HW5

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library(tidyverse)

## ── Attaching packages ─────────────────────────────────────── tidyverse 1.3.1 ──

## ✓ ggplot2 3.3.5 ✓ purrr 0.3.4  
## ✓ tibble 3.1.4 ✓ dplyr 1.0.7  
## ✓ tidyr 1.1.3 ✓ stringr 1.4.0  
## ✓ readr 2.0.1 ✓ forcats 0.5.1

## ── Conflicts ────────────────────────────────────────── tidyverse\_conflicts() ──  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

library(tidyr)  
library(dplyr)  
library(broom)  
library(purrr)  
library(ggplot2)  
library(forcats)  
library(ggthemes)  
library(lubridate)

##   
## Attaching package: 'lubridate'

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

library(plotly)

##   
## Attaching package: 'plotly'

## The following object is masked from 'package:ggplot2':  
##   
## last\_plot

## The following object is masked from 'package:stats':  
##   
## filter

## The following object is masked from 'package:graphics':  
##   
## layout

# Load the data

homicides <- read.csv("data/homicide-data.csv")  
  
homicides <- homicides %>%  
 unite("city\_name", city:state, sep = ", ")

# Just show baltimore

baltimore <- homicides %>%   
 filter(city\_name == "Baltimore, MD")  
  
  
baltimore %>%  
 filter(grepl("GREY", victim\_last))

## uid reported\_date victim\_last victim\_first victim\_race victim\_age  
## 1 Bal-003523 20150430 GREY FREDDIE CARLOS Black 25  
## victim\_sex city\_name lat lon disposition  
## 1 Male Baltimore, MD 39.30797 -76.6449 Closed by arrest

# Group by month and year

#  
baltimore\_mutate\_date <- baltimore %>%  
 mutate(reported\_date = ymd(reported\_date)) %>%  
 mutate(year = year(reported\_date)) %>%  
 mutate(month = month(reported\_date)) %>%  
 mutate(day = day(reported\_date)) %>%  
 group\_by(year, month) %>%  
 count()   
  
baltimore\_mutate\_date <- baltimore\_mutate\_date %>%  
 mutate(date = paste(year, month,"15", sep = "-")) %>%  
 mutate(date = ymd(date))  
  
  
baltimore\_mutate\_date

## # A tibble: 132 × 4  
## # Groups: year, month [132]  
## year month n date   
## <dbl> <dbl> <int> <date>   
## 1 2007 1 28 2007-01-15  
## 2 2007 2 17 2007-02-15  
## 3 2007 3 26 2007-03-15  
## 4 2007 4 19 2007-04-15  
## 5 2007 5 32 2007-05-15  
## 6 2007 6 31 2007-06-15  
## 7 2007 7 30 2007-07-15  
## 8 2007 8 25 2007-08-15  
## 9 2007 9 22 2007-09-15  
## 10 2007 10 19 2007-10-15  
## # … with 122 more rows

# separate by cold or warm years

baltimore\_summary <- baltimore\_mutate\_date %>%  
 mutate(winter = month %in% c(11, 12, 1:4)) %>%  
 mutate(summer = month %in% c(5:10))

# plotting

baltimore\_summary\_graph <- baltimore\_summary %>%  
 ggplot(aes(x = date, y = n)) +   
 geom\_col(aes(fill = winter)) +  
 geom\_vline(xintercept = ymd("2015-04-15"), color ="red", linetype = 2, size = 1.5) +  
 annotate("text", x = ymd("2014-10-15"), y = 42, label = "Arrest of", color = "white") +  
 annotate("text", x = ymd("2014-08-15"), y = 35, label = "Freddie Gray", color = "white") +  
 geom\_smooth(span = 0.1, color = "blue", se = FALSE, size = 1) +  
 theme\_dark() +  
 ggtitle("Homicides in Baltimore, MD") +  
 labs(y = "Monthly homicides", x = "Date") +  
 theme(legend.position = "bottom") +  
 scale\_fill\_manual(values = c("light gray", "light blue"), name = " ", labels = c("Summer", "Winter"))  
  
baltimore\_summary\_graph

## `geom\_smooth()` using method = 'loess' and formula 'y ~ x'

