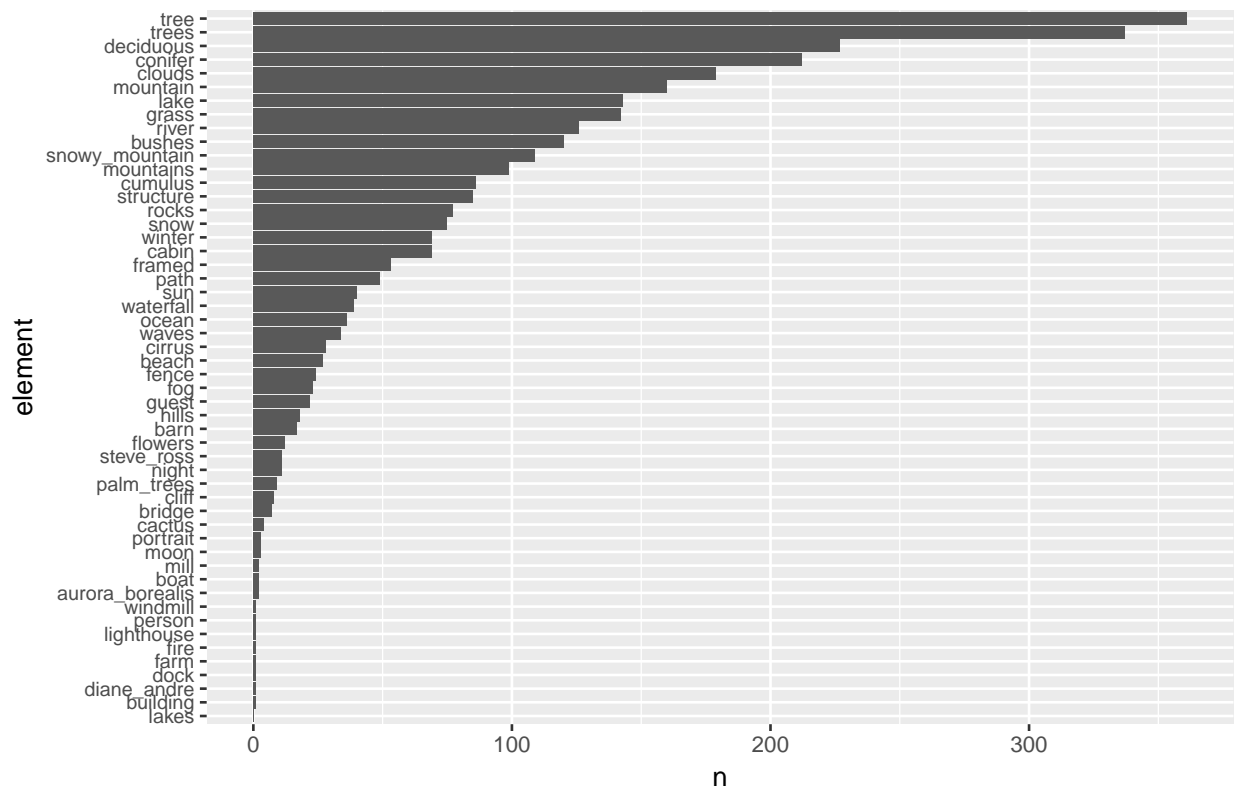


# Assignment 08

This homework will help you to practice and self assess your knowledge and ability around the course concepts. Use the answer key to assess your work.

1. Load the **tidyverse** & **exampledata** packages.
2. Often Bob would have a “Happy Accident” and turn a mistake into a tree. He made a lot of mistakes so we’d expect to see a lot of trees being painted. Let’s find out how frequently trees and other events happened and compare them to one another.
  - A. Grab the painting element columns (**aurora\_borealis** through **winter**) and tidy them
  - B. Now we can count how frequently each element happened
  - C. Plot an ordered bar plot showing the frequency of painting elements (you’ll need to arrange after the last step and create a factor)

**Hint** Final plot will look like this:



3. Run the code below to generate a new data set named `dat`. Use the new `dat` data frame to make an untidy cross tab of year vs. quarters (quarters will become the column headers). In other words **spread** revenue across quarters.

```
set.seed(14)
dat <- data_frame(
  year = c(2017, 2017, 2017, 2017, 2018, 2018, 2018, 2018),
  quarter = paste0('Q', c(1, 2, 3, 4, 1, 2, 3, 4)),
  revenue = rnorm(8, mean = 100000, sd = 20000)
)
```

**Hint** Table will look like this:

year	Q1	Q2	Q3	Q4
2017	86763	134379	142433	129943
2018	99277	124639	98702	121380

4. Use the same data set to spread revenue across years. Compute the growth/change from 2017 to 2018 as a new column. Compute the percent change between years as well.

**Hint** Table will look like this:

quarter	2017	2018	change	per_change
Q1	86763	99277	12514	14
Q2	134379	124639	-9740	-7
Q3	142433	98702	-43731	-31
Q4	129943	121380	-8563	-7