DATA 606 - Final Project

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https://www.kaggle.com/shoklan/which-year-produced-the-most/notebook https://github.com/fivethirtyeight/data/blob/master/congress-age/congress-terms.csv http://online.wsj.com/public/resources/documents/info-CONGRESS_AGES_1009.html

Part 1: Introduction

Is there a relationship between the average age of congress (members) and the number of bills proposed?

The average age of congressional representatives has been steadily climbing since the second world war. The current (115th) one is among the oldest in its history. How has this affected the effectiveness of congress? Are older more representatives more or less active?

I plan to explore this via proxy, by taking a look at all the *constitutional amendments* proposed since the first congress through the 113th, and recording the age of each of the bill's sponsors. Additionally, I will seek any interesting tidbits in the data, such as the most active years, as well as which state representatives propose the most legislation.

Part 2: Data

Data collection

The amendment list was retrieved from Kaggle, while the members list was taken from FiveThirtyEight. Another source is from the Wall Street Journal.

The list of 11,000+ amendments was compiled by staff and volunteers of the National Archives and Records Administration. The list of representatives was compiled by The UnitedStates Project (House members), and The New York Times Congress API (senate).

Cases

Each case represents a constitional amendment proposed by congress. There are a total of 11797 cases in this dataset.

Variables

The response variable is legislative activity and is numerical.

The explanatory variable is median age of congressional representatives and is numerical.

Type of study

This is an observational study.

Scope of inference - generalizability

Scope of inference - causality:

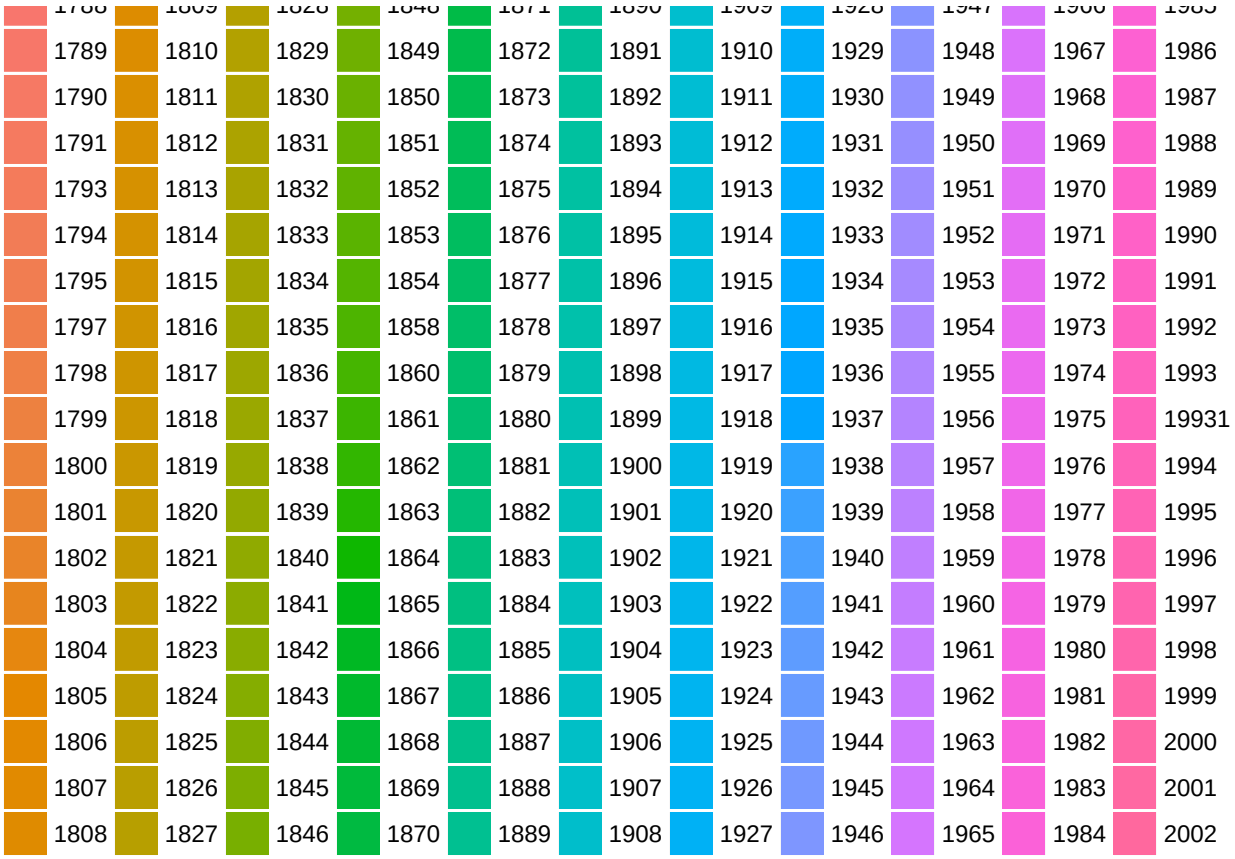
Part 3: Exploratory data analysis

```
library(tidyverse)
library(ggplot2)
```

```
#
# Load the files from the working directory
#
members_raw <- read.csv("congress_terms.csv")

#
# Tidy the datasets
#
# Keep only the relevant columns
amendments <- amendments_raw %>%
  select(5, 7:ncol(amendments_raw)-1, -6)

# Use regex to shift errant data to their appropriate columns
for (i in 1:(length(amendments$year))) {
  pat <- "\\D{3,}"
  if (grepl(pat, amendments[i, "month"]) == 1)
  {
    amendments[i, "year"] <- amendments[i, "month"]
    amendments[i, "month"] <- amendments[i, "day"]
    amendments[i, "day"] <- amendments[i, "congress"]
    amendments[i, "congress"] <- amendments[i, "congressional_session"]
    amendments[i, "congressional_session"] <- amendments[i, "joint_resolution_chamber"]
  }
}
amendments$year <- gsub("\\D{4}$", "", amendments$year)

members <- members_raw %>%
  select(-c(3,7))
```

