

# Homework #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).

```
homicides <- read_csv(paste0("https://raw.githubusercontent.com/washingtonpost/",
                             "data-homicides/refs/heads/master/homicide-data.csv"))

## Rows: 52179 Columns: 12
## -- Column specification -----
## Delimiter: ","
## chr (9): uid, victim_last, victim_first, victim_race, victim_age, victim_sex...
## dbl (3): reported_date, lat, lon
##
## i Use 'spec()' to retrieve the full column specification for this data.
## i Specify the column types or set 'show_col_types = FALSE' to quiet this message.

# correct a mistake in the dataset
homicides = homicides %>%
  mutate(state = case_when(
    (city == "Tulsa" & state == "AL") ~ "OK",
    TRUE ~ state
  )) %>%
  mutate(city_name = paste0(city, ", ", state))

head(homicides)
```

```
## # A tibble: 6 x 13
##   uid   reported_date victim_last victim_first victim_race victim_age victim_sex
##   <chr>         <dbl> <chr>      <chr>      <chr>      <chr>      <chr>
## 1 Alb~      20100504 GARCIA     JUAN        Hispanic    78        Male
## 2 Alb~      20100216 MONTOYA    CAMERON     Hispanic    17        Male
## 3 Alb~      20100601 SATTERFIELD VIVIANA     White       15        Female
## 4 Alb~      20100101 MENDIOLA   CARLOS      Hispanic    32        Male
## 5 Alb~      20100102 MULA      VIVIAN      White       72        Female
## 6 Alb~      20100126 BOOK      GERALDINE   White       91        Female
## # i 6 more variables: city <chr>, state <chr>, lat <dbl>, lon <dbl>,
## #   disposition <chr>, city_name <chr>
```

```

options(tigris_use_cache = TRUE)
options(tigris_class = "sf")
#co_counties <- counties(state = "CO", cb = TRUE, class = "sf")
denver_tracts <- tracts(state = "CO", county = "Denver", year = 2024)
# denver_block_groups <- block_groups(state = "CO", county = "Denver", year = 2024)
# denver_subdivisions <- county_subdivisions(state = "CO", county = "Denver", year = 2024)

# ggplot() +
#   geom_sf(data = denver_tracts) +
#   ggtitle("Denver, CO")

```

```

denver_homicides <- homicides %>%
  filter(city == "Denver") %>%
  mutate(solved = case_when(
    (disposition == "Closed by arrest") ~ "solved",
    (disposition == "Closed without arrest" |
     disposition == "Open/No arrest") ~ "unsolved"
  ))

```

```

denver_homicides <- denver_homicides %>%
  mutate(
    victim_race_grouped = fct_lump_n(victim_race, n = 3) # Keep the top 3 races
  )

```

```

denver_homicides_sf <- st_as_sf(denver_homicides, coords = c("lon", "lat")) %>%
  st_set_crs(4326)

```

```

ggplot() +
  geom_sf(data = denver_tracts) +
  geom_sf(data = denver_homicides_sf, aes(color = victim_race_grouped)) +
  ggtitle("Denver Homicide Cases")+
  facet_wrap(~solved, nrow = 2)+
  labs(color = "Victim race")+
  theme_light()

```

## Denver Homicide Cases

