format
- Insert the *krajeCR_cont_geo_cart* layer in ArcGIS Pro
- Add the original layer *kraje_CR* to show the original region borders (use *Feature to Line* tool), symbolize it properly
- Add new attribute *region_abbr*, fill it according to this table, label the features
- Symbolize the layer *krajeCR_cont_geo_cart* using Graduated Colors method with sequential color scheme showing total population (see Assignment 01)
- In *New Layout* (A5 Landscape) insert the Map Title, North Arrow, Legend, Scale and Credits
- Export *Layout* in PDF Format

see videotutorial here

Part 1b – Geographic Non-Contiguous Cartogram (Map 2)**

- Set S-JTSK / Krovak East North projection (EPSG: 5514) in New QGIS Project (or continue in previous QGIS project)
- Add a layer *kraje_CR* to Layers
- Install *ShapeTool* plugin (*Plugins-Manage and Install Plugins*)
- Add new attribute *ScaleFactor* and calculate it using following expression: *"Total_population"/maximum("Total_population")*
- Run *Shape Tools* plugin* (*Vector-ShapeTools-Geodesic Transforms-Geodesic Transformation*), set the *Scale factor about the center* parameter according to *ScaleFactor* attribute field
- Export the new layer (*krajeCR_noncont_geo_cart*) to ESRI Shapefile format
- Insert the *krajeCR_noncont_geo_cart* layer in ArcGIS Pro
- Add the original layer *kraje_CR* to show the original region borders (use *Feature to Line* tool), symbolize it properly
- Add new attribute *region_abbr*, fill it according to this table, label the features
- Symbolize the layer *krajeCR_cont_geo_cart* using Graduated Colors method with sequential color scheme showing total population (see Assignment 01)
- In *New Layout* (A5 Landscape) insert the Map Title, North Arrow, Legend, Scale and Credits
- Export *Layout* in PDF Format

*see videotutorial here

Part 1c – Dorling Cartogram (Map 3)

- Add a layer *kraje_CR* to Map (ArcGIS Pro)
- Export the original polygon layer to point layer (name it *kraje_CR_point*) using *Feature To Point* tool
- For the point layer *Obce_SLDB_points* set parameters in the *Symbology* as follows:
  - Symbolization Method: Proportional Symbols
  - Fields: Total_population
  - Normalization: None
  - Template: Circle 2 symbol from ArcGIS style
  - Minimum Size: 25pt (recommended)
  - Maximum Size: None
- In *Symbology-Vary symbology by attribute-Color* set parameters as follows:
  - Field: Total_population
  - Normalization: None
  - Color scheme: optional
- Manually move the circles to keep original topological relationship of regions
- In *New Layout* (A5 Landscape) insert the Map Title, North Arrow, Legend, Scale and Credits
- Export *Layout* in PDF Format

Part 1d – Demers Cartogram* (Map 4)

- Add a layer *kraje_CR* and *squares_grid* to Map (ArcGIS Pro)
- Export the original polygon layer to point layer (name it *kraje_CR_point*) using *Feature To Point* tool

- For the point layer *Obce_SLDB_points* set parameters in the *Symbology* as follows:
  - Symbolization Method: Proportional Symbols
  - Fields: Total_population
  - Normalization: None
  - Template: Square 1 symbol from ArcGIS style
  - Minimum Size: 5pt (recommended)
  - Maximum Size: 70pt (recommended)
- In *Symbology-Vary symbology by attribute-Color* set parameters as follows:
  - Field: Total_population
  - Normalization: None
  - Color scheme: optional
- In *New Layout* (A5 Landscape) insert the Map Title, North Arrow, Legend, Scale and Credits
- Export *Layout* in PDF Format

learn more on Demers carotgrams here