Date and Time Variables Homework

For more practice manipulating date and time variables using the lubridate library, answer the following questions. We’ll play with a couple of different datasets, but

# Problem 1: Trump Approval

1. Download new Trump approval data using the url for the 538 website: <https://projects.fivethirtyeight.com/trump-approval-data/approval_topline.csv>. *Be sure to download it from this link directly into R - do* ***not*** *download the .csv then load from your files. Use read\_csv() and just paste in the url surrounded by “quotes”!* Plot the approval (approve\_estimate) of the President using data that aggregates all polls (check the subgroup variable). It might also be helpful to add the disapproval estimate to the same plot for extra context.
   1. Next, pick a period where approval ratings are out of the ordinary, or display some sort of unusual trend. Explain this trend using the events of that time period. For example, approval rating in January of 2019 was lower than normal due to the government shutdown.

# Problem 2: Flight Delays

In the flights data, are delays more likely on certain days of the week? This requires knowing how many flights leave each day.

# Problem 3: Textbook

Solve problem 16.3.4.4 in the textbook.

# Problem 4: Flight Cancellations

In addition to delays, there are also cancellations. When, during the day, is your flight most likely to be cancelled? Group the flights into 15 minute intervals, and then plot when your flight is most likely to be cancelled. For simplicity, let’s pool days/weeks etc. together. For simplicity, start the day at 5 AM (since effectively no flights are scheduled to depart before then). Hint: the rounding functions and update will be helpful in answering this question.

# Problem 5: Stock Data

Download stock data for the last few years from Apple (AAPL) and Microsoft (MSFT) using the code below, grabbing the stock prices by day using the tidyquant package. This package allows you to super easily pull stock price data into R directly from Yahoo Finance’s API. Cool, right?

install.packages(“tidyquant”)

library(tidyquant)

prices <- tq\_get(c('AAPL','MSFT'),

from = "2017-01-01",

to = "2020-04-17",

get = "stock.prices")

1. Plot the Apple and Microsoft stock prices over time - what trends can you notice? Are there real-world events that correlate to spikes or dips in price? Feel free to use the open, high, low, close, or adjusted prices for your plot. Just make sure to label your chart appropriately so we know what we’re looking at!
2. Now, pick two other stocks and look at their performance over time from the beginning of February 2020 until now. Try to pick one stock that you would expect has gone up in price over this time period and one that you would expect has gone down over this time period and explain why that might be the case. You can search various companies in the search bar on the Yahoo Finance site and find out what their stock symbols are: <https://finance.yahoo.com/>