# *Web Scraping II*

# Recap of Web Scraping I

- Final 3 Data Frames From Previous Tutorial  Should All Be Saved to CSV's on PC
  - FINAL_VIOLENT.CSV
  - FINAL_ZIP.CSV
  - FINAL_STATE_ABBREV.CSV
- Think About What Other City Information Could Potentially Be a Factor in Violent Crimes
- Think About What Other City Information Could Potentially Be Influenced by the Prevalence of Violent Crimes

# Tutorial Introduction

- Step 1: Open Tutorial
- Step 2: Ensure You Have the Following R Packages Installed
  - tidyverse
  - rvest (Requires Internet)
- Step 3: Switch Knitter
- Step 4: Read the Introduction

# Part 1: Connection to Population Change and Density

- Step 1: Select the Link and Observe the Following Table

| Rank | Name | State | 2019 Population | 2016 Population | 2010 Census | Change | 2019 Density |
|---|---|---|---|---|---|---|---|
| 1 | New York | New York | 8,601,186 | 8,537,673 | 8,175,133 | 0.25% | 11,056/km² |
| 2 | Los Angeles | California | 4,057,841 | 3,976,322 | 3,792,621 | 0.67% | 3,343/km² |
| 3 | Chicago | Illinois | 2,679,044 | 2,704,958 | 2,695,598 | -0.32% | 4,550/km² |
| 4 | Houston | Texas | 2,359,480 | 2,303,482 | 2,099,451 | 0.80% | 1,431/km² |
| 5 | Phoenix | Arizona | 1,711,356 | 1,615,017 | 1,445,632 | 1.91% | 1,276/km² |
| 6 | Philadelphia | Pennsylvania | 1,576,596 | 1,567,872 | 1,526,006 | 0.18% | 4,537/km² |

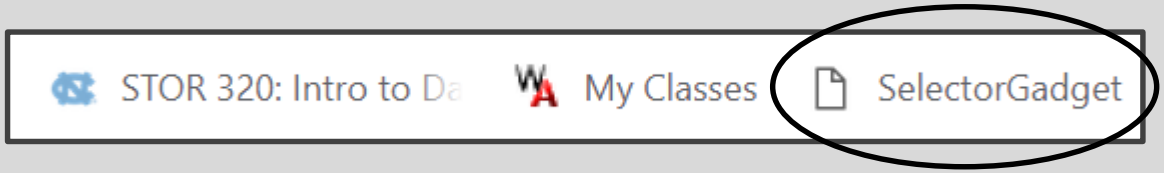
- Step 2: Questions?
  - What is the Connection to Violent Crimes?
  - How is this Useful When Related to Violent Crimes?

# Part 1: Connection to Population Change and Density

- Step 3: Run Chunk 1
  - What is required to convert the Percentage Change to a numeric variable?
  - What is required to convert the 2019 Density to a numeric variable?
- Step 4: Run Chunk 2
  - Notice: /.*
- Step 5: No-Knitter

# Part 2: Inclusion of Expert Opinion

- Step 1: Selector Gadget Website
  - Open Source
  - Chrome Extension Exists
  - Easy: Drag Link to Bookmark Bar as Webpage Explains




- Step 2: Observe the Article on 2018's Safest and Most Dangerous States
  - What info could be of use?
  - Do you agree identification?

# Part 2: Inclusion of Expert Opinion

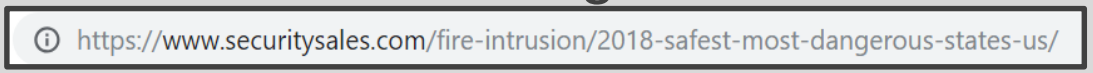
- Step 3: Information of Interest
  - Safe vs Dangerous

| | |
|---|---|
| 1. Vermont | 1. Mississippi |
| 2. Maine | 2. Louisiana |
| 3. Minnesota | 3. Oklahoma |
| 4. Utah | 4. Texas |
| 5. New Hampshire | 5. Florida |
| 6. Connecticut | 6. Arkansas |
| 7. Rhode Island | 7. Alabama |
| 8. Hawaii | 8. Missouri |
| 9. Massachusetts | 9. Alaska |
| 10. Washington | 10. South Carolina |

