

Midterm 1 Practice 2

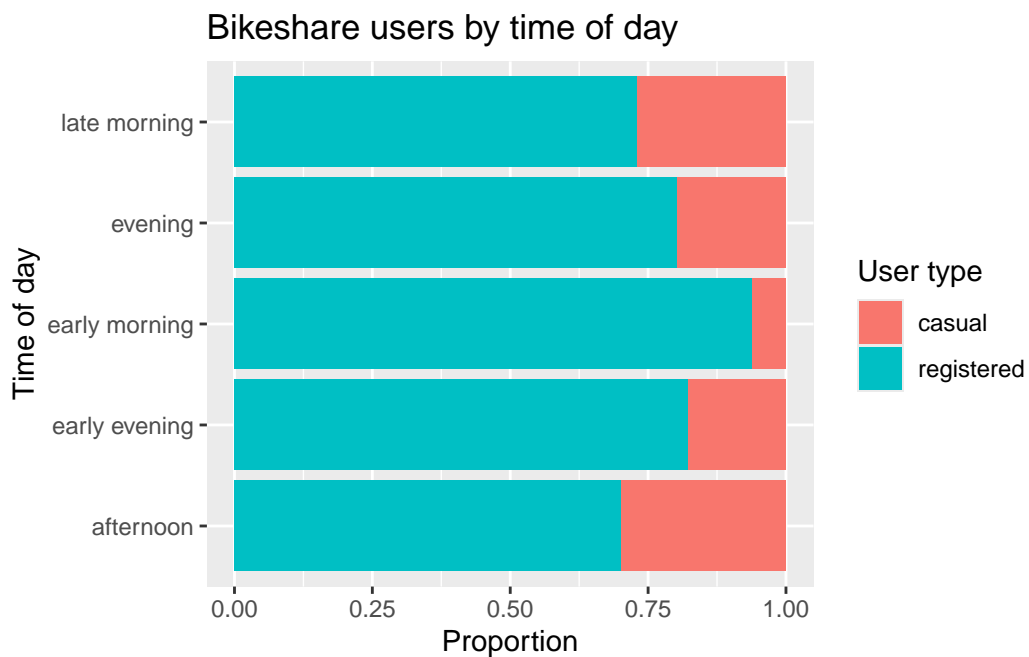
Possible solutions

Exercise 1

```
bikes <- bikes |>
  mutate(time_day = case_when(
    hour %in% 6:8 ~ "early morning",
    hour %in% 9:12 ~ "late morning",
    hour %in% 13:16 ~ "afternoon",
    hour %in% 17:20 ~ "early evening",
    T ~ "evening"
  ))
```

Exercise 2

```
bikes |>
  ggplot(aes(y = time_day, fill = type)) +
  geom_bar(position = "fill") +
  labs(y = "Time of day", x = "Proportion", fill = "User type", title = "Bikeshare users b
```



Exercise 3

```
bikes |>
  group_by(day_week) |>
  count(type) |>
  mutate(prop = n/sum(n)) |>
  ungroup() |>
  filter(type == "registered") |>
  select(-type, -n) |>
  arrange(-prop) |>
  kable()
```

day__week	prop
Tue	0.8542034
Thu	0.8447327
Mon	0.8438705
Wed	0.8331428
Fri	0.8165413
Sun	0.6742984
Sat	0.6579029

Exercise 4

```
bikes |>
  filter(month == 6) |>
  group_by(day) |>
  count() |>
  ungroup() |>
  summarise(avg = mean(n), sd = sd(n)) |>
  kable()
```

avg	sd
6624.167	934.0287

Exercise 5

```
bikes |>
  group_by(type, hour, day_week) |>
  count(type) |>
  ggplot(aes(x = hour, y = n, col = day_week)) +
  geom_line() +
  facet_wrap(~ type) +
  labs(x = "Hour", y = "Total rentals", colour = "Day of the week",
       title = "D.C. bike rentals",
       caption = "June-August 2012") +
  theme_bw()
```

D.C. bike rentals

