ASSIGNMENT 10

PA 434

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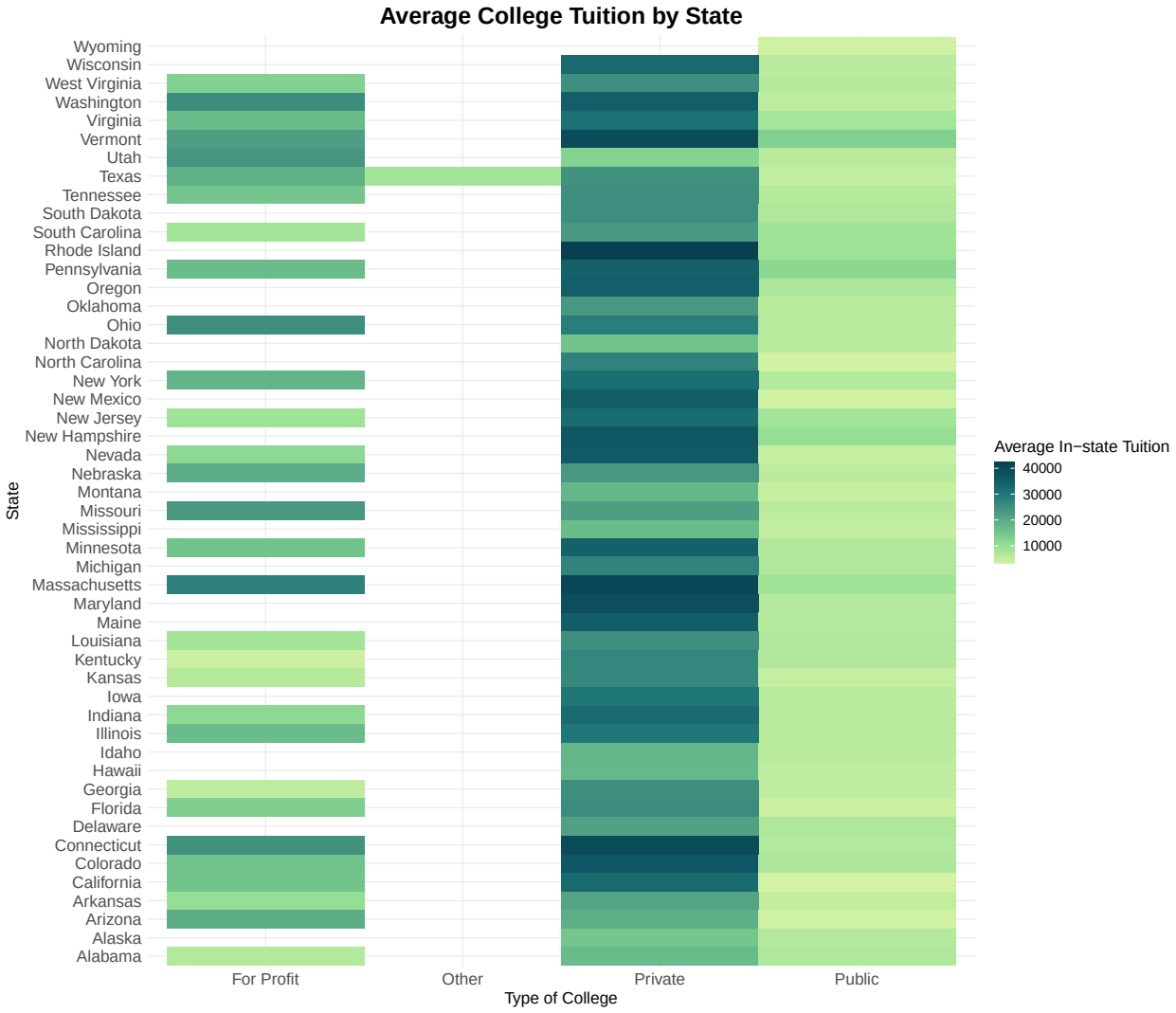
```
th <- theme_minimal() + theme(
  plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
  plot.subtitle = element_text(size = 16, face = "italic", hjust = 0.5),
  axis.title = element_text(size = 14),
  axis.text = element_text(size = 14),
  legend.title = element_text(size = 14),
  legend.text = element_text(size = 12)
)
```

