

# Homework 5

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## Setup Option 2

```
library(tidyverse)

## -- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
## v dplyr     1.1.4      v readr     2.1.5
## vforcats   1.0.0      v stringr   1.5.2
## v ggplot2   4.0.0      v tibble    3.3.0
## v lubridate 1.9.4      v tidyverse 1.3.1
## v purrr    1.2.0

## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()   masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors

homicides <- read.csv("homicide-data.csv") %>%
  mutate(city_name = paste(city, state, sep = ", "))
```

## Cleaning Option 2

```
baltimore <- homicides %>%
  filter(city_name == "Baltimore, MD") %>%
  mutate(
    date = ymd(reported_date),
    year = year(date),
    month = month(date))

baltimore_monthly <- baltimore %>%
  group_by(year, month) %>%
  summarise(
    n_homicides = n(),
    .groups = "drop") %>%
  mutate(
    month_date = ymd(paste(year, month, "01", sep = "-")),
    season = ifelse(month %in% c(11, 12, 1, 2, 3, 4),
                  "Winter", "Summer"))
```

## Freddie Arrested Option 2

```
freddie_arrest <- ymd("2015-04-12")  
freddie_ref_line <- max(baltimore_monthly$n_homicides)
```

## Plot Option 2

```
ggplot(baltimore_monthly,  
       aes(x = month_date,  
            y = n_homicides)) +  
  geom_bar(  
    aes(fill = season),  
    stat = "identity") +  
  geom_smooth(  
    aes(group = 1),  
    se = FALSE,  
    color = "blue",  
    size = 1) +  
  geom_vline(  
    xintercept = freddie_arrest,  
    linetype = "dashed",  
    color = "red3",  
    size = 1) +  
  annotate(  
    "text",  
    x = freddie_arrest,  
    y = freddie_ref_line,  
    label = "Arrest of\nFreddie Gray",  
    color = "white",  
    hjust = 1.2,  
    vjust = 1) +  
  scale_fill_manual(  
    values = c("Winter" = "lightblue2",  
              "Summer" = "lightgray"),  
    name = "") +  
  labs(  
    title = "Homicides in Baltimore, MD",  
    x = "Date",  
    y = "Monthly homicides") +  
  theme_dark() +  
  theme(  
    legend.position = "bottom",  
    legend.box = "horizontal")
```

```
## 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.
```

```
## `geom_smooth()` using method = 'loess' and formula = 'y ~ x'
```

