

# pt2

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## Load necessary libraries

```
library(ggplot2)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##   filter, lag

## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

```
library(tidyr)
```

```
# Load the data (replace with your file path)
```

```
``` r
```

```
data <- read.csv("/Users/xuanmn/Desktop/CSS 451/final project/pt2/API_EN.GHG.ALL.MT.CE.AR5_DS2_en_csv_v2")
```

## Filter for the countries of interest and select the relevant columns

```
print(colnames(data))
```

```
## [1] "Country.Name" "Country.Code" "Indicator.Name" "Indicator.Code"
## [5] "X1960"        "X1961"        "X1962"        "X1963"
## [9] "X1964"        "X1965"        "X1966"        "X1967"
## [13] "X1968"        "X1969"        "X1970"        "X1971"
## [17] "X1972"        "X1973"        "X1974"        "X1975"
## [21] "X1976"        "X1977"        "X1978"        "X1979"
## [25] "X1980"        "X1981"        "X1982"        "X1983"
## [29] "X1984"        "X1985"        "X1986"        "X1987"
## [33] "X1988"        "X1989"        "X1990"        "X1991"
## [37] "X1992"        "X1993"        "X1994"        "X1995"
## [41] "X1996"        "X1997"        "X1998"        "X1999"
## [45] "X2000"        "X2001"        "X2002"        "X2003"
## [49] "X2004"        "X2005"        "X2006"        "X2007"
## [53] "X2008"        "X2009"        "X2010"        "X2011"
## [57] "X2012"        "X2013"        "X2014"        "X2015"
## [61] "X2016"        "X2017"        "X2018"        "X2019"
```

```
## [65] "X2020"          "X2021"          "X2022"          "X2023"
## [69] "X"

years <- paste0("X", 2015:2022)
countries_of_interest <- c("United States", "China", "Russian Federation", "Brazil", "United Kingdom")
```

## Filter and select columns

```
selected_data <- data %>%
  filter(Country.Name %in% countries_of_interest) %>%
  select(Country.Name, all_of(years))
colnames(selected_data) <- gsub("^X", "", colnames(selected_data))
```

## Plotted data

```
selected_data_long <- selected_data %>%
  pivot_longer(cols = -Country.Name, names_to = "Year", values_to = "Emissions") %>%
  mutate(Year = as.integer(Year)) # Convert Year to integer for proper plotting

ggplot(selected_data_long, aes(x = Year, y = Emissions, color = Country.Name)) +
  geom_line(size = 1) +
  geom_point() +
  labs(title = "Greenhouse Gas Emissions (2015-2022)",
       x = "Year",
       y = "Emissions (Million metric tons of CO2 equivalent)",
       color = "Country") +
  theme_minimal()
```

```
## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use `linewidth` instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.
```

