

Assignment-5

Kelly Neal

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Here we will show the difference between exploratory vs expository figures.

First, we will download our data from the package {FSadata} and save it into a usable .csv file.

```
library(FSadata)
get_data <- FSadata::SiscowetMI2004
fish_dataframe <- data.frame(get_data)
fish_Data <- write.csv(fish_dataframe,
file = "SiscowetMI2004.csv")

fish_Data <- read.csv("SiscowetMI2004.csv")
```

Now that we have the data in a usable .csv format and saved as an object in R as `fish_data`, let's see what kind of data we have to use.

```
summary(fish_Data)
```

```
##           X           locID           pnldep           mesh
##  Min.      : 1.0   Length:780   Min.      : 15.40   Min.      :2.000
## 1st Qu.:195.8   Class :character   1st Qu.: 45.20   1st Qu.:2.500
## Median :390.5   Mode  :character   Median : 59.60   Median :3.500
## Mean   :390.5           Mean   : 56.23   Mean   :3.576
## 3rd Qu.:585.2           3rd Qu.: 69.05   3rd Qu.:4.500
## Max.    :780.0           Max.    :108.69   Max.    :6.000
##
##      fishID      sex      age      len
##  Min.      :19108   Length:780   Min.      : 7.00   Min.      :240.0
## 1st Qu.:19362   Class :character   1st Qu.:10.00   1st Qu.:443.0
## Median :19558   Mode  :character   Median :11.00   Median :493.0
## Mean   :19576           Mean   :11.45   Mean   :487.1
## 3rd Qu.:19816           3rd Qu.:12.25   3rd Qu.:536.2
## Max.    :20053           Max.    :21.00   Max.    :762.0
##
##           wgt
##  Min.      : 150
## 1st Qu.: 775
## Median : 1100
## Mean   : 1175
## 3rd Qu.: 1500
## Max.    :15800
## NA's     :1
```

