HW2

Load Librarys

```
# Library Required packages
library(sf) # For reading spatial data
library(stars) # For reading raster data
library(tmap) # For mapping
library(tidyverse) # Probably will need it
library(here) # Just always just in case
```

Read in data

```
mapping_inequality_raw <- st_read('data/mapping-inequality/mapping-inequality-los-angeles.js

ejscreen_raw <- st_read(here("data","ejscreen","EJSCREEN_2023_BG_StatePct_with_AS_CNMI_GU_VI
  st_transform(ejscreen_raw, crs = (st_crs(mapping_inequality_raw))) # Change CRS to match

gbif <- st_read('data/gbif-birds-LA')
```

Check if CRS match

```
st_crs(mapping_inequality_raw) == st_crs(gbif)  # See if CRS match
```

```
[1] TRUE
```

```r
st_crs(gbif) == st_crs(ejscreen_raw)
```

```
[1] TRUE
```

Part 1: Legacy of redlining in current environmental (injustice)

Data Exploration

```r
head(mapping_inequality_raw) # Show first 10 rows
```

```
Simple feature collection with 6 features and 14 fields
Geometry type: MULTIPOLYGON
Dimension:     XY
Bounding box:  xmin: -118.4681 ymin: 34.10505 xmax: -118.074 ymax: 34.18894
Geodetic CRS:  WGS 84
  area_id city_id grade    fill label name category_id sheets         area
1    7761      16     A #76a865    A1                1      1 3.359915e-04
2    7775      16     A #76a865   A10                1      1 1.814147e-04
3    7808      16     A #76a865   A11                1      1 5.978184e-05
4    8025      16     A #76a865   A12                1      1 2.587288e-04
5    7608      16     A #76a865   A13                1      1 1.326238e-04
6    7797      16     A #76a865   A14                1      1 2.629402e-04
                                                                                 bounc
1                   [ [ 34.136969999999998, -118.46807 ], [ 34.153350000000003, -118.42031 ]
2                                [ [ 34.1691, -118.11198 ], [ 34.188940000000002, -118.0979 ]
3                   [ [ 34.155970000000003, -118.11301 ], [ 34.163069999999998, -118.09853 ]
4 [ [ 34.122999999999998, -118.18331000000001 ], [ 34.159080000000003, -118.15949999999999 ]
5          [ [ 34.127760000000002, -118.18619 ], [ 34.146239999999999, -118.16952000000001 ]
6 [ [ 34.105049999999999, -118.12802000000001 ], [ 34.130420000000001, -118.07402999999999 ]
  residential commercial industrial     label_coords
1        TRUE      FALSE      FALSE 34.147, -118.452
2        TRUE      FALSE      FALSE 34.177, -118.104
3        TRUE      FALSE      FALSE 34.159, -118.102
4        TRUE      FALSE      FALSE 34.148, -118.171
5        TRUE      FALSE      FALSE 34.133, -118.175
6        TRUE      FALSE      FALSE 34.119, -118.105
                        geometry
1 MULTIPOLYGON (((-118.4574 3...
2 MULTIPOLYGON (((-118.1115 3...
```

```
3 MULTIPOLYGON (((-118.113 34...
4 MULTIPOLYGON (((-118.1712 3...
5 MULTIPOLYGON (((-118.1746 3...
6 MULTIPOLYGON (((-118.1218 3...
```

```
dim(mapping_inequality_raw) # Check size of dataframe
```

```
[1] 417  15
```

```
colnames(mapping_inequality_raw) # See column names
```

```
 [1] "area_id"      "city_id"      "grade"        "fill"         "label"
 [6] "name"         "category_id"  "sheets"       "area"         "bounds"
[11] "residential"  "commercial"   "industrial"   "label_coords" "geometry"
```

1. Neighborhoods by HOLC Grade

```
tm_shape(mapping_inequality_raw) + # Map data
  tm_graticules() + # With gridlines
  tm_polygons(fill = 'grade', # Color by grade
              fill.legend = tm_legend(title = "HOLC Grade")) + # Legend tile
  tm_title(text = "Neighborhoods by HOLC Grade") # Title
```

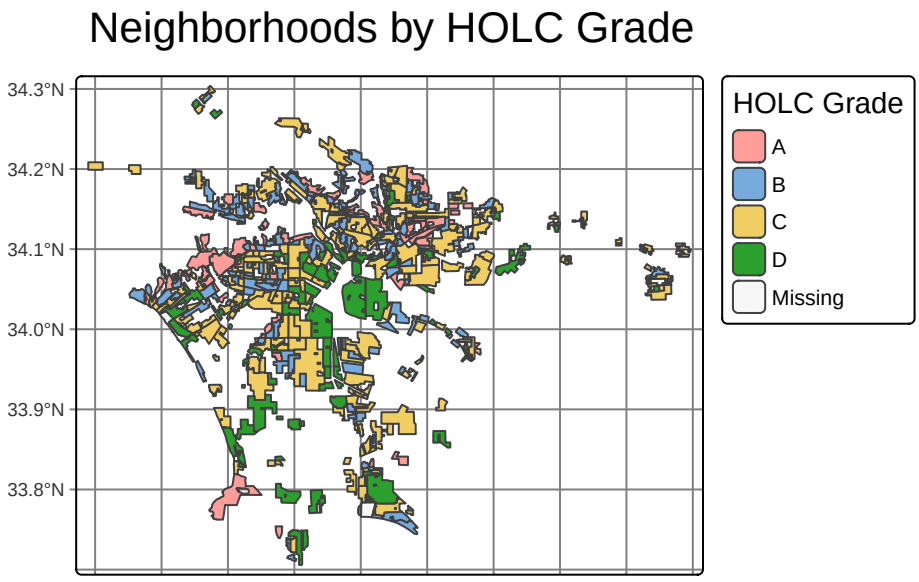

Table Summary

```
#ej_holc <- st_join(mapping_inequality_raw, ejscreen_raw)
```