CDS101 Final Project

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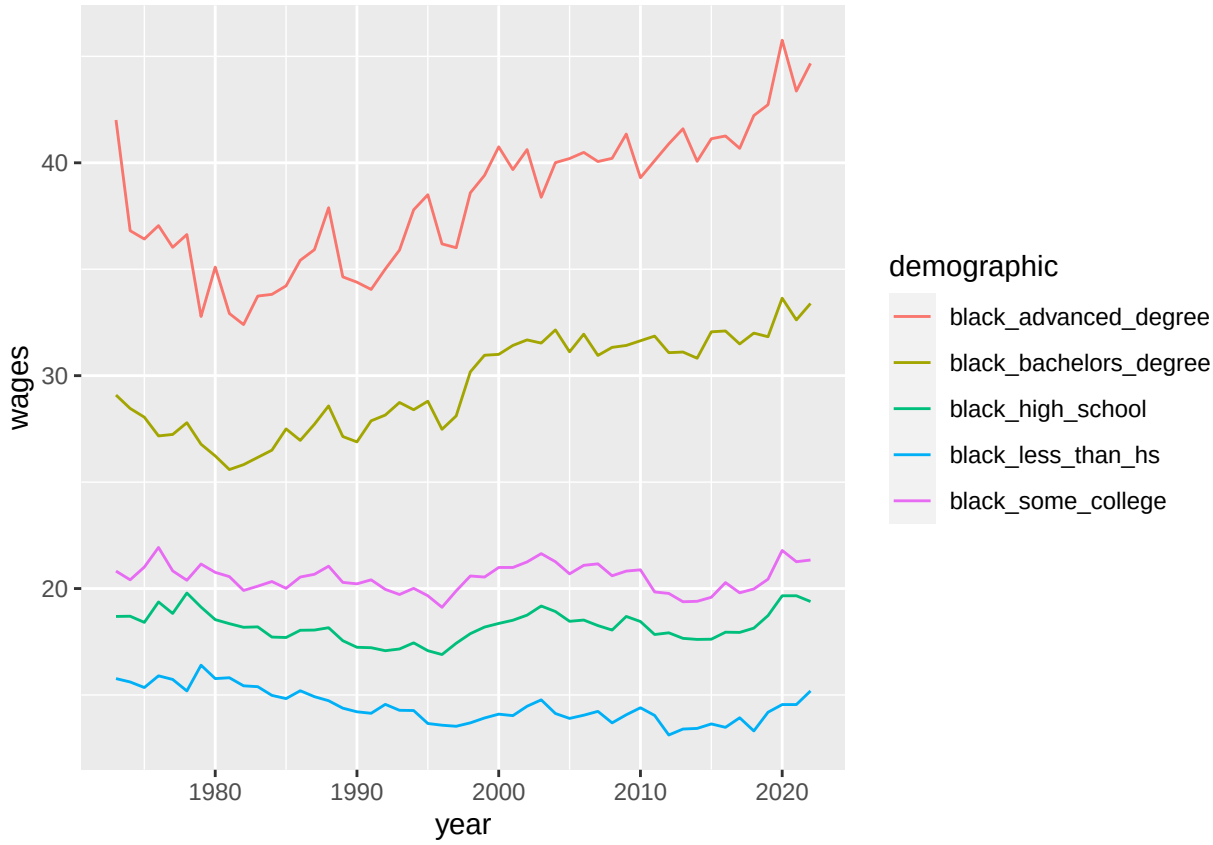
Summary Table

```
wages_tidy %>%
  group_by(demographic) %>%
  summarize(
    mean = mean(wages, na.rm=TRUE),
    median = median(wages, na.rm=TRUE),
    min = min(wages, na.rm=TRUE),
    max = max(wages, na.rm=TRUE),
    sd = sd(wages, na.rm=TRUE),
    iqr = IQR(wages, na.rm=TRUE)
  )
```

```
## # A tibble: 60 x 7
##    demographic                mean median   min   max    sd   iqr
##    <chr>                     <dbl>  <dbl> <dbl> <dbl> <dbl> <dbl>
##  1 advanced_degree            43.9   44.1  35.3  53.7 5.31  8.80
##  2 bachelors_degree           34.8   34.2  30.0  41.6 3.31  5.25
##  3 black_advanced_degree      38.3   38.5  32.4  45.8 3.27  4.76
##  4 black_bachelors_degree     29.6   29.6  25.6  33.6 2.27  3.96
##  5 black_high_school          18.2   18.2  16.9  19.8 0.712 0.985
##  6 black_less_than_hs         14.5   14.3  13.1  16.4 0.803 1.21
##  7 black_men_advanced_degree  41.2   40.7  34.3  52.9 4.53  6.38
##  8 black_men_bachelors_degree 31.7   31.9  27.9  37.6 2.43  3.91
##  9 black_men_high_school      20.0   20.0  18.1  22.8 1.11  1.53
## 10 black_men_less_than_hs     16.0   15.5  14.1  18.6 1.29  1.97
## # i 50 more rows
```

```
wages_tidy %>%
 filter(grepl("black", demographic)) %>%
 filter(!grepl("men", demographic)) %>%
 ggplot() +
 geom_line(
   mapping = aes(
     x = year,
     y = wages,
     color = demographic
   )
 )
```




```
wages_ethnicity <- wages_tidy %>%
 filter(grepl(c("black|hispanic|white"), demographic)) %>%
 separate(demographic, into = c("ethnicity", "demographic"),
          sep = "_", extra = "merge") %>%
 arrange(ethnicity, demographic, year)

wages_ethnicity_inverse <- wages_tidy %>%
 filter(!grepl(c("black|hispanic|white"), demographic)) %>%
 mutate(ethnicity = NA) %>%
 relocate(ethnicity, .after = year)
wages_ethnicity_combined <- wages_ethnicity %>%
 bind_rows(wages_ethnicity_inverse) %>%
 arrange(ethnicity, demographic, year)
```

```
wages_gender <- wages_ethnicity_combined %>%
 filter(grepl(c("men|women"), demographic)) %>%
 separate(demographic, into = c("gender", "demographic"),
          sep = "_", extra = "merge") %>%
 arrange(ethnicity, gender, demographic, year)
wages_gender_inverse <- wages_ethnicity_combined %>%
 filter(!grepl(c("men|women"), demographic)) %>%
 mutate(gender = NA) %>%
 relocate(gender, .after = ethnicity)
wages_gender_combined <- wages_gender %>%
 bind_rows(wages_gender_inverse) %>%
 arrange(ethnicity, gender, demographic, year)
```