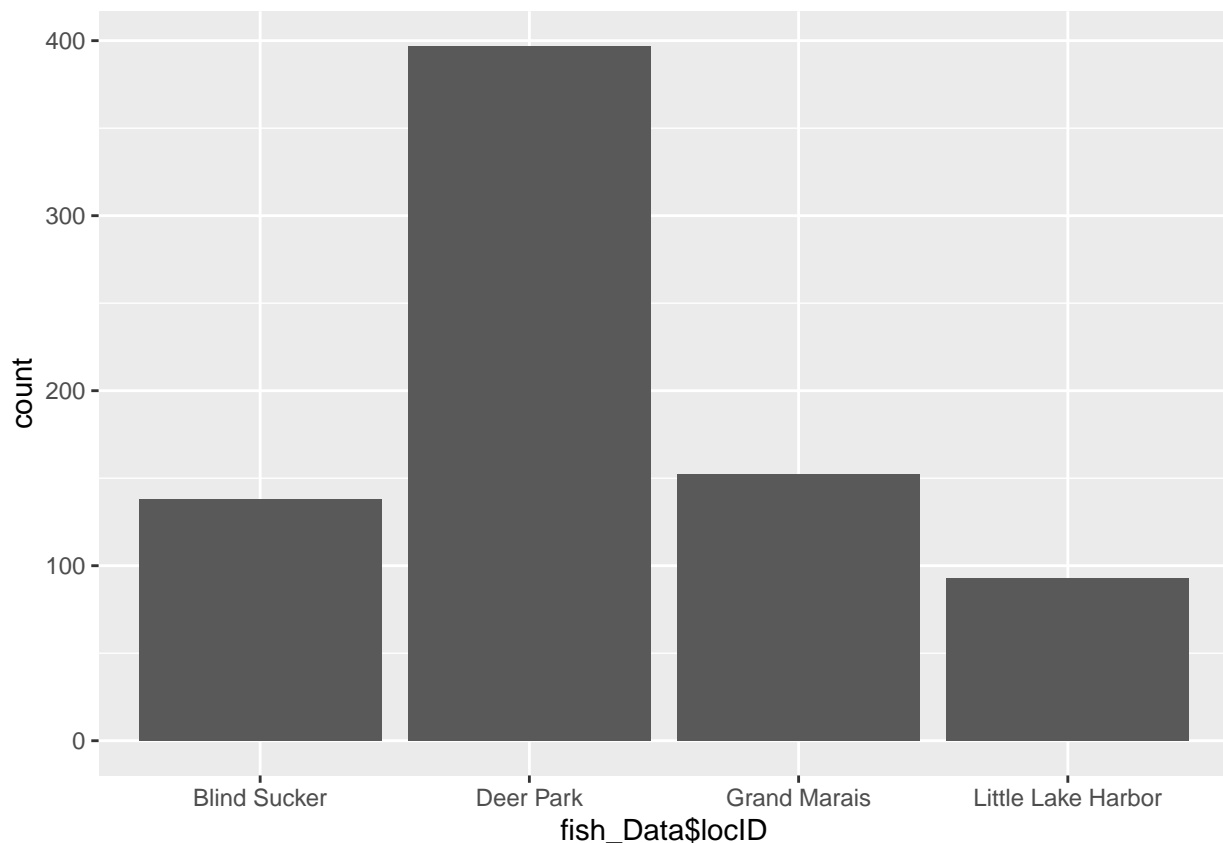
Let's now generate a simple **exploratory** plot. An exploratory plot simply shows you the basic structure of your data, or can also be thought of as a visual display of metadata before you start analyzing and manipulating the data itself. For this dataset, we will make a histogram of counts of fish per location. The `r count()` function used below is from the R packages `dplyr` and `ggplot`.

```
library(dplyr)
library(ggplot2)

#table of counts
fish_per_loc <- fish_Data %>%
  count(locID, name = "Counts")

#graphical representation of counts
exploratory_figure <- ggplot(fish_Data, aes(x = fish_Data$locID)) +
  geom_bar()

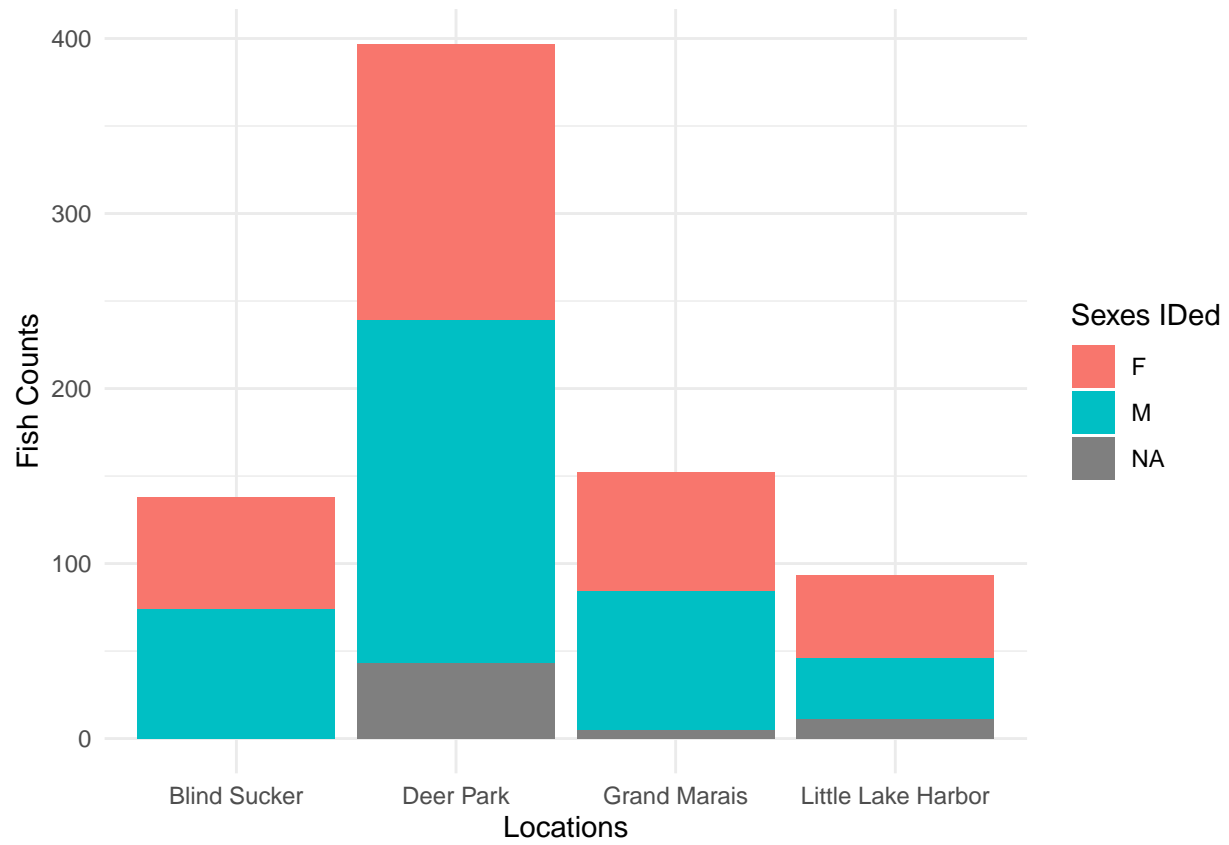
print(exploratory_figure)
```



From this, we will now embellish the plot to enable it to clearly convey to an audience what we want them to know about our data. This will transform the simple plot just for us to see, into an **expository** plot that is presentation ready.

```
expository_figure <- ggplot(fish_Data, aes(x = fish_Data$locID, fill = fish_Data$sex)) +
  geom_bar() +
  labs(fill = "Sexes IDed", color = NULL) +
  xlab("Locations") +
```

```
ylab("Fish Counts") +  
theme_minimal()  
  
print(expository_figure)
```



And thats it!