Miniproject 2: Polarization in State Legislatures

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Guidelines

This homework is to be submitted to the relevant d2l Dropbox folder by 12pm on **February 22**. You may work individually or in a team of at most three people. If you work in a team, please just turn in one assignment and list all names at the top of the assignment. You are allowed to consult any online resource. If you do so, please include a link to the website that you used in your script. If you use code from my lectures, there's no need to include a citation.

Data

The only data file for this assignment is `state-legislators.csv` and it is up on d2l in the Homework 2 folder. This data set contains an ideology score for each member of **each state House of Representatives** from 1993 to 2014. It also contains variables that indicate the year, the state, and the legislator's party.

```
rm(list=ls())
legis <- read.csv('state-legislators.csv', header=TRUE)

# libraries
library(dplyr)
library(tidyverse)
library(ggplot2)
```

Q1

What state had the lowest (minimum) ideology rating on average from 1993 to 2014.

What state had the highest (maximum) ideology rating on average from 1993 to 2014.

Q2

Plot the density distribution for the state that you found had the lowest ideology rating, and do this separately for each year and party. Additionally, add in a line to designate the mean ideology score that was received by the parties in that year. Some notes:

- differentiate party distributions by using the `fill` parameter (separate densities for Republicans, Democrats, and Independents)
- differentiate the color of the lines designating the mean using the `color` parameter
- use the `alpha` parameter, so that the densities do not completely obscure each other
- you will want to facet the distributions by year
- add improved labels for the x-axis, y-axis, and fill legend
- include a title
- last, provide a description of the results.

Plot the density distribution for the state that you found had the highest ideology rating, and do this separately for each year. Additionally, add in a line to designate the mean ideology score that was received by the parties in that year. Some notes:

- differentiate party distributions by using the `fill` parameter (separate densities for Republicans, Democrats, and Independents)
- differentiate the color of the lines designating the mean using the `color` parameter
- use the `alpha` parameter, so that the densities do not completely obscure each other
- you will want to facet the distributions by year
- add improved labels for the x-axis, y-axis, and fill legend
- include a title
- last, provide a description of the results, make sure to talk about how the change in distribution for this state differs from the state you selected for the first part of Q2.

Q3: Bonus question

How have ideology scores changed over time by party and state (if you choose to profile a few interesting states that would be fine). Develop a visualization to showcase this change and describe the results (don't use a density distribution or histogram in this case).