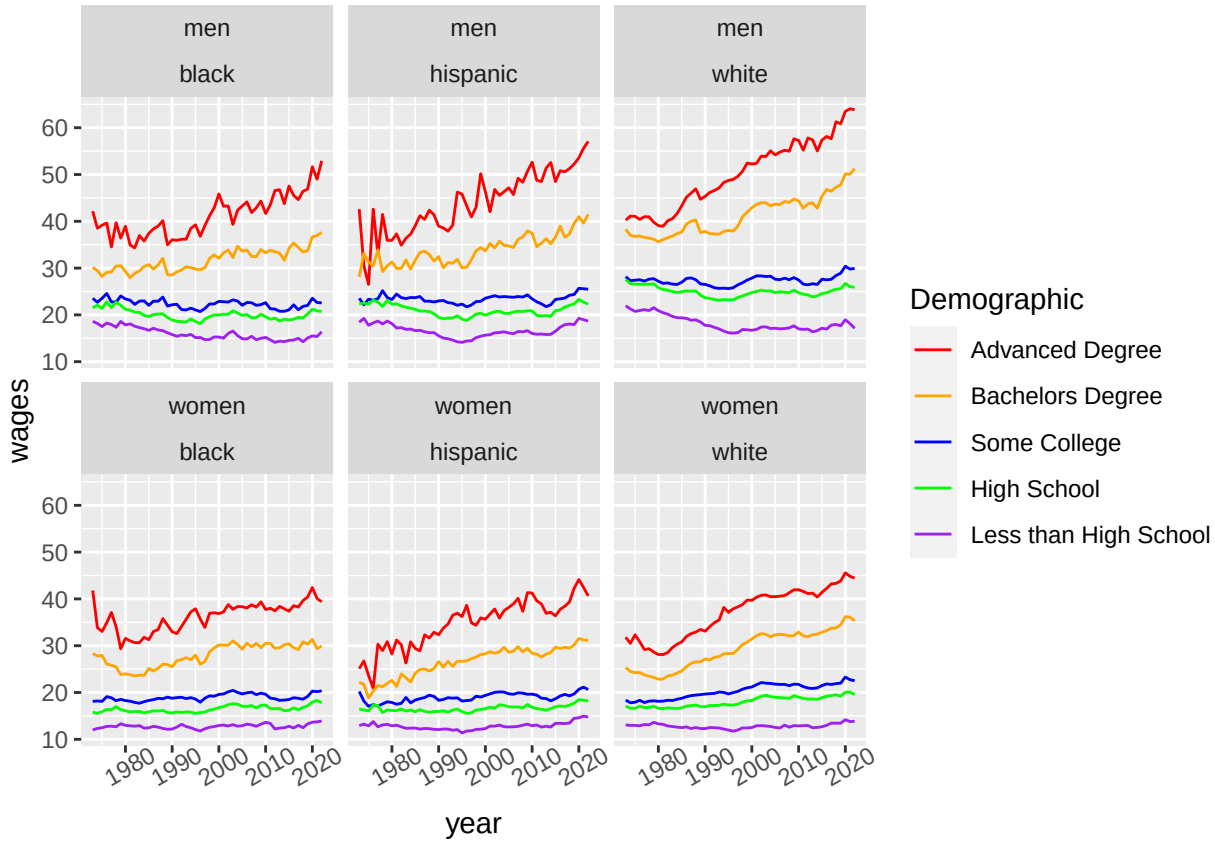
```
wages_sep <- wages_gender_combined
wages_sep %>%
 write.csv("wages_sep.csv", row.names=FALSE)
```

```
wages_final <- wages_sep

wages_final$demographic <- factor(wages_final$demographic,
                                  levels = c("advanced_degree",
                                             "bachelors_degree",
                                             "some_college",
                                             "high_school",
                                             "less_than_hs"),
                                  labels = c("Advanced Degree",
                                             "Bachelors Degree",
                                             "Some College",
                                             "High School",
                                             "Less than High School"),
                                  ordered = TRUE)
```

```
na.exclude(wages_final) %>%
  ggplot() +
  geom_line(
    mapping = aes(
      x = year,
      y = wages,
      color = demographic
    )
  ) +
  facet_wrap(
    gender ~ ethnicity,
    ncol = 3
  ) +
  theme(
    axis.text.x = element_text(angle = 30)
  ) +
  labs(
    color = "Demographic"
  ) +
  scale_color_manual(
    values = c("red", "orange", "blue", "green", "purple")
```

```
)
```


men
black
men
hispanic
men
white
women
black
women
hispanic
women
white
wages
60
50
40
30
20
10
1980
1990
2000
2010
2020
year
Demographic
Advanced Degree
Bachelors Degree
Some College
High School
Less than High School