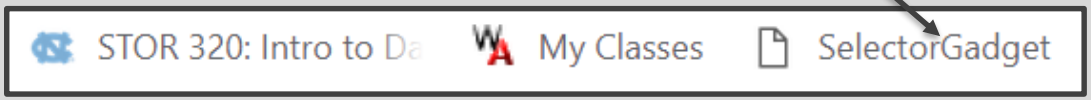
  - Goal: Scrape this Information into Vectors in R to Create a Table

# Part 2: Inclusion of Expert Opinion

- Step 4: Identifying CSS Selector
  - Go to Web Page



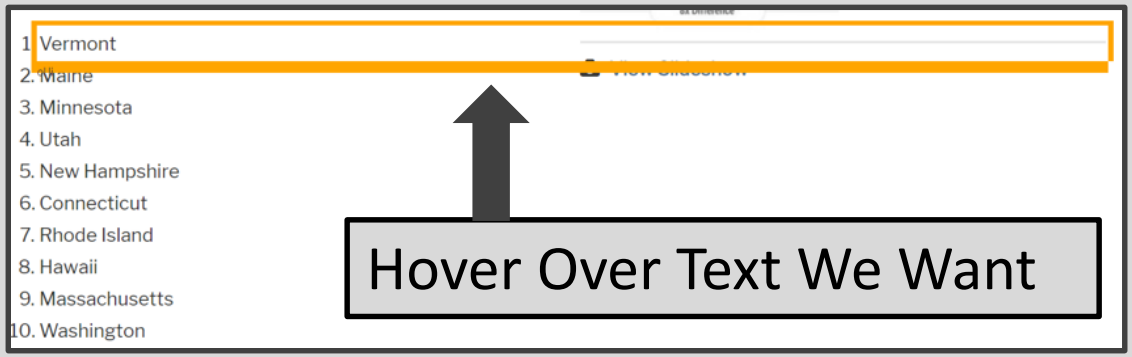

  - Choose SelectorGadget in Bookmark Tab




  - Locate This Box

# Part 2: Inclusion of Expert Opinion

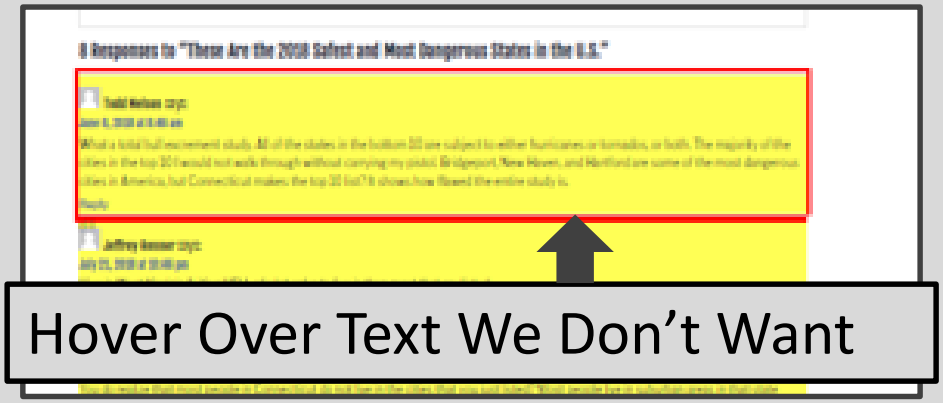
- Step 4: Continued
  - Find Content You Want




- Point and Click to Select Info
- Info We Want is Highlighted
- Info We Don't Want, As Well

# Part 2: Inclusion of Expert Opinion

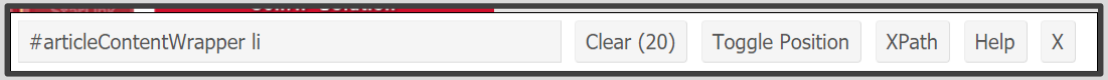
- Step 4: Continued
  - Find Content You Don't Want




  - Point and Click to Deselect
  - Locate This Box

# Part 2: Inclusion of Expert Opinion

- Step 4: Continued
  - Locate This Box




  - Copy CSS Selector "#articleContentWrapper li"
- Step 5: Run Chunk 1

```
SAFE_VS_DANGEROUS = URL.SAFE_VS_DANGEROUS %>%
                    read_html() %>%
                    html_nodes(css="#articleContentWrapper li") %>%
                    html_text()
```

- Step 6: Run Chunk 2
  - What About the Other States?
- Step 7: Walk-off Knit

Closing

# Disperse and Make Reasonable Decisions