R Notebook

```r
library(ggplot2)
library(tidyverse)
```

```
## -- Attaching packages ----------------------------- tidyverse 1.3.0 --

## v tibble  2.1.3      v dplyr   0.8.5
## v tidyr   1.0.2      v stringr 1.4.0
## v readr   1.3.1      v forcats 0.5.0
## v purrr   0.3.3

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

```r
library(car)
```

```
## Loading required package: carData

##
## Attaching package: 'car'

## The following object is masked from 'package:dplyr':
##
##     recode

## The following object is masked from 'package:purrr':
##
##     some
```

```r
#wanted to consolidate all the theme functions into one with multiple arguments to increase program eff


# generated three lists with equal variances because
# We want to conduct a one way ANOVA, s.d. or variance has to be equal(or close)


StoreA <- rnorm(365, 4200.21, 332) # Creates 365 samples of occurences, with a mean of 5000.21 and stan
StoreB <- rnorm(365, 4700.12, 332) # Creates 365 samples of occurences, with a mean of 1000.12 and stan
StoreC <- rnorm(365, 5300.12, 332) # Creates 365 samples of occurences, with a mean of 3000.12 and stan

# Create two columns
Revenue <- c(StoreA, StoreB, StoreC) #Combines values into one column.365 values each of Store A, Store
Store <- rep(c("Store A", "Store B", "Store C"), each = 365) #Creates of column with Store A, Store B a
```

```r
# Combine the columns into a data frame
Sales <- data.frame(Store, Revenue) #Creates a dataframe of the Revenue and their corresponding store
write.csv(Sales, file="OneWayAnovaData.csv") # Creates csv file of Sales Data that was used in this scr

head(Sales)
```

```
##      Store  Revenue
## 1 Store A 4267.153
## 2 Store A 3654.454
## 3 Store A 3965.928
## 4 Store A 4297.630
## 5 Store A 4345.556
## 6 Store A 4021.392
```

```r
# Start Plotting for one way Anova
# barchart with mean revenue for each store



avg_barplt <- ggplot(Sales, aes(Store, Revenue, label = Revenue, fill = Store)) +
 stat_summary(fun.y = "mean", geom = "bar", width = 0.5) + #Computes the mean of each Store group to be
 stat_summary(aes(label=round(..y..,2)), fun.y=mean, geom="text", size=5, vjust = -0.5) + #Plots the te
 theme(panel.background=element_blank(),plot.background=element_blank()) + #Creates a blank background
 theme(plot.background=element_blank()) + #Creates a blank background for the plot
    theme(plot.title = element_text(hjust = 0.5)) + # Centers plot title
    theme(legend.position="none") + # Gets rid of the legend
    theme(axis.text = element_text(size =18), axis.title = element_text(size =16)) + # adjust the size
    theme(axis.title.y = element_text(margin = margin(t = 0, r = 20, b = 0, l = 0)))+ # create some spa
    theme(plot.title = element_text(size = 18)) + #adjust the size of the Plot Title
    ylim(0, 7000) + #adjust the range of y-axis
    labs(title = "Average Revenue per day \n Between \n Store A, Store B, and Store C", #Adds a title f
                                        x = NULL, y = "Average Revenue" ) #Labels for the x
```

