pt2

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Load necessary libraries

```r
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
```

```r
library(tidyr)
```

```r
# 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

```r
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.
```

Greenhouse Gas Emissions (2015–2022)