

Lab 6 - La Quinta is Spanish for next to Denny's, Pt. 1

Visualizing spatial data

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Load the needed packages. Note: dsbox is not yet on CRAN. For now, you need to install it before you load the library.

```
install.packages("devtools")
devtools::install_github("rstudio-education/dsbox")
```

Load the libraries here.

```
library(tidyverse)
library(dsbox)
```

To help with our analysis we will also use a dataset on US states, which is located in your repository's **data** folder.

```
states <- read_csv("data/states.csv")
```

Exercises

1. What are the dimensions of the Denny's dataset? (Hint: Use inline R code and functions like **nrow** and **ncol** to compose your answer.) What does each row in the dataset represent? What are the variables?

```
dim(dennys)
head(dennys)
```

The 'dennys' dataset has 1,643 rows and 6 columns. Each row represents an address of a denny's restaurant.

2. What are the dimensions of the La Quinta's dataset? What does each row in the dataset represent? What are the variables?

```
dim(laquinta)
head(laquinta)
```

This dataset has 909 rows and 6 columns. Each row represents an address of laquinta's hotel.

Knit, commit, and push your changes to GitHub with an appropriate commit message. Make sure to commit and push all changed files so that your Git pane is cleared up afterwards.

3. Add a country variable to the Denny's and Laquinta's datasets and set all observations equal to "United States". Remember, you can use the **mutate** function for adding a variable. Make sure to save the result of this as **dn** and **lq**, respectively, so that the stored data frame contains the new variable going forward.

```
dn <- dennys %>%
  mutate(country = "United States")
```

```
lq <- laquinta %>%
  mutate(country = "United States")
```

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4. Which states have the most and fewest Denny's locations? What about La Quinta? Is this surprising? Why or why not?

For Denny's - Most

```
dn %>%
  count(state) %>%
  arrange(desc(n))
```

CA, which stands for California has the most Denny's locations. It is not surprising because it is the largest state in the US by population.

For Denny's - Fewest

```
dn %>%
  count(state) %>%
  arrange(n)
```

DE, Delaware has the fewest locations. It is not surprising because it is one of the smallest US states by population.

For La Quinta - Most

```
lq %>%
  count(state) %>%
  arrange(desc(n))
```

TX, Texas has the most La Quinta locations. The surprising thing is that Texas has more locations than California. This despite the fact that California has more population and has stronger economy than Texas

For La Quinta - Fewest

```
lq %>%
  count(state) %>%
  arrange(n)
```

10 states with only one La Quinta Locations

5. Which states have the most Denny's locations per thousand square miles? What about La Quinta?

We are interested in the number of locations per state, which could find in Denny's or La Quinta's datasets, and the area of each state, which is only available in the 'states' dataset, which we imported earlier from the Data folder.

Joining Denny's and states

```
dn %>%
  count(state) %>%
  inner_join(states, by = c("state" = "abbreviation"))
```

Joining La Quinta's and states

```
lq %>%
  count(state) %>%
  inner_join(states, by = c("state" = "abbreviation"))
```

Since the two data frames have the same columns, we can easily bind them with the `bind_rows` function:

```
dn <- dn %>%
  mutate(establishment = "Denny's")
lq <- lq %>%
  mutate(establishment = "La Quinta")
```

Since the two data frames have the same columns, we can easily bind them with the `bind_rows` function:

```
dn_lq <- bind_rows(dn, lq)
```

We can plot the locations of the two establishments using a scatter plot, and color the points by the establishment type. Note that the latitude is plotted on the x-axis and the longitude on the y-axis.

```
ggplot(dn_lq, mapping = aes(x = longitude, y = latitude, color = establishment)) +
  geom_point()
```

Knit, commit, and push your changes to GitHub with an appropriate commit message. Make sure to commit and push all changed files so that your Git pane is cleared up afterwards and review the md document on GitHub to make sure you're happy with the final state of your work.