Step 1: Grouped histogram in R

Assignment Overview

This lab is preconfigured to include all dependencies (libraries, packages, and datasets) you'll need to complete your work in RStudio. You can practice, run test cases, and work on assignments directly from your browser, and your work will be stored throughout the span of the course. To get started, head to the "Files" tab in RStudio where you'll find any starter files needed to complete this activity. You'll be able to access a copy of these assignment instructions both in this file (Instructions.pdf) in your lab and in the document attached to the Step 1: Grouped Histogram in R item.

The basic steps should be included in this lab:

1. Load the required packages in R.
2. You'll want to set your working directory to where you place your dataset. If you're not sure what your current working directory is, you can use getwd() in your RStudio Console. Please note: Use "/" instead of "\" in the path.
3. Please use the data provided to conduct a "Grouped Histogram" based on the step mentioned below. Load and inspect the dataset.
4. Break the variable "CrimeRate" into three groups based on the range and create a new variable "RangeGroup". You can use case_when() function.

```
 Three groups:
- CrimeRate < 250 ~"CrimeRate < 250"
- CrimeRate >= 250 CrimeRate <= 500 ~ "250 <= CrimeRate <= 500",
- CrimeRate >500 ~"CrimeRate > 500")
```

5. Create two color vectors. The first color vector is obtained from colorspace::diverge_hcl() and the second color vector is formed by colors of "green", "blue" and "red".
6. Plot a histogram of the variable "CrimeRate" and fill with the variable "Year" using the first color vector.
7. Plot a histogram of the variable "CrimeRate" and fill with the variable "RangeGroup" using the second color vector.
8. Please show all the code in code chunks (set echo=TRUE).
9. Please name your file as "Yourname_GroupHistogram.Rmd"
10. Please knit your R Markdown file into a HTML file and save it within the Module6 folder of your lab. You do NOT need to select the "Submit Assignment" button this week in your lab, as your .html file will be graded by your peers.

- **IMPORTANT REMINDER:** Within this In-Browser RStudio lab you'll first need to go to Help -> "Switch Back to the Old Experience" from your lab "Help" toolbar in order to successfully knit a document. Otherwise, you will see a blank preview of your file. You can alternately complete this step in a local RStudio Desktop implementation.

11. Download your .html file. Please preview your knitted .html locally within a web browser to ensure it appears as you expect it to with the Grading Criteria listed below. Then, follow instructions in Step 2: Peer Review - Grouped Histogram in R to submit your work and complete this assignment.

Grading Criteria

1. This week, your .html code will be graded by your peers on the following elements:

2. Your code should match the sequential operations required by the instructor.
3. Your code chunks should not be hidden.
4. You should break the variable "CrimeRate" into three groups based on the range required and create a new variable "RangeGroup".
5. Your first graph should have groups based on the variable "Year" and assign the first color vector.
6. Your second graph should have groups based on the variable "RangeGroup" and assign the second color vector.
7. Your code should be run successfully.
8. Your graphs should include legend, title and x and y labels.
9. You should provide comments for each step.
10. You should submit the file with extension of .html.

How to Submit Your Work for a Grade

- **If you're working in the In-Browser RStudio:** When you've completed your lab, please download your final .html file by selecting it in the "Files" tab of your RStudio lab, and then selecting the options "More" -> Export -> Download. Then, upload it to the appropriate prompt in the next item, Step 2: Peer Review - Grouped Histogram in R.
- **If you completed your work in a local Desktop verison of RStudio:** You do not need to re-upload your .html files this week for autograding. Instead, please upload your HTML file directly to the appropriate prompt in the next item, Step 2: Peer Review - Grouped Histogram in R.

For both options, you'll see a final grade and feedback for your work in the next step - Step 2: Peer Review - Grouped Histogram in R.