Homwork 5

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Pick one city in the data. Create a map showing the locations of the homicides in that city, using the sf framework discussed in class. Use tigris to download boundaries for some sub-city geography (e.g., tracts, block groups, county subdivisions) to show as a layer underneath the points showing homicides. Use different facets for solved versus unsolved homicides and different colors to show the three race groups with the highest number of homicides for that city (you may find the fct\_lump function from forcats useful for this).

knitr::opts\_chunk$set(echo = TRUE, warning = FALSE, error = FALSE)

Load in libraries

library(tidyverse)  
library(tigris)  
library(sf)  
library(forcats)

Load in data

homocides <- read.csv("data/homicide-data.csv")  
head(homocides)

## uid reported\_date victim\_last victim\_first victim\_race victim\_age  
## 1 Alb-000001 20100504 GARCIA JUAN Hispanic 78  
## 2 Alb-000002 20100216 MONTOYA CAMERON Hispanic 17  
## 3 Alb-000003 20100601 SATTERFIELD VIVIANA White 15  
## 4 Alb-000004 20100101 MENDIOLA CARLOS Hispanic 32  
## 5 Alb-000005 20100102 MULA VIVIAN White 72  
## 6 Alb-000006 20100126 BOOK GERALDINE White 91  
## victim\_sex city state lat lon disposition  
## 1 Male Albuquerque NM 35.09579 -106.5386 Closed without arrest  
## 2 Male Albuquerque NM 35.05681 -106.7153 Closed by arrest  
## 3 Female Albuquerque NM 35.08609 -106.6956 Closed without arrest  
## 4 Male Albuquerque NM 35.07849 -106.5561 Closed by arrest  
## 5 Female Albuquerque NM 35.13036 -106.5810 Closed without arrest  
## 6 Female Albuquerque NM 35.15111 -106.5378 Open/No arrest

Get san diego homocides

sd <- homocides %>%  
 filter(city == "San Diego") %>%  
 filter(!is.na(lat)) %>%  
 mutate(case\_status = case\_when(  
 disposition %in% c("Open/No arrest","Closed without arrest") ~"Unsolved",  
 disposition == "Closed by arrest" ~ "Solved")) %>%  
 mutate(lump\_race = fct\_lump\_n(victim\_race, 3))  
  
head(sd)

## uid reported\_date victim\_last victim\_first victim\_race victim\_age  
## 1 SD-000001 20070107 RAMOS DAVID Hispanic 22  
## 2 SD-000002 20070114 VALDEZ RUDY Hispanic 25  
## 3 SD-000003 20070126 HARPER GREGORY WALTER Black 25  
## 4 SD-000004 20070217 HERNANDEZ FRANCISCO ARIEL Hispanic 25  
## 5 SD-000005 20070217 RAMIREZ MERCEDES Hispanic 75  
## 6 SD-000006 20070226 HAWES ALLEN B White 57  
## victim\_sex city state lat lon disposition case\_status  
## 1 Male San Diego CA 32.55026 -117.0460 Open/No arrest Unsolved  
## 2 Male San Diego CA 32.74412 -117.1156 Open/No arrest Unsolved  
## 3 Male San Diego CA 32.70643 -117.0332 Closed by arrest Solved  
## 4 Male San Diego CA 32.55837 -117.0472 Open/No arrest Unsolved  
## 5 Female San Diego CA 32.75247 -117.1106 Closed by arrest Solved  
## 6 Male San Diego CA 32.59200 -117.0841 Closed by arrest Solved  
## lump\_race  
## 1 Hispanic  
## 2 Hispanic  
## 3 Black  
## 4 Hispanic  
## 5 Hispanic  
## 6 White

Get san diego subdivisions.

sd\_mapping <- county\_subdivisions(state = "CA", county= "San Diego", cb = TRUE)

## Retrieving data for the year 2020

slice(sd\_mapping, 1:3)

## Simple feature collection with 3 features and 14 fields  
## Geometry type: MULTIPOLYGON  
## Dimension: XY  
## Bounding box: xmin: -116.967 ymin: 32.55779 xmax: -116.0809 ymax: 33.42889  
## Geodetic CRS: NAD83  
## STATEFP COUNTYFP COUSUBFP COUSUBNS AFFGEOID GEOID  
## 1 06 073 90258 01935013 0600000US0607390258 0607390258  
## 2 06 073 91440 01935149 0600000US0607391440 0607391440  
## 3 06 073 91510 01935156 0600000US0607391510 0607391510  
## NAME NAMELSAD STUSPS NAMELSADCO STATE\_NAME  
## 1 Borrego Springs Borrego Springs CCD CA San Diego County California  
## 2 Jamul Jamul CCD CA San Diego County California  
## 3 Laguna-Pine Valley Laguna-Pine Valley CCD CA San Diego County California  
## LSAD ALAND AWATER geometry  
## 1 22 2759172323 47260 MULTIPOLYGON (((-116.6181 3...  
## 2 22 534862779 4816820 MULTIPOLYGON (((-116.967 32...  
## 3 22 602622351 8212807 MULTIPOLYGON (((-116.7902 3...

Convert lat long for plotting.

sd <- st\_as\_sf(sd, coords = c("lon", "lat")) %>%   
 st\_set\_crs(4269)

Plot San Diego

ggplot() +   
 geom\_sf(data = sd\_mapping, color = "light grey") +  
 geom\_sf(data = sd, aes(color = lump\_race), alpha = 0.5) +  
 facet\_wrap(~ case\_status, ncol = 2) +  
 theme\_dark() +  
 theme(legend.position="bottom")

