Assignment 4

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May 25, 2017

```
## 1. Table of prices for different fish

FishUnitPrice = c(15, 10, 11, 9)
FishPriceTable = data.frame(FishUnitPrice)
FishNames = c("Red Snapper", "Gag Grouper","Scamp Grouper", "Black Sea Bass")
# rownames(FishPriceTable)[2:3] = c("Black Snapper","fuck") # To change the name of certain row
# rownames(FishPriceTable)[2] = c("Black Snapper","fuck") # To change the name of certain row

rownames(FishPriceTable)[2:4] = c("Gag Grouper","Scamp Grouper", "Black Sea Bass")

FishPrice = as.matrix(FishPriceTable)

## 2. Table for locations and number caughet for each fish
Locations = c("JacksonVille", "Savannah", "Charleston", "Wilmington")

Number = c(10000, 20000, 30000, 40000, 50000)

LocCauFish = matrix(sample(Number, size = 16, replace = TRUE), nrow = length(FishNames), ncol = length(

dimnames(LocCauFish) = list(c("Red Snapper", "Gag Grouper","Scamp Grouper", "Black Sea Bass"),c("Jackson

LocCauFish[,"JacksonVille"]
```

```
##    Red Snapper    Gag Grouper  Scamp Grouper Black Sea Bass
##          30000          40000          20000          30000
```

```
## 3. Build funtion to calculate total revenue, which will be used later on for the big function

TotalRev = function(price, quantity){
  Revenue = price * quantity
  return(Revenue)
}

## 4. Build the big function to output required results

Result = function(price, quantity){
  MostFrequentCaughtName = rownames(LocCauFish)[apply(LocCauFish, 2, which.max)]
  RevByLoc = TotalRev(price = FishPrice[,"FishUnitPrice"], quantity = LocCauFish)
  Total = sum(RevByLoc)
  return(list(MostFrequentFish = MostFrequentCaughtName,RevenueByLocation = RevByLoc, TotalFishery = To
}

## 5. One result originated from the tables created above
FinalResult = Result(price = FishPrice[,"FishUnitPrice"], LocCauFish)

## 6. To graph the required elements

TableByLocation = FinalResult$RevenueByLocation
```

```
JackRev = sum(TableByLocation[,"JacksonVille"])
SavaRev = sum(TableByLocation[,"Savannah"])
CharRev = sum(TableByLocation[,"Charleston"])
WilmRev = sum(TableByLocation[,"Wilmington"])

LocationRev = c(JackRev, SavaRev, CharRev, WilmRev)
DataFrameRev1 = data.frame(LocationRev)
rownames(DataFrameRev1) = c("1", "2", "3", "4")
DataFrameRev2 = cbind(Locations, DataFrameRev1)

library(ggplot2)
plot = ggplot(DataFrameRev2, aes(x = Locations, y = LocationRev))+
  geom_point()+
  geom_hline(yintercept=FinalResult$TotalFishery, col="yellow", size=2)+
  labs(y= "Fishery Revenue", x="Location")+
  ggtitle("Fishery Revenue by Location")+
  annotate("text", x="Charleston", y=5.7e+06, label="Total Fishery Revenue", colour="blue", size=4, hju
  theme(plot.title=element_text(size=14, hjust=0.5))

plot
```