```
## Warning: `fun.y` is deprecated. Use `fun` instead.
```

```
## Warning: `fun.y` is deprecated. Use `fun` instead.
```
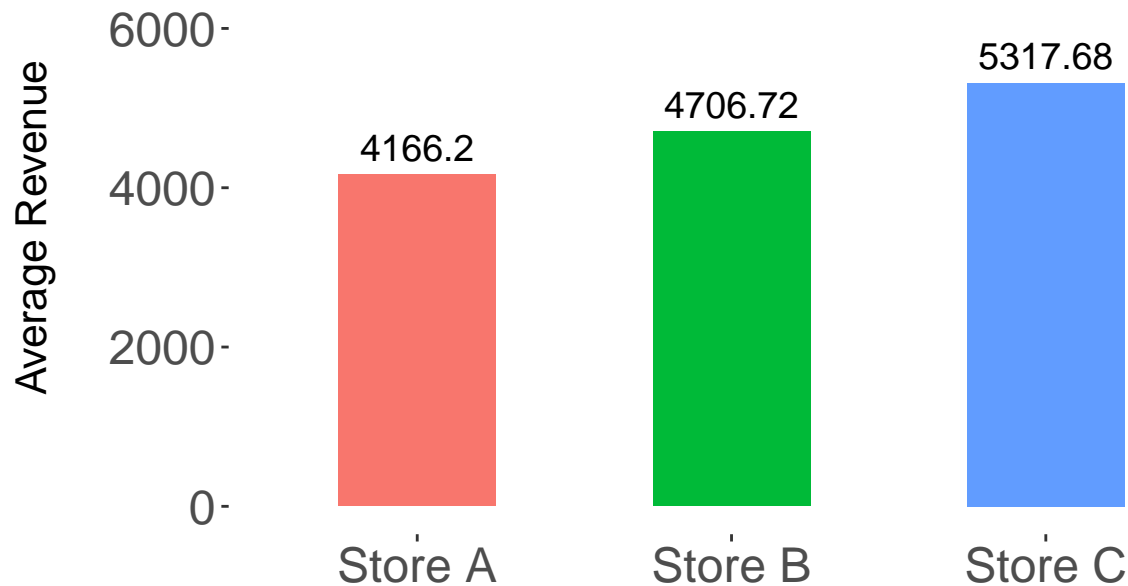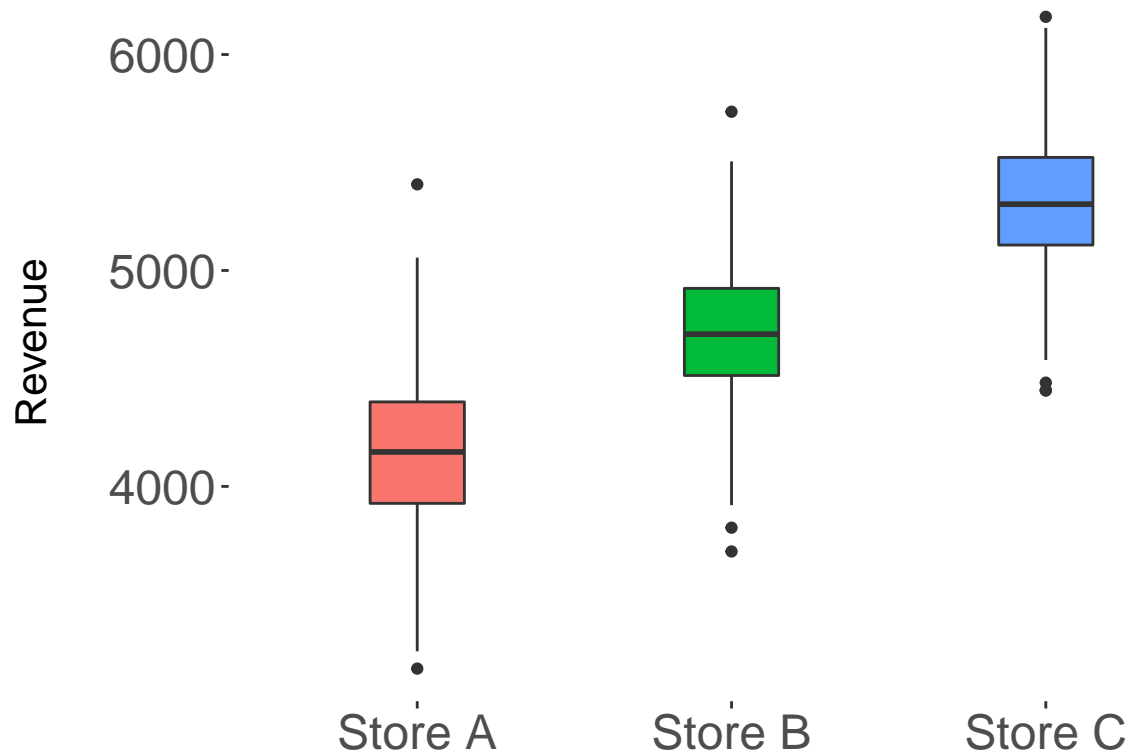
```r
avg_barplt
```

Average Revenue per day
Between
Store A, Store B, and Store C


