Homework 5

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# packages needed
library("readr")
library("dplyr")
library("lubridate")
library("ggplot2")
library("scales")
library("ggthemes")
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# reading in homicides data
homicides <- read_csv("data/homicide-data.csv")

# creating city_state and date variables
baltimore_homicides <- homicides %>%
  mutate(city_state = paste(city, state, sep = ", ")) %>%
  filter(city_state == "Baltimore, MD") %>%
  mutate(reported_date = ymd(reported_date),
         reported_month = month(reported_date),
         reported_year = year(reported_date),
         reported_month_year = (paste(reported_month, reported_year, sep = "-")),
         month_year = my(reported_month_year))
```

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# grouping by month_year to count monthly_homicides
# creating season variable
baltimore_monthly <- baltimore_homicides %>%
  group_by(month_year) %>%
  summarize(monthly_homicides = n()) %>%
  ungroup() %>%
  mutate(reported_month = month(month_year),
         season = case_when(reported_month %in%
                              c(1:4, 11:12) ~ "Winter",
                            reported_month %in%
                              c(5:10) ~ "Summer"))

# creating dataframe of Freddie Gray's arrest
freddie_gray <- baltimore_monthly %>%
  filter(month_year == "2015-04-01")

# creating a histogram of monthly homicides
plot <- baltimore_monthly %>%
  arrange(month_year) %>%
  ggplot() +
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  geom_col(aes(x = month_year, y = monthly_homicides, fill = season)) +
  geom_vline(xintercept = freddie_gray$month_year,
             color = "red", size = 1, linetype = 2) +
  geom_smooth(span = 0.15, se = FALSE, aes(x = month_year, y = monthly_homicides)) +
  geom_text(aes(x = freddie_gray$month_year,
                y = 40),
            label = "Arrest of \nFreddie Gray",
            color = "white", hjust = 1) +
  theme_dark() +
  scale_fill_manual(values = c("lightgray", "lightblue")) +
  ggtitle("Homicides in Baltimore, MD") +
  labs(x = "Date", y = "Monthly homicides") +
  theme(legend.position = "bottom") +
  theme(legend.title = element_blank())


plot
```