# Homework 2

*Enter your name and EID here*

Connor Hanna cdh3663

**This homework is due on Jan. 31, 2022 at 11:00am. Please submit as a pdf file on Canvas.**

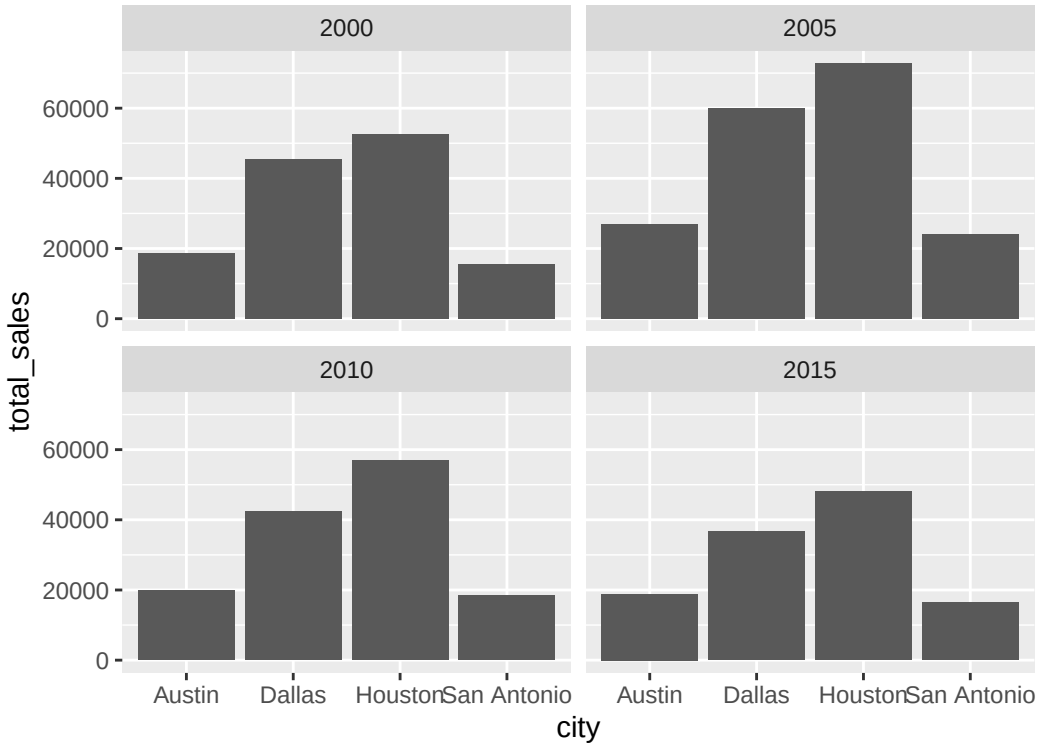
**Problem 1: (3 pts)** We will work with the dataset `txhouse` that has been derived from the `txhousing` dataset provided by **ggplot2**. See here for details of the original dataset: https://ggplot2.tidyverse.org/reference/txhousing.html. `txhouse` contains three columns: `city` (containing four Texas cities), `year` (containing four years between 2000 and 2015) and `total_sales` indicating the total number of sales for the specified year and city.

```
txhouse
```

```
## # A tibble: 16 x 3
## # Groups:   city [4]
##    city         year total_sales
##    <chr>       <int>       <dbl>
##  1 Austin       2000       18621
##  2 Austin       2005       26905
##  3 Austin       2010       19872
##  4 Austin       2015       18878
##  5 Dallas       2000       45446
##  6 Dallas       2005       59980
##  7 Dallas       2010       42383
##  8 Dallas       2015       36735
##  9 Houston      2000       52459
## 10 Houston      2005       72800
## 11 Houston      2010       56807
## 12 Houston      2015       48109
## 13 San Antonio  2000       15590
## 14 San Antonio  2005       24034
## 15 San Antonio  2010       18449
## 16 San Antonio  2015       16455
```

Use ggplot to make a bar plot of the total housing sales (column `total_sales`) for each `city` and show one panel per `year`. Hint: Use `facet_wrap()`. See slides from Class 2.

```
ggplot(data = txhouse,  aes(x = city, y = total_sales)) +
  geom_col() +
  facet_wrap(vars(year))
```

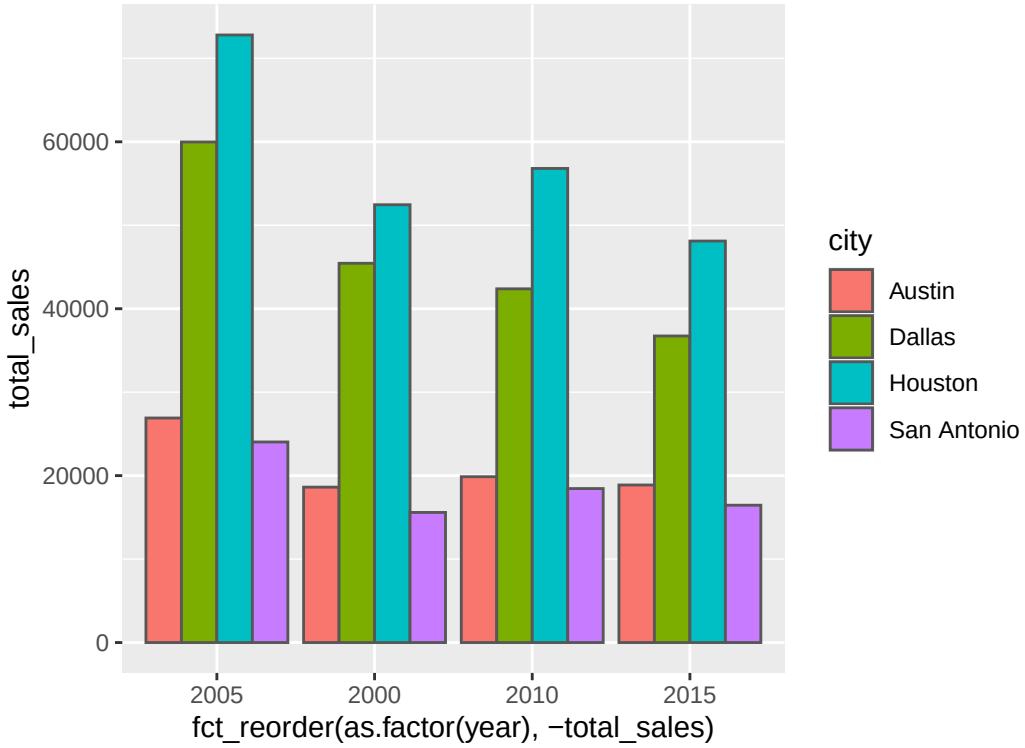



**Problem 2: (3 pts)** Use ggplot to make a bar plot of the total housing sales (column `total_sales`) for each `year`, color the bar borders "gray34", and fill the bars by `city`.

```
ggplot(data = txhouse, aes(x = year, y = total_sales, fill = city)) +
  geom_col(color = "gray34")
```


**Problem 3: (4 pts)** Modify the plot from Problem 2 by placing `city` bars side-by-side, rather than stacked. Next, reorder the bars for each `year` by `total_sales` in descending order. See slides from Class 4.

```
ggplot(data = txhouse, aes(fct_reorder(as.factor(year), -total_sales), y = total_sales, fill = city)) +
  geom_col(position = "dodge", color = "gray34")
```


60000
40000
20000
0
total_sales
2005
2000
2010
2015
fct_reorder(as.factor(year), −total_sales)
city
Austin
Dallas
Houston
San Antonio