Week 2

Application Exercises

Include `tidyverse`:

```
#install.packages("tidyverse")
library(tidyverse)
```

```
## ── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0 ──
## ✓ dplyr     1.1.4     ✓ readr     2.1.5
## ✓ forcats   1.0.0     ✓ stringr   1.5.1
## ✓ ggplot2   3.4.4     ✓ tibble    3.2.1
## ✓ lubridate 1.9.3     ✓ tidyr     1.3.1
## ✓ purrr     1.0.2
## ── Conflicts ────────────────────────────────────────── tidyverse_conflicts() ──
## ✖ dplyr::filter() masks stats::filter()
## ✖ dplyr::lag()    masks stats::lag()
## ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
theme_set(theme_minimal())
```

Read the data:

```
df <- read_csv("homesales.csv")
```

```
## Rows: 1897 Columns: 12
## ── Column specification ────────────────────────────────────────────────────────
## Delimiter: ","
## chr (4): property_type, address, city, state
## dbl (8): zip_code, price, beds, baths, area, lot_size, year_built, hoa_month
##
## 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.
```

Average home size by decade:

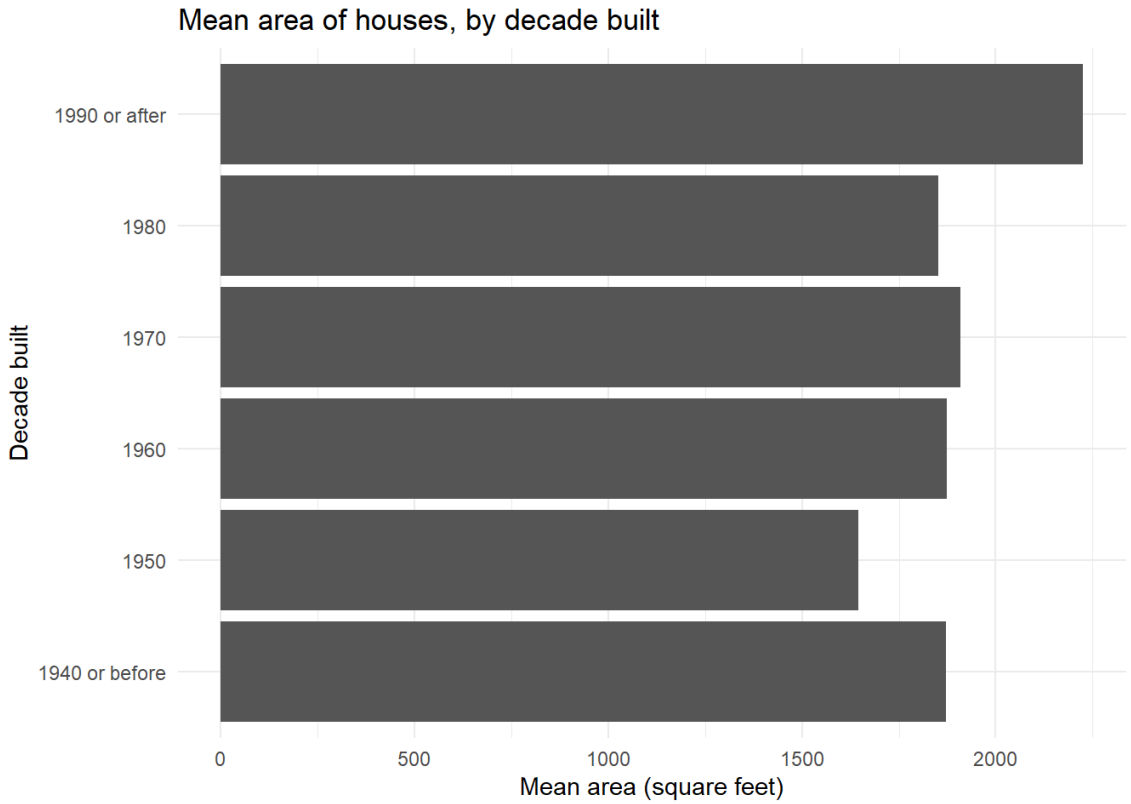
```
# create decade variable
df <- df |>
  mutate(
    decade_built = (year_built %/% 10) * 10,
    decade_built_cat = case_when(
      decade_built <= 1940 ~ "1940 or before",
      decade_built >= 1990 ~ "1990 or after",
      .default = as.character(decade_built)
    )
  )

# calculate mean area by decade
mean_area_decade <- df |>
  group_by(decade_built_cat) |>
  summarize(mean_area = mean(area))
mean_area_decade
```

```
## # A tibble: 6 × 2
##   decade_built_cat mean_area
##   <chr>                <dbl>
## 1 1940 or before       1872.
## 2 1950                 1645.
## 3 1960                 1874.
## 4 1970                 1908.
## 5 1980                 1852.
## 6 1990 or after        2226.
```

