

SPEC REU R Resources: Multivariate Plots – Homework

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Summer 2024

Welcome to the final assignment of the Data Visualization II module! Here, you'll bring together the skills you've gained from earlier walkthroughs and your group project to create meaningful and polished visualizations. You'll be analyzing political regimes over time with the `ProductivePacifists_Data.RData`, refining your visualization techniques in bar plots, maps, and more.

Ensure each graph includes a clear title, subtitle, and well-labeled axes so it communicates effectively on its own. Challenge yourself to elevate the visuals by adding thoughtful aesthetic elements for a polished, professional look.

Save your responses in your personal subfolder in the 412_413 shared AY24–25 Google Drive folder. The R script should be titled `HW_DV2_[YOUR_INITIALS]`. You can also save a copy of your R script to your own computer for future reference.

Initial Setup

Begin by setting up your working directory and loading the required libraries and dataset. Use the `ProductivePacifists_Data.RData` file and review the data structure to familiarize yourself with its contents.

Exercise 1: Bar Plot Comparison

Create a bar plot comparing the proportions of two regime types across two selected years. The plot should display two pairs of bars to make comparisons clear and straightforward.

Exercise 2: Map Plots

Create heatmaps for the years 1850, 1900, 1950, and 2000 (one for each year) to display a specific attribute across countries. Include essential details such as titles, labels, and legends for each plot.

Helpful Hint: Start by preparing the data. Extract map data, add country codes to link with your dataset, and merge these data sources before generating the plots.

You can streamline your code by creating a function to generate a map plot for any specified year. This approach enhances readability and reduces repetition. By defining a function that produces a map plot for a given year, you can easily create plots for 1850, 1900, 1950, 2000, or any other year in your dataset.

Bonus Exercise (Exercise 2)

Combine all four plots in Exercise 2 into a single figure. Label each subplot with the year and add a legend.

Bonus Question

For an added challenge, create a new visualization by selecting variables from the `ProductivePacifists_Data.RData` dataset or any of R's preloaded datasets (use `data()` to view options, and `?dataset_name` for details). Choose a plot type that best represents your chosen variables and clearly aligns with the purpose of your visualization. Include a brief description explaining your choice—what insights are you aiming to reveal, and how does this plot help highlight those insights?