STAT 201: Midterm 1 Practice 2

Your name

In the following code chunk, load your libraries for wrangling, plotting, and making pretty tables. Run the code chunk.

```
library(readr)
```

A Pell Grant is a need-based federal grant for undergraduate students paying for college. Students are automatically considered for a Pell Grant award when they submit a FAFSA.

Each case in the dataset `pell` represents the Pell Grant award to a given school in a given year. (Data retrieved from the R pell package.)

- `state`: state/territory shortcode
- `award`: total award amount in USD
- `recipient`: total number of recipients
- `name`: name of college/university
- `session`: meeting ID
- `year`: year

We also have a dataset called `states` that provide information on the states and territories of the US. The variables are:

- `NAME`: name of the state/territory
- `Abbreviation`: state/territory shortcode
- `Type`: political devision ("state" or "territory")

Run the following code chunk to load in the two datasets:

Exercise 1

Let's clean and wrangle the data a bit.

- Remove any case where at least one of the following is true:
  - The school is missing information about the award amount

  - The school had less than 1 student receiving a Pell Grant
  - The school receive an award of 0 dollars but had more than 0 students recieve a Pell grant

- Create a new variable called `award_pp` that represents the award amount per person for each school
- Create a new variable called `decade` that takes the value:
  - "1990s" if the award was granted in the 1990s
  - "2000s" if the award was granted in the 2000s
  - "2010s" if the award was granted in the 2010s

Store your cleaned and wrangled data back into `pell`.

Exercise 2

Make a visualization the shows the distribution of the award amount per person for each decade. Have informative labels and titles. Interpret what you see.

Answer:

Exercise 3

Now let's bring in the information about states vs territories. Combine the two datasets into a single dataset called `pell2` that retains all observations about pell grants awards for which we also have information about the type of political division (i.e. state or territory).

Exercise 4

For awards made in 2015, create a beautiful table that displays the mean and standard deviation of the award per person for each of the two political divisions. Then answer the question: did the two political divisions differ in the Pell grant awarded?

Answer:

Exercise 5

Display a beautiful table of the five U.S. states that received the largest statewide average award per person in the 2010s.

Exercise 6

Find the rendered version of this assignment on the course website. Re-create the plot found there.