1. Heatmap

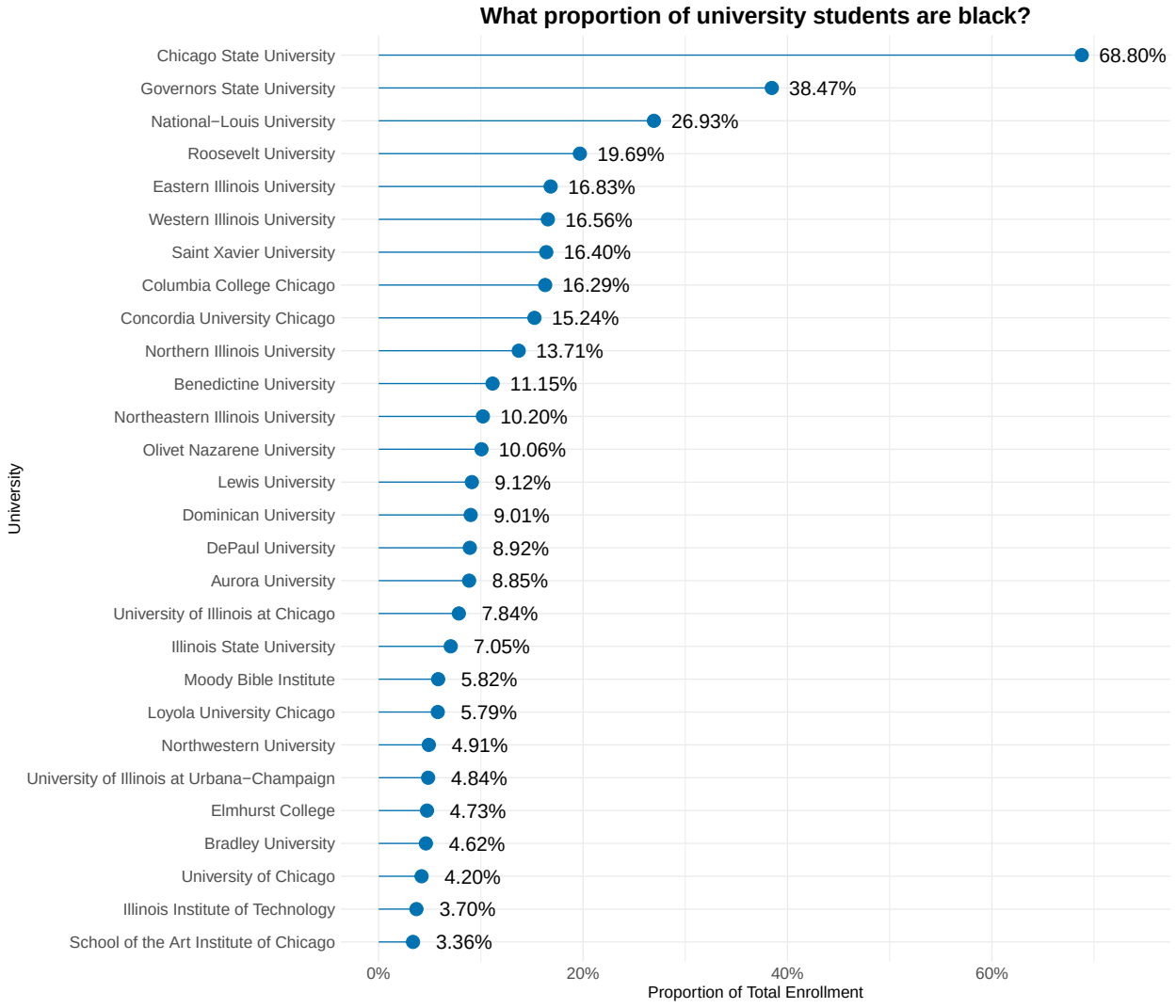
```
tuition_cost %>%
  filter(!is.na(state)) %>%
  group_by(state, type) %>%
  mutate(avg_in_state_tuition = mean(in_state_tuition)) %>%
  ggplot(aes(x = type, y = state, fill = avg_in_state_tuition)) +
  geom_tile() +
  labs(title = "Average College Tuition by State",
       x = "Type of College",
       y = "State",
       fill = "Average In-state Tuition") +
  scale_fill_carto_c(palette = "Emrld", direction = 1) +
  th
```



