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	2020 Population ▼	2010 Census	Change	2020 Density	Latitude/Longitude	Area (km²)
1	New York	New York	8,622,357	8,175,133	0.25%	11,084/km²	40.66/-73.94	778
2	Los Angeles	California	4,085,014	3,792,621	0.67%	3,365/km²	34.02/-118.41	1,214
3	Chicago	Illinois	2,670,406	2,695,598	-0.32%	4,535/km²	41.84/-87.68	589
4	Houston	Texas	2,378,146	2,099,451	0.79%	1,443/km²	29.79/-95.39	1,649
5	Phoenix	Arizona	1,743,469	1,445,632	1.88%	1,300/km²	33.57/-112.09	1,341
6	San Antonio	Texas	1,590,402	1,327,407	1.56%	1,332/km²	29.47/-98.53	1,194
7	Philadelphia	Pennsylvania	1,579,504	1,526,006	0.18%	4,545/km²	40.01/-75.13	348

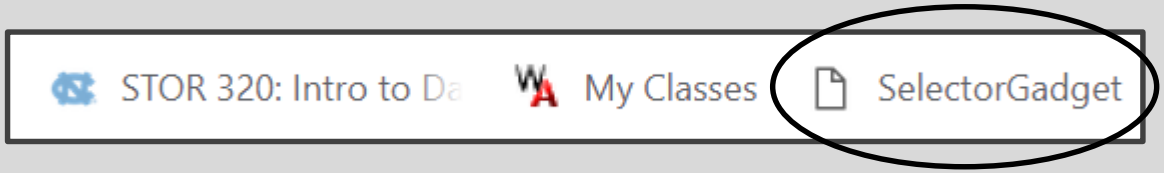
- Step 2: Questions?
  - What is the Connection to Violent Crimes?
  - How is this Useful When Related to Violent Crimes?

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

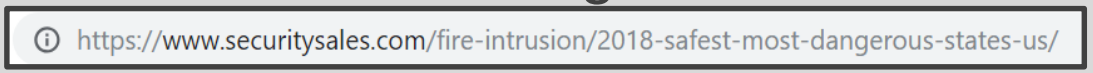
- Step 3: Information of Interest
  - Safe vs Dangerous

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

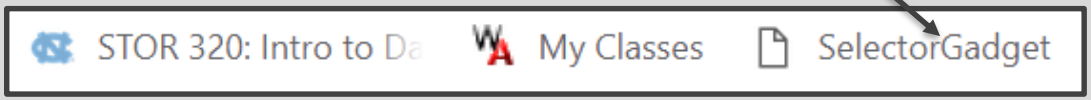
  - Goal: Scrape this Information into Vectors in R to Create a Table

Part 2: Inclusion of Expert Opinion

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



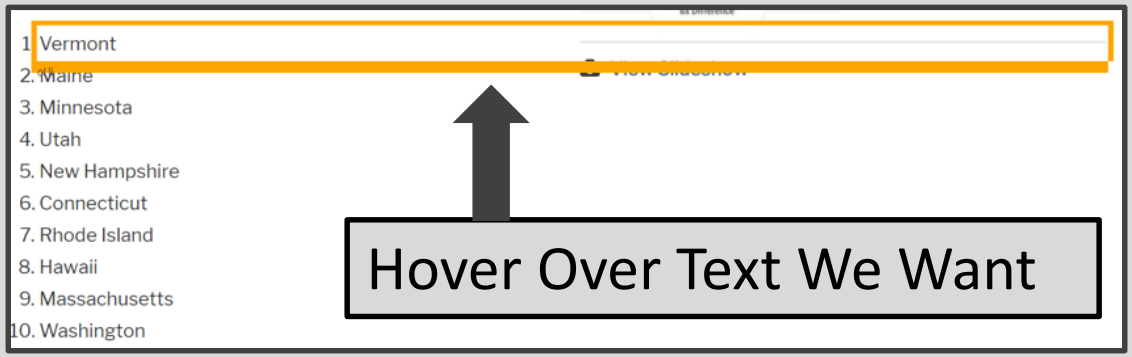
  - Choose SelectorGadget in Bookmark Tab



  - Locate This Box

Part 2: Inclusion of Expert Opinion

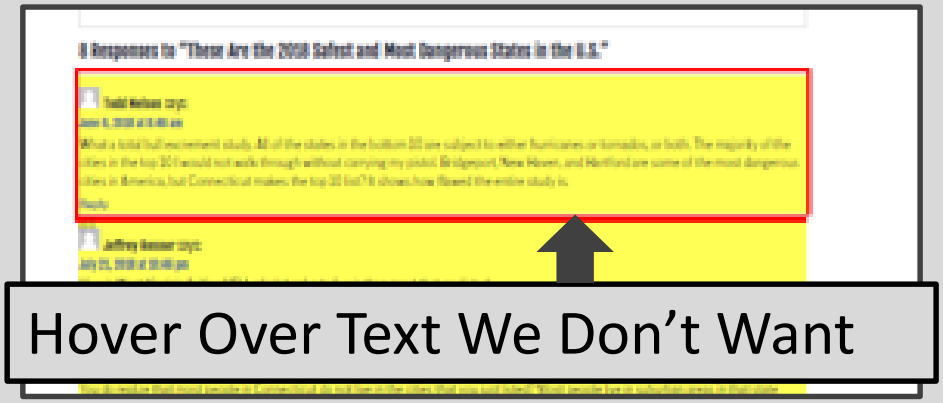
- Step 4: Continued
  - Find Content You Want



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

Part 2: Inclusion of Expert Opinion

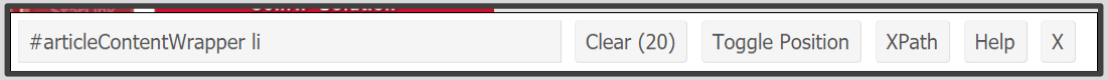
- Step 4: Continued
  - Find Content You Don't Want



  - 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