```
sep_boxplt <- ggplot(Sales, aes(x= Store, y = Revenue, label = Revenue, fill = Store)) +
    geom_boxplot(width = 0.3) +
    theme(panel.background=element_blank(),plot.background=element_blank()) + #Creates a blank backgrou
    theme(plot.background=element_blank()) + #Creates a blank background for the plot
    theme(plot.title = element_text(hjust = 0.5)) + # Centers plot title
    theme(legend.position="none") + # Gets rid of the legend
    theme(axis.text = element_text(size =18), axis.title = element_text(size =16)) + # adjust the size
    theme(axis.title.y = element_text(margin = margin(t = 0, r = 20, b = 0, l = 0)))+ # create some spa
    theme(plot.title = element_text(size = 18)) + #adjust the size of the Plot Title
    labs(title = "Separate Boxplot of Store A, Store B, and Store C", #Adds a title for the plot
                x = NULL, y = "Revenue" )

sep_boxplt
```
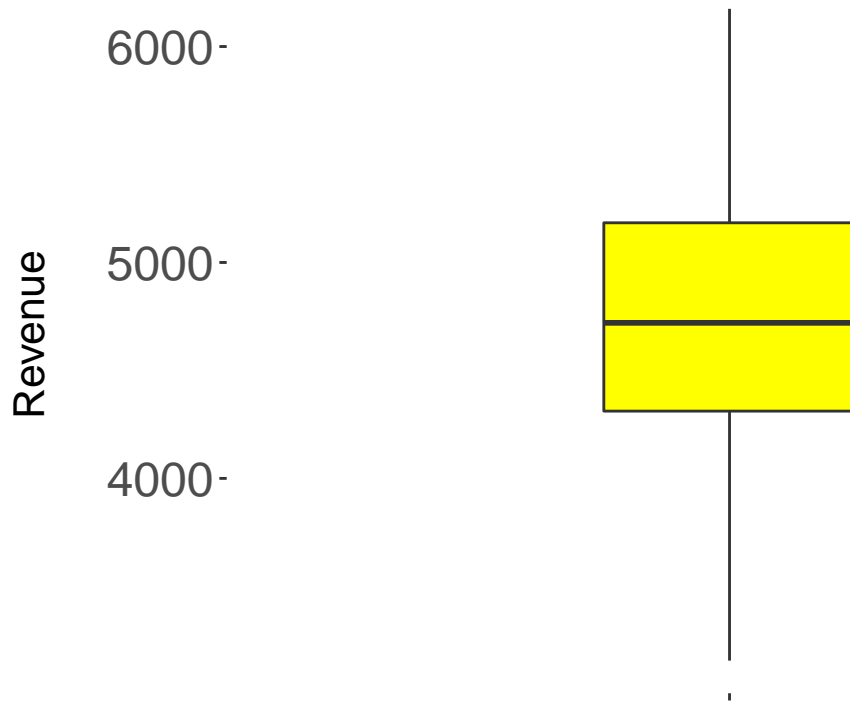
Separate Boxplot of Store A, Store B, and Store C


