ESM 262: Assignment 3

Emma Siegfried & Lauren Kaapcke

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Assignment

1) Write a function that summarizes fish catches for different locations that takes as input:
   - a table that has prices for different fish
   - a table that has the number caught for each fish species for each location
   - each location is in a different column
   - each fish is in a different row

Price Table

```
#Variables:
fish_name <- sample(c("tuna", "salmon", "cod", "tilapia",
                      "parrot", "sturgeon", "catfish",
                      "rockfish", "pollock", "flounder"))

price <- round(runif(min = 2, max = 10, n = 10), digits = 2)

#Table:
price_table <- cbind(fish_name, price)
```

Catch Table

```
#Variables:
locations <- LETTERS[seq(from = 1, to = 10)]

fish_catch <- round(runif(min = 0, max = 20, n = 10), digits = 0)

#Matrix:
table_catch <- matrix(ncol = length(locations), nrow = length(fish_name))
for (i in 1:length(fish_name))
  table_catch[,i] = round(runif(min = 0, max = 20, n = 10))

table_catch = as.data.frame(table_catch)

rownames(table_catch) <- fish_name
colnames(table_catch) <- locations
```

b. Function output will be
   - most frequently caught fish in each location
   - total revenue for each location
   - total fisheries revenue sum
   - if user requests it graph of revenue by location and total revenue (as text)

c. Place your function in an *.R file

2) Write a second function that estimates fish growth rate as a function of temperature, using the following equation from Bjoornsson et al., 2007

   "The relationship between specific growth rate (G) and temp in C (T) estimated by a third order polynomial (G = a + bT + cT^2 + d*T^3), where a,b,c,d are parameters."

3) In an R Markdown document:

   - Generate some example data for your fish market function;
   - Show how this is created and used

4) Make sure all functions and the dataset are documented

5) Provide at least one test for each function

6) Export your function

7) Include package and Rmarkdown in Git repository

8) Submit as usual as a git link on GauchoSpace