2. Lollipop Chart

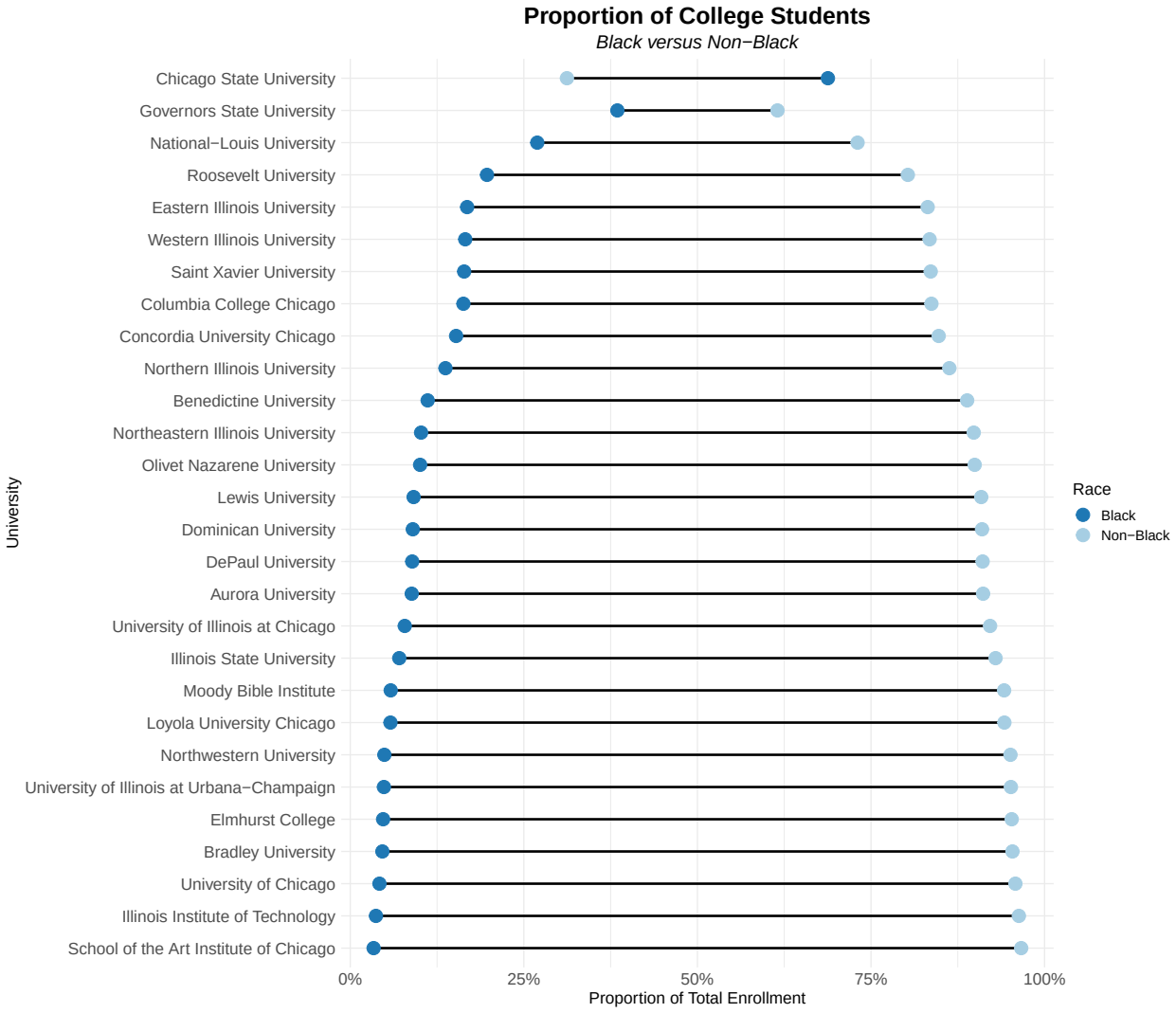
```
lollipop <-
  tuition_cost %>%
  left_join(diversity_school, by = c("name", "state")) %>%
  filter(state == "Illinois" &
           degree_length == "4 Year" &
           category == "Black") %>%
  filter(total_enrollment > median(total_enrollment, na.rm = TRUE)) %>%
  mutate(
    prop_enrollment = enrollment / total_enrollment,
    name = fct_reorder(as.factor(name), prop_enrollment)
  ) %>%
  ggplot() +
  geom_point(aes(x = prop_enrollment, y = name),
             size = 5,
             color = "#0072B2") +
  geom_segment(aes(
```

```
    x = 0,
    xend = prop_enrollment,
    y = name,
    yend = name
  ),
  color = "#0072B2") +
  geom_text(aes(
    x = prop_enrollment + 0.05,
    y = name,
    label = scales::percent(prop_enrollment, accuracy = 0.01)
  ),
  size = 6) +
  labs(title = "What proportion of university students are black?",
       x = "Proportion of Total Enrollment",
       y = "University") +
  scale_x_continuous(labels = scales::percent) +
  scale_color_brewer(palette = "Paired") +
  th
lollipop
```



