Next meeting time: Friday, at 9pm. April 16th, 2021

Shiny app resources:

- https://bookdown.org/yihui/rmarkdown/shiny-start.html
- https://vimeo.com/rstudioinc/review/131218530/212d8a5a7a/#t=0m0s
- https://shiny.rstudio.com/gallery/widget-gallery.html
- https://shiny.rstudio.com/reference/shiny/1.6.0/

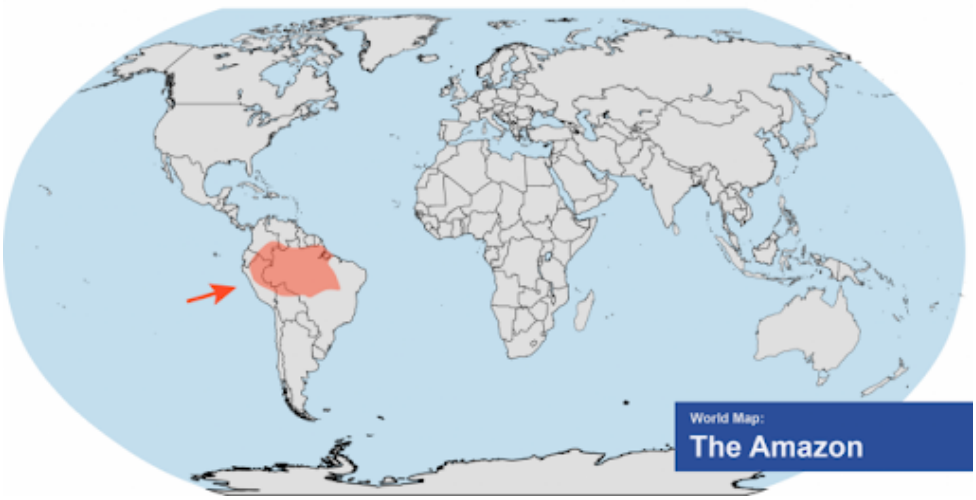
Checklist for Project:

- Part 1: Facts
    - Find *Reliable* sources and quote them
    - Climate change is a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates. These changes have a broad range of observed effects that are synonymous with the term.Changes observed in Earth's climate since the early 20th century are primarily driven by human activities, particularly fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere, raising Earth's average surface temperature. These human-produced temperature increases are commonly referred to as global warming. Natural processes can also contribute to climate change, including internal variability (e.g., cyclical ocean patterns like El Niño, La Niña and the Pacific Decadal Oscillation) and external forcings (e.g., volcanic activity, changes in the Sun's energy output, variations in Earth's orbit)
    - Source: https://climate.nasa.gov/resources/global-warming-vs-climate-change/
    - https://www.ethicalreading.org.uk/how-many-trees-to-offset-a-car-commute/#:~:text=The%20average%20net%20absorption%20per,km%20of%20commuting%20every%20year. → trees absorption
    - 22 (?) trees car CO2 emission absorption and how much does it take for all CO2 emission absorption
    - in one year a mature tree will absorb more than 48 pounds of carbon dioxide from the atmosphere and release oxygen in exchange. Source:

