Lab Assignment 4: Pokemon Challenge

Instructions

Pokémon are creatures in a series of video games, who battle each other for victory. The following will load a dataset of 721 Pokémon, and their various qualities:

```
library(tidyverse)

pokes <- read.csv("https://www.dropbox.com/s/i0lwxgv86eaoq4o/pokemon.csv?dl=1")
```

The variables in this dataset are as follows:

- `Number`: The "Pokédex" number of the Pokémon. (Essentially meaningless.)
- `Name`: The name of the Pokémon
- `Type_1`: The Pokémon's primary type
- `Type_2`: The Pokémon's secondary type (some do not have this)
- `Total`: The total of all fight qualities, which include:

    - `HP`: "Hit Points", or how good a Pokémon is at staying alive.
    - `Attack`: How strong the Pokémon's attack moves are.
    - `Defense`: How good the Pokémon is at blocking attacks.
    - `Sp_Atk`: The strength of the Pokémon's special attack move.
    - `Sp_Def`: The strength of the Pokémon's special block move.
    - `Speed`: How fast the Pokémon is.

- `Height_m`: The height of the Pokémon.
- `Weight_kg`: The weight of the Pokémon.
- `Catch_Rate`: How easy the Pokémon is to catch.

Your task is, quite simply, to find some interesting insight into what makes a Pokémon a good fighter. You will need to turn in an html report of 2 pages or less, nicely formatted and generated from R Markdown. Your report should include:

1. At least one plot, with proper labels.

2. At least one statistical analysis or model.

3. Proper discussion and interpretation of all work.

You may work with **one or two** other people, i.e., groups of up to 3. If you do, you should **each** turn in an html file on PolyLearn; however, these should be identical and should have all group members' names at the top.

Extra credit will be given to the person/group with the best writeup, measured both by presentation style and by intriguing insight, as judged by Dr. Bodwin and Dr. Glanz.
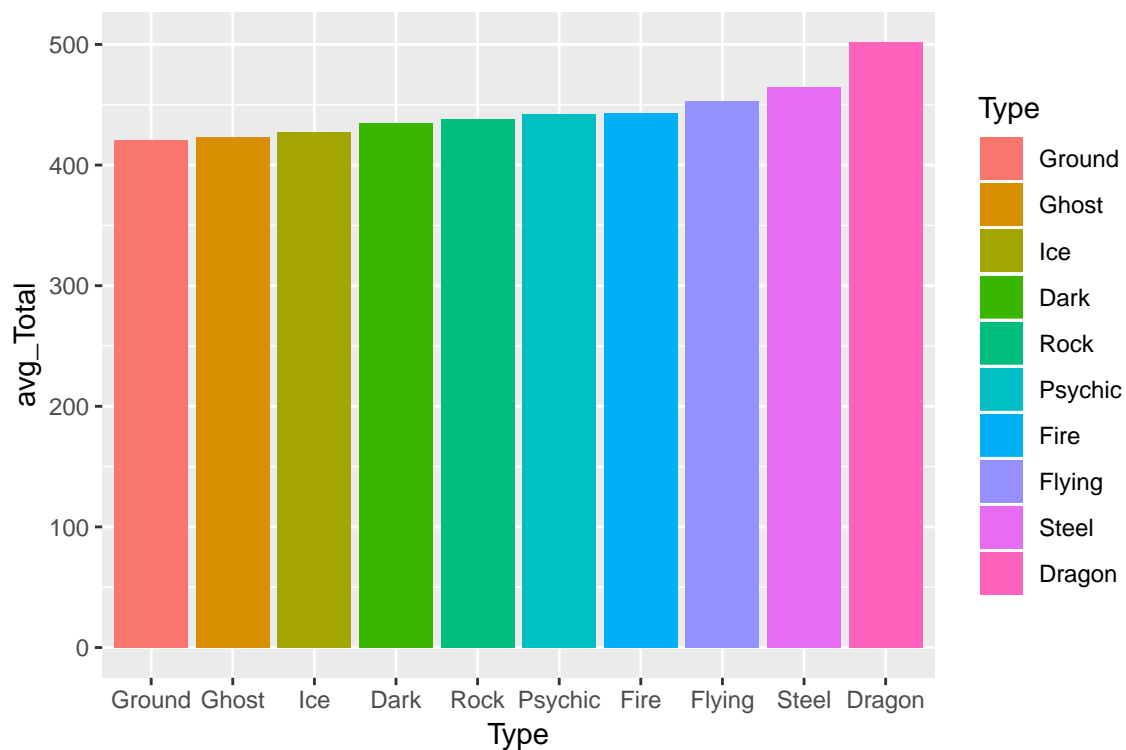
Example

For example, a very simple analysis might include:

```
best_pokes <- pokes %>%
  group_by(Type_1) %>%
  summarize(avg_Total = mean(Total))

best_pokes %>%
  top_n(3, avg_Total)
```

```
## # A tibble: 3 x 2
##   Type_1 avg_Total
##   <fct>      <dbl>
## 1 Dragon      502.
## 2 Flying      453.
## 3 Steel       465.
```

```
best_pokes %>%
  top_n(10, avg_Total) %>%
  mutate(
    Type = fct_reorder(Type_1, avg_Total)
  ) %>%
  ggplot(aes(x = Type, y = avg_Total, fill = Type)) + geom_col()
```


Conclusion: Dragon type Pokémon have the best fighting stats on average.

You would, of course, need more discussion than this! And your insight will hopefully be more interesting and nuanced than mine.