Homework 5 Answers

Xuan Beatty

2025-12-01

Libraries needed

```
library(dplyr)
library(tidyr)
library(broom)
library(purrr)
library(ggplot2)
library(stringr)
library(lubridate)
```

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
setwd("~/ERHS 535/Homework5_XB/data")

homicides <- read.csv("homicide-data.csv")

# Creating a new column combining city and state
homicides <- homicides %>%
  mutate(city_name = paste(city, state, sep = ", "))

homicides <- homicides %>%
  mutate(reported_date = ymd(reported_date))
```

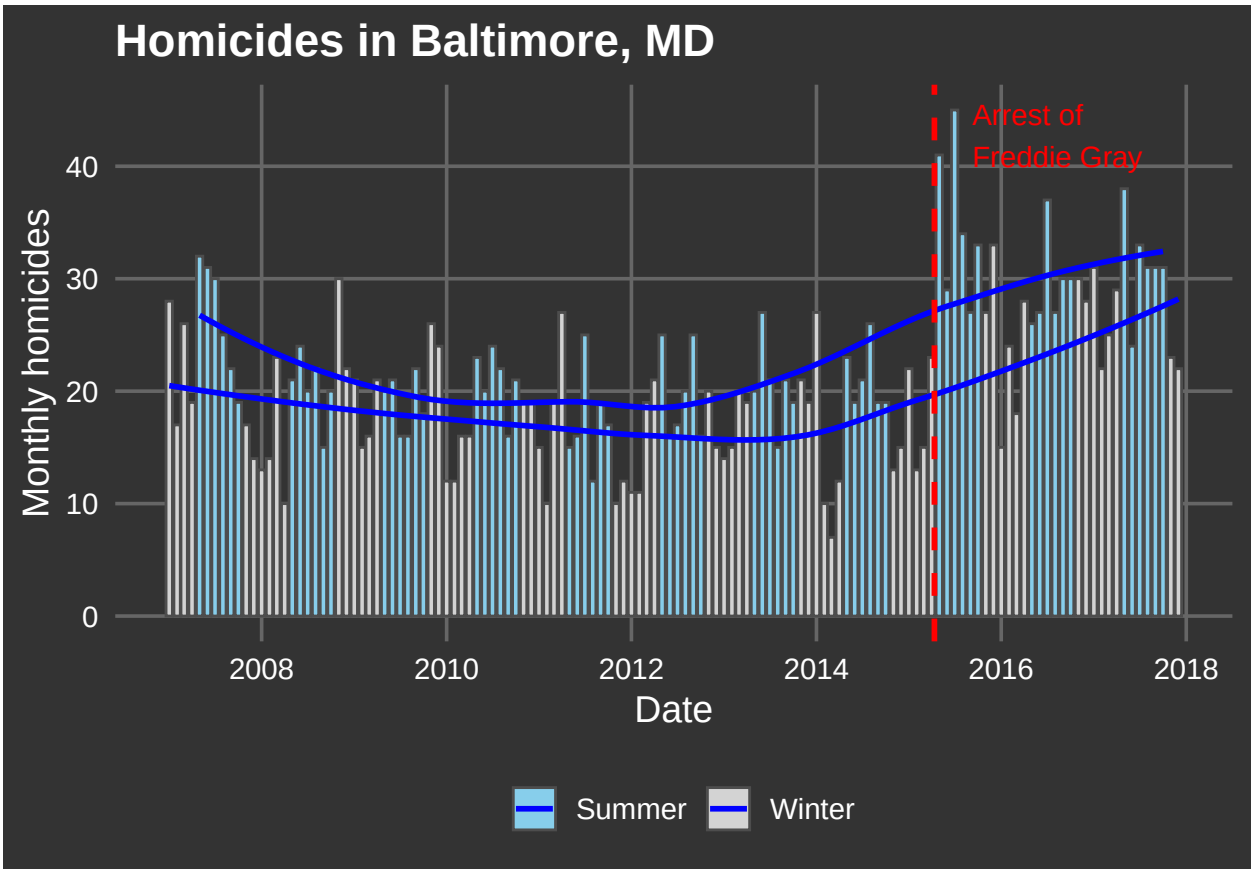
Including Plots

You can also embed plots, for example:

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

```
ggplot(baltimore_monthly, aes(x = month, y = homicides, fill = season)) +
  geom_col(color = "gray30") +
  scale_fill_manual(values = c("Summer" = "skyblue", "Winter" = "lightgray")) +

  geom_smooth(se = FALSE, color = "blue", size = 1) +

  geom_vline(
    xintercept = freddie_date,
```

```
  color = "red", linetype = "dashed", size = 1
) +

annotate("text",
         x = freddie_date + 150,
         y = max(baltimore_monthly$homicides) * 0.95,
         label = "Arrest of\nFreddie Gray",
         color = "red", hjust = 0) +

labs(
  title = "Homicides in Baltimore, MD",
  x = "Date",
  y = "Monthly homicides",
  fill = ""
) +

theme_minimal(base_size = 14) +
theme(
  panel.background = element_rect(fill = "gray20", color = NA),
  plot.background = element_rect(fill = "gray20", color = NA),
  panel.grid.major = element_line(color = "gray40"),
  panel.grid.minor = element_blank(),
  axis.text = element_text(color = "white"),
  axis.title = element_text(color = "white"),
  plot.title = element_text(color = "white", face = "bold"),
  legend.position = "bottom",
  legend.text = element_text(color = "white")
)
```




```
homicides <- homicides %>%
  mutate(
    reported_date = ymd(reported_date),
    city_name = paste(city, state, sep = ", ")
  )

baltimore_monthly <- homicides %>%
  filter(city_name == "Baltimore, MD") %>%
  mutate(month = floor_date(reported_date, "month")) %>%
  count(month, name = "homicides") %>%
  mutate(season = ifelse(month(month) %in% c(11,12,1,2,3,4),
                         "Winter", "Summer"))

freddie_date <- as.Date("2015-04-12")
```