https://www.usda.gov/media/blog/2015/03/17/power-one-tree-very-air-we-breathe

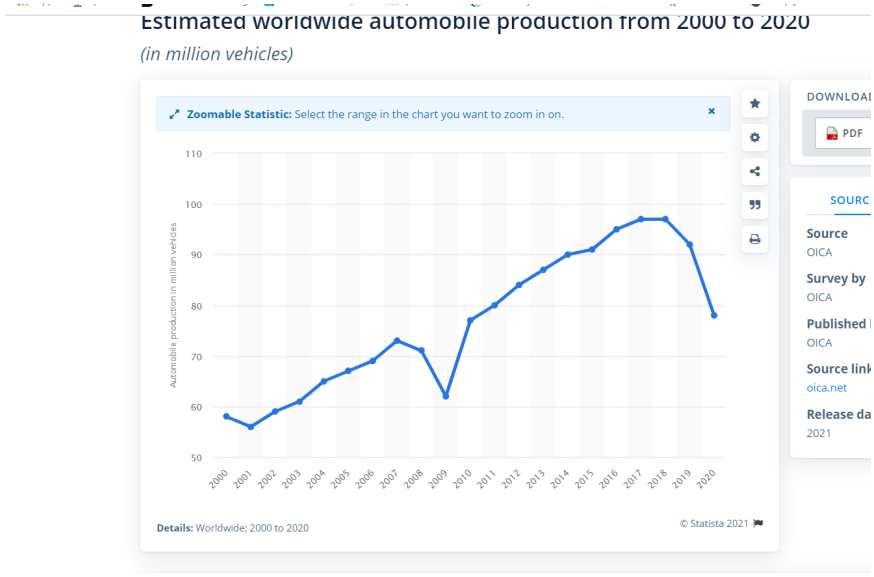
- This means that the average Canadian vehicle, which burns 2 000 L of gasoline every year, releases about 4 600 kg of CO2 into the atmosphere. Source: https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/oee/pdf/transportation/fuel-efficient-technologies/autosmart_factsheet_6_e.pdf
- 4600 / 21.77 = 211trees needed for absorbing one average car's CO2 emissions.
- 5.7 billion ton emissions come from transportation in 2016
- we would need 250 billion trees ?? probably shouldn't show in terms of land? World population is roughly 7.6 billion people. 7.6 billion people cause harm from transportation only that we need to plant over 259 billion trees.
- 390 billion trees in Amazon Source: https://www.eurekalert.org/pub_releases/2013-10/fm-fms101413.php
- we use 64% of the trees in Amazon, the largest forest on Earth, to absorb the CO2 emissions from transportation by car only.

- 


- 

    - Organize the modules
- Part 2: Regression
    - Find Dataset for 1) CO2 emissions by sector 2) Car/ bike? production data
    - https://ourworldindata.org/emissions-by-sector
    - bike production (https://ecf.com/news-and-events/news/how-much-co2-does-cycling-really-save?fbclid=IwAR3nngtUP3qUI-6L12W_dYwbLt5cVfHVKJyhNYPoACQ8h5sFeLeKryQbcfc
    - Car Production by countries:
        - https://www.oica.net/category/production-statistics/2020-statistics/

- Visualization of the world production of automobile
    - https://www-statista-com.myaccess.library.utoronto.ca/statistics/262747/worldwide-automobile-production-since-2000/

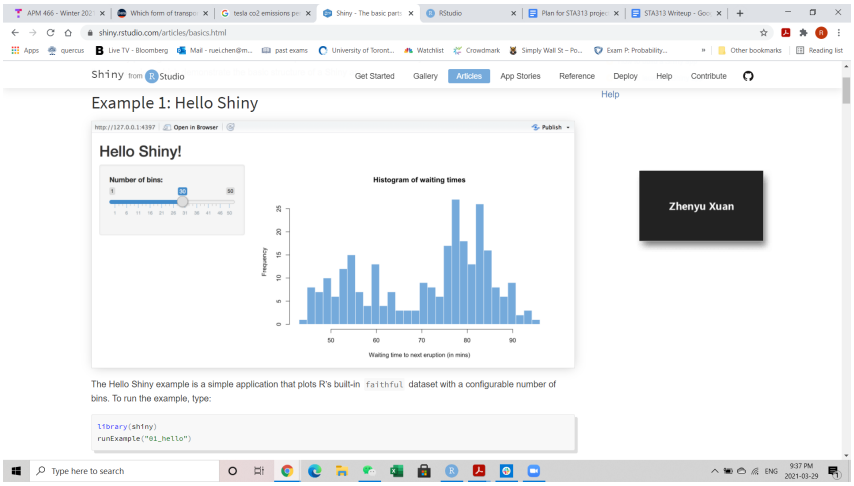


    -
    - ggplots based on mock-up
- Part 3/ 4: User survey
    - ~~**Decide on the user options (based on available data)!**~~
    - Powerpoint/ drawing technology for the factory (smoke clouds)
    - GGplot for figure 3.3 (focus)
- Part 4: How can you help survey
    - ~~**Decide on the user options (based on available data)!**~~
    - Powerpoint to draw the car/ busses
- Part 5: Conclusion
    - Find more facts.
    - Extend part 2 plot.

Part 3 survey:

- Primary vehicles (user picks one):
    - Bike (meat consumption)
    - Others based on this -> https://ourworldindata.org/travel-carbon-footprint
- How far (user input/ slider):

-



Part 4 survey:

- Same vehicle options as part 3.