

Weekly Practice 1 Solutions

Problems

Libraries

1. Load the `tidyverse` package.

```
## -- Attaching packages ----- tidyverse 1.3.1 --
## v ggplot2 3.3.5     v purrr   0.3.4
## v tibble  3.1.4     v dplyr   1.0.7
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   2.0.1     v forcats 0.5.1

## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()   masks stats::lag()
```

2. Provide the code needed to install the `estimatr` package and the `here` package. You should also install this package on your machine for the future.

```
install.packages(c("estimatr", "here"))
```

Plotting Practice

On bCourses is a csv file called `wpData.csv`

Question 1

- a. Read in this file to R as a tibble. Name your tibble “img” (without quotes).

```
# Using a package called here to set a relative path
# As long as you read it in appropriately the rest of the problem will work
img <- read_csv(here("problem_sets/WeeklyPractice/WP1/data/wpData.csv"))
```

```
## Rows: 203500 Columns: 3
## -- Column specification -----
## Delimiter: ","
## chr (1): z
## dbl (2): x, y
##
## 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.
```

- b. Using `ggplot2` make a scatterplot of the data. Set the color aesthetic to the `z` column. In your chain add the functions `scale_color_identity()` and `theme_void()`. Using the function to give your plot a title, set the title to “How Learning Often Feels.” (Note, this may take a little bit of time to run).

```
ggplot(img) +
  geom_point(mapping = aes(x=x, y = y, color = z)) +
  scale_color_identity() +
```

```
theme_void()+
ggtitle("How Learning Often Feels")
```

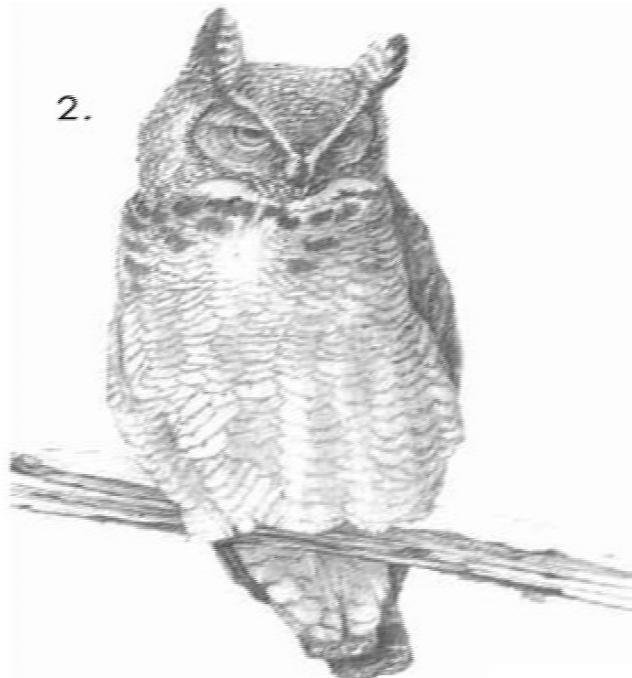
How Learning Often Feels

How to draw an owl

1.



2.



1. Draw some circles

2. Draw the rest of the ~~the~~ owl

Question 2

- Set the RNG seed to 42, and run it to make sure that your random number generator starts in the right place.
- Create a tibble named `practice` with five variables:
 - `id`: the sequential set of numbers beginning at 100 and ending at 200 inclusive.
 - `x`: a set of observations from a uniform distribution with a minimum of 7 and a maximum of 42
 - `y`: a set of observations from a standard normal distribution
 - `u`: a set of observation from a normal distribution centered at 100 with variance 100
 - `d`: a set of binomial observations from a fair coin.
- What is the number of rows of the data frame you made? What is the number of columns?
- Use a function to print the first six rows of your data frame.

```
set.seed(42)
```

```
practice <- tibble(
  id = 100:200,
  x = runif(101, 7, 42),
  y = rnorm(101, 0, 1),
  u = rnorm(101, 100, 10),
  d = rbinom(101, 1, c(0.5, 0.5))
```

```
)
```

```
head(practice)
```

```
## # A tibble: 6 x 5
##   id      x      y      u      d
##   <int> <dbl> <dbl> <dbl> <int>
## 1 100  39.0 -0.782  95.5     1
## 2 101  39.8 -0.282 115.      1
## 3 102  17.0  1.78   90.0     0
## 4 103  36.1  0.623  95.0     1
## 5 104  29.5 -2.84   120.     0
## 6 105  25.2  0.981  86.8     0
```

Question 3

For each of the following code blocks, explain why will result in an error. Fix the error to make the code run.

- Misspelling because the number 1 is used instead of a capital I

```
A_VARIABLE <- 25
```

```
A_VARIABLE
```

```
## [1] 25
```

- Forgot to include the second argument

```
multNum <- function(arg1, arg2){
```

```
  out <- arg1 * arg2
```

```
  return(out)
```

```
}
```

```
multNum(2, 5) == 10
```

```
## [1] TRUE
```

- Missing " after the e in George, which means that the string is never unclosed. Missing quotes cause lots of errors and weird behavior.

```
myTibble <- tibble(
```

```
  x = c(1,2,4,6),
```

```
  y = c("John", "Paul", "George", "Ringo"),
```

```
  z = c(TRUE, FALSE, TRUE, FALSE)
```

```
)
```

```
head(myTibble)
```

```
## # A tibble: 4 x 3
```

```
##   x     y     z
```

```
##   <dbl> <chr> <lgl>
```

```
## 1     1 John  TRUE
```

```
## 2     2 Paul FALSE
```

```
## 3     4 George TRUE
```

```
## 4     6 Ringo FALSE
```