Programming IV

Statistical Programming Assignment

- Instructions
  - Download Analysis 3 Zip Folder
  - Unzip Folder
  - Open Analysis 3 Rmd File
  - Knit to HTML
  - Read Introduction
- Three Part Assignment
  - Each Part Self Contained
  - Most Answers Require Copy-and- Paste
  - Where You See COMPLETE You Should Write/Place Code
  - Leave Code as is When You See #DO NOT CHANGE

Part 1
Discussion

- Process of Programming
  - Create Practice Example
  - Check Code Works
  - Apply Code to Real Data
  - Check Code Works
  - Create a Function of the Process
- Goals
  - Create a Function that Creates a Factor Variable of Abbreviated Weekdays (Easy)
  - Create a Function that Creates a Plot (Difficult)
- Start Working (15 min)

Part 2
Discussion

- Focus on Traffic Volume (DATA2) and Specific Location (“L103”)
- Look at Table

```
head(OUTPUT) #DO NOT CHANGE
```

```
## # A tibble: 6 x 3
##     DAY median   IQR
##   <int>  <dbl> <dbl>
## 1     3     85  34
## 2     4     84  37
## 3     5     76  34.2
## 4     6     83  33
## 5     7     79  38.0
## 6    10     87  21
```

- Goal: Reconstruct this Table

Part 2
Discussion

- Steps:
  - Given the Day in April, Create Function that Outputs the Associated Row
  - Use the Function in a Loop to Construct the Table
- Two Loops
  - Initiate with NULL
  - Initiate with Empty Tibble
- Look at Lecture on Loops
- Q3 is Tricky
- Start Working (15 min)

Part 3
Discussion

- Functions That Apply Functions Across Dimensions Of R Object
- Doesn't Require a Loop
- Tibbles are Matrices
  - Apply Functions to Rows
  - Apply Functions to Columns (Think Summarize)
- Apply() Function to Matrix
  - To Rows

    ```
    apply(Matrix, 1, Function)
    ```
  - To Columns

    ```
    apply(Matrix, 2, Function)
    ```
- Start Working (Rest of Class)

Closing

Disperse and Make Reasonable Decisions