Let's take a look at what the data has to say.

```
#
# Which years had the most bills?
#
ggplot(data=amendments, aes(x=year, fill=year)) +
  geom_bar()
```

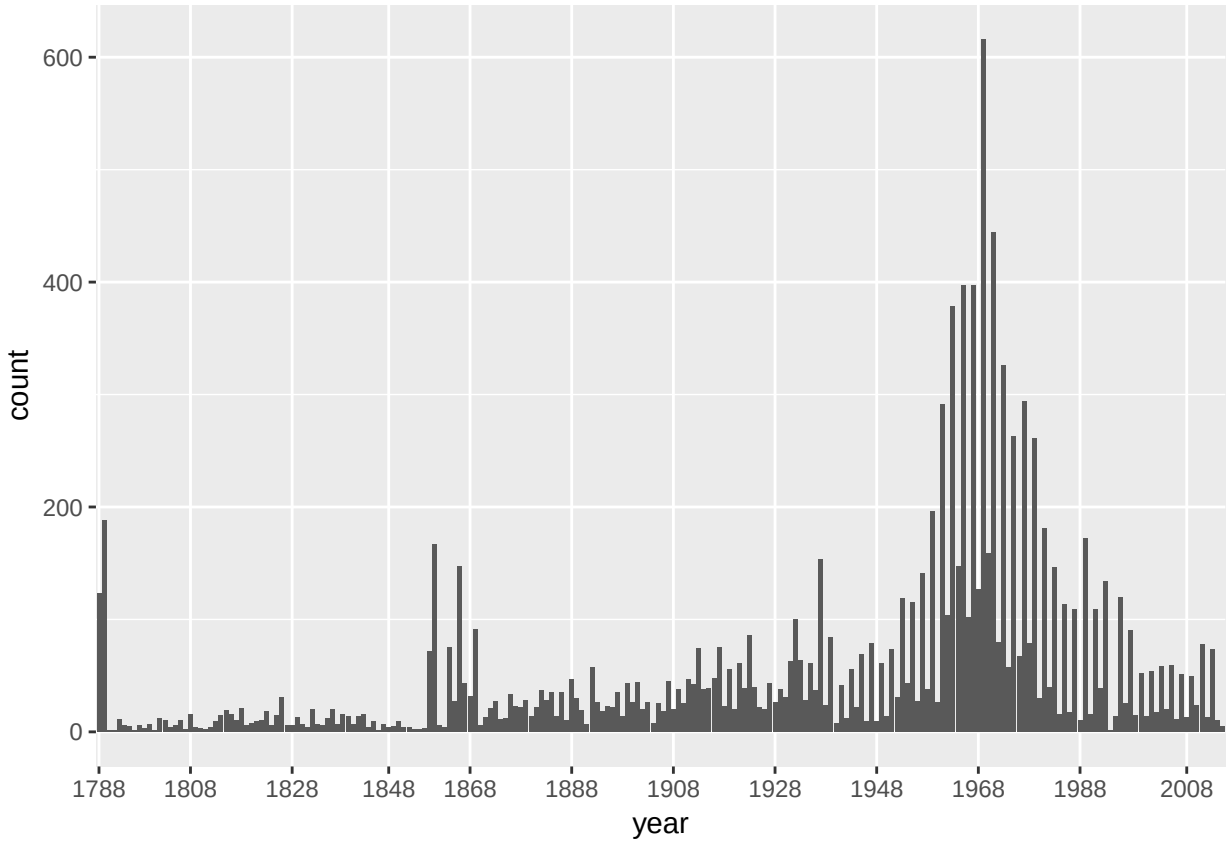


Part 4: Inference

Conclusion

Relevant summary statistics

```
lvls <- levels(amendments$year)

ggplot(amendments, aes(year)) +
  geom_bar() +
  scale_x_discrete(breaks=seq(1788, 2014, 20))
```



There is a noticeable spike in amendmendt proposals in the latter half of the 20th century. My guess would be that it's related to the civil rights movement, and the sweeping changes that came about.