3. Cleveland Chart

```
cleveland <-
  tuition_cost %>%
  left_join(diversity_school, by = c("name", "state")) %>%
  filter(state == "Illinois" &
           degree_length == "4 Year" &
           category == "Black") %>%
  filter(total_enrollment > median(total_enrollment, na.rm = TRUE)) %>%
  mutate(
    black = enrollment / total_enrollment,
    nonblack = 1 - black,
    name = fct_reorder(as.factor(name), black - nonblack)
  ) %>%
  pivot_longer(c("black", "nonblack"),
               names_to = "race",
               values_to = "prop_enrollment") %>%
  mutate(race = fct_recode(race,
                           "Black" = "black",
                           "Non-Black" = "nonblack")) %>%
  # select(name, category, prop_enrollment) %>%
  ggplot(aes(x = prop_enrollment, y = name)) +
  geom_line(aes(group = name), size = 1) +
  geom_point(aes(color = race), size = 5) +
  labs(title = "Proportion of College Students",
       subtitle = "Black versus Non-Black",
       x = "Proportion of Total Enrollment",
       y = "University",
       color = "Race") +
  scale_x_continuous(labels = scales::percent) +
  scale_color_brewer(palette = "Paired", direction = -1) +
  th
cleveland
```


Proportion of College Students
Black versus Non−Black
Chicago State University
Governors State University
National−Louis University
Roosevelt University
Eastern Illinois University
Western Illinois University
Saint Xavier University
Columbia College Chicago
Concordia University Chicago
Northern Illinois University
Benedictine University
Northeastern Illinois University
Olivet Nazarene University
Lewis University
Dominican University
DePaul University
Aurora University
University of Illinois at Chicago
Illinois State University
Moody Bible Institute
Loyola University Chicago
Northwestern University
University of Illinois at Urbana−Champaign
Elmhurst College
Bradley University
University of Chicago
Illinois Institute of Technology
School of the Art Institute of Chicago
University
0%
25%
50%
75%
100%
Proportion of Total Enrollment
Race
Black
Non−Black