```
com_boxplt <- ggplot(Sales, aes(x = '', y = Revenue)) +
    geom_boxplot(width = 0.3, fill = "yellow1") +
    theme(panel.background=element_blank(),plot.background=element_blank()) + #Creates a blank backgrou
    theme(plot.background=element_blank()) + #Creates a blank background for the plot
    theme(plot.title = element_text(hjust = 0.5)) + # Centers plot title
    theme(legend.position="none") + # Gets rid of the legend
    theme(axis.text = element_text(size =18), axis.title = element_text(size =16)) + # adjust the size
    theme(axis.title.y = element_text(margin = margin(t = 0, r = 20, b = 0, l = 0)))+ # create some spa
    theme(plot.title = element_text(size = 18)) + #adjust the size of the Plot Title
    labs(title = "Combined Boxplot of Store A, Store B, and Store C", #Adds a title for the plot
              x= NULL,      y = "Revenue" )

com_boxplt
```

Combined Boxplot of Store A, Store B, and Store C


```
tinytex::install_tinytex()
```

```
## Starting to install TinyTeX to C:\Users\Tashi Nyangmi\AppData\Roaming/TinyTeX. It will take a few mi

## Next you may see two error dialog boxes about the missing luatex.dll, and an error message like "Use

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\bin\libgcc_s_dw2-1.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\bin\libgcc_s_dw2-1.dll: Permission
## denied

## Warning in file.copy(list.files("TinyTeX", full.names = TRUE), target, recursive
## = TRUE): problem copying TinyTeX\tlpkg\tlperl\bin\libstdc++-6.dll to C:
## \Users\Tashi Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\bin\libstdc++-6.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\bin\libwinpthread-1.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\bin\libwinpthread-1.dll: Permission
## denied

## Warning in file.copy(list.files("TinyTeX", full.names = TRUE), target, recursive
## = TRUE): problem copying TinyTeX\tlpkg\tlperl\bin\perl.exe to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\bin\perl.exe: Permission denied
```

```
## Warning in file.copy(list.files("TinyTeX", full.names = TRUE), target, recursive
## = TRUE): problem copying TinyTeX\tlpkg\tlperl\bin\perl528.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\bin\perl528.dll: Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Compress\Raw\Zlib\Zlib.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Compress\Raw\Zlib\Zlib.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names = TRUE), target, recursive
## = TRUE): problem copying TinyTeX\tlpkg\tlperl\lib\auto\Cwd\Cwd.dll to C:
## \Users\Tashi Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Cwd\Cwd.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Digest\MD5\MD5.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Digest\MD5\MD5.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Digest\SHA\SHA.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Digest\SHA\SHA.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Encode\Encode.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Encode\Encode.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Fcntl\Fcntl.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Fcntl\Fcntl.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\File\Glob\Glob.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\File\Glob\Glob.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names = TRUE), target,
## recursive = TRUE): problem copying TinyTeX\tlpkg\tlperl\lib\auto\IO\IO.dll to C:
## \Users\Tashi Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\IO\IO.dll:
## Permission denied

## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
```

```
## TinyTeX\tlpkg\tlperl\lib\auto\List\Util\Util.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\List\Util\Util.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\POSIX\POSIX.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\POSIX\POSIX.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Socket\Socket.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Socket\Socket.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Storable\Storable.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Storable\Storable.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Time\HiRes\HiRes.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Time\HiRes\HiRes.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Win32\Win32.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Win32\Win32.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\lib\auto\Win32API\File\File.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\lib\auto\Win32API\File\File.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\site\lib\auto\Win32\API\API.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\site\lib\auto\Win32\API\API.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\site\lib\auto\Win32\OLE\OLE.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\site\lib\auto\Win32\OLE\OLE.dll:
## Permission denied
```

```
## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\site\lib\auto\Win32\Shortcut\Shortcut.dll to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\site\lib\auto\Win32\Shortcut\Shortcut.dll:
## Permission denied


## Warning in file.copy(list.files("TinyTeX", full.names
## = TRUE), target, recursive = TRUE): problem copying
## TinyTeX\tlpkg\tlperl\site\lib\auto\Win32API\Registry\Registry.dll
## to C:\Users\Tashi
## Nyangmi\AppData\Roaming\TinyTeX\tlpkg\tlperl\site\lib\auto\Win32API\Registry\Registry.dll:
## Permission denied


## TinyTeX installed to C:\Users\Tashi Nyangmi\AppData\Roaming/TinyTeX


## Please quit and reopen your R session and IDE (if you are using one, such as RStudio or Emacs) and cl
```