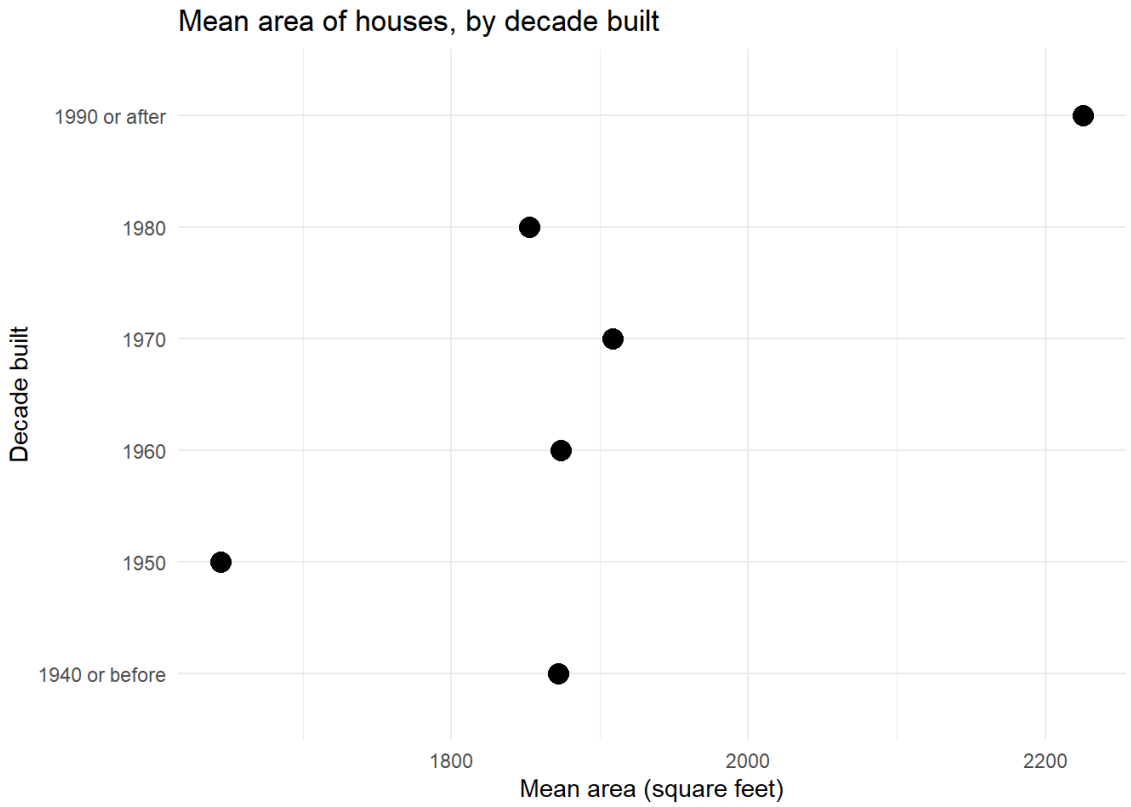
Visualizing the data as a bar chart:

```
ggplot(
  data = mean_area_decade,
  mapping = aes(x = mean_area, y = decade_built_cat)
) +
  geom_col() +
  labs(
    x = "Mean area (square feet)", y = "Decade built",
    title = "Mean area of houses, by decade built"
  )
```



Visualizing the data as a dot plot:

```
ggplot(
  data = mean_area_decade,
  mapping = aes(x = mean_area, y = decade_built_cat)
) +
  geom_point(size = 4) +
  labs(
    x = "Mean area (square feet)", y = "Decade built",
    title = "Mean area of houses, by decade built"
  )
```



TASK 1. Visualizing the data as a lollipop chart

```
# YOUR CODE HERE
```

TASK 2. Visualizing the distribution of the number of bedrooms

Collapse the variable `beds` into a smaller number of categories and drop rows with missing values for this variable:

```
df_bed <- df |>
  mutate(beds = factor(beds) |>
    fct_collapse(
      "5+" = c("5", "6", "7", "9")
    )) |>
  drop_na(beds)
```

```
# YOUR CODE HERE
```

TASK 3. Visualizing the distribution of the number of bedrooms by the decade in which the property was built

Stacked bar chart (number of bedrooms by the decade built):

```
# YOUR CODE HERE
```

Dodged bar chart (number of bedrooms by the decade built):

```
# YOUR CODE HERE
```

Relative frequency bar chart (number of bedrooms by the decade built):

```
# YOUR CODE HERE
```

Task 4. Visualizing the distribution of property size by decades

Getting mean of area of each decade category:

```
mean_area_decade <- df |>
  group_by(decade_built_cat) |>
  summarize(mean_area = mean(area))
```

Bar chart (mean area by decade built):

```
# YOUR CODE HERE
```

Box plot (area by decade built):

```
# YOUR CODE HERE
```

Violin plot (area by decade built):

```
# YOUR CODE HERE
```

Strip chart (area by decade built):

```
set.seed(4010)

# YOUR CODE HERE
```