

## Data visualization with ArcGIS Group Project

ArcGIS is a powerful geographic information system (GIS) software used to analyze and visualize spatial data. In this group project, you will work with two datasets to create interactive data visualizations using ArcGIS.

### Datasets:

- Census Data:
  - Website link: <https://data.census.gov/>
  - Description: This dataset contains demographic information, population density, income levels, and other socio-economic attributes for different regions.
- Environmental Data:
  - Website link: <https://www.commerce.gov/data-and-reports/environmental-data>
  - Description: This dataset contains environmental data such as air quality measurements, water pollution levels, and temperature records for various locations.

### Setup Instructions:

1. Download two datasets CSV files using the provided links about your topic.
2. Open ArcGIS. If you haven't installed ArcGIS, follow the ArcGIS Installation Guide to set it up properly.
3. Import the CSV files into ArcGIS to create the necessary layers.
4. Once the data is imported, you can start building your visualizations.

### Data Visualization Instructions:

Using the datasets, create two interactive data visualization dashboards using ArcGIS. Ensure that your visualizations meet the following requirements:

#### Dashboard 1:

- Use at least four different visualization types (e.g., choropleth map, bar chart, pie chart, scatter plot) to represent various aspects of the census data.
- Each visualization should illustrate different relationships or trends in the data.
- Ensure that one pane in the dashboard can interactively drive all the other visualizations to provide dynamic and informative user experience.

#### Dashboard 2:

- Use at least four different visualization types (e.g., time-series chart, heatmap, symbol map, stacked chart) to represent environmental data.
- Each visualization should showcase different environmental attributes and their spatial distribution.
- Implement interactive features that allow users to filter and explore the data interactively.
- Deliverables:
- Your group is expected to prepare the following deliverables:

**Presentation:**

- Explain how you designed the dashboards and chose the visualization types.
- Walk-through the final dashboard designs and demonstrate their interactive features.
- Each team member must participate in the presentation, sharing insights, and contributing to the explanations.

**Deliverable Project Files:**

- Submit the ArcGIS project files to the instructor via Canvas before the scheduled presentation.

**Rubric:**

Category	Criteria	Scoring
Effective Communication	Clear presentation of results through visualizations Results: Intended message is communicated clearly to a wide audience Independent message: Visualization tells a story with limited (or no) support from other elements Fair representation: Data are accurately represented without distortion, and message is consistent with other dashboard content	Excellent (8 - 10 pts) Good (6 - 8 pts) Needs Improvement (4 - 6 pts) Does not meet requirements (0 - 4 pts)
Creativity and Innovation	Originality in the approach to visualizing the spatial data Significance of graphic to research: Clearly conveyed by the visualization Innovation: Visualization itself is innovative and creative Inspiration: Provocative, compelling, and memorable content, message, or design Unique approach: Representation of data is bold and original	Excellent (8 - 10 pts) Good (6 - 8 pts) Needs Improvement (4 - 6 pts) Does not meet requirements (0 - 4 pts)
Design and Aesthetics	Appropriate use of color and design Title, headings, labels: Appropriate size, location, spelling, and content Choice of visual: Appropriate for the audience and the message being conveyed Design: Aesthetically pleasing, limited clutter, good use of color contrast Clarity: Appropriate balance of function and design	Excellent (8 - 10 pts) Good (6 - 8 pts) Needs Improvement (4 - 6 pts) Does not meet requirements (0 - 4 pts)