# Day 1 Scripting Challenge Solution

*CRI R Workshop*

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## Your original mission

The data file `Fundybirds.csv` contains data on bird species counted in Fundy National Park during the Audubon Society's annual Christmas Bird Count. Your goal is to write a new R script that does a basic analysis of these data.

Be sure to begin the script with commented lines with the file name, your name, the date, and a description of the script, and also comment liberally throughout the script to indicate what your code does!

Your script should do the following:

- Read in the file `Fundybirds.csv`
- Look at the structure of the data
- Create data frames that answer the following questions: (Hint: Use `dplyr` functions!)
  - How many times was each type of bird counted?
  - Which birds were counted more than 10 times?
- Make a table that shows how many species were counted each hour
- Plot this table using a barplot

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## A solution: Sample script

```
## ScriptingChallenge.R
## LDBrin
## September 2016
##
## This script analyzes bird count data from the 2015 Audubon Society Christmas Bird Count.
## It assesses the number of times that each type of bird was counted, as well as how many were counted
##

## Load required packages
    library(dplyr)
```

```r
# Read in the file
    Fundybirds <- read.csv(file="~/Documents/R/CREATE_R_Workshop/Data/Fundybirds.csv")

# Look at the structure
    str(Fundybirds)

# How many times was each bird counted, and which birds were counted more than 10 times?
    Fundybirds %>% group_by(CommonName) %>% summarize(Count=length(CommonName))
    Fundybirds %>% group_by(CommonName) %>% summarize(Count=length(CommonName)) %>% filter(Count>10)

# How many birds were counted in each hour?  Make a table and a barplot.
    Fundybirds$Hour %>% table
    Fundybirds$Hour %>% table %>% barplot(las=1, ylab="Count", xlab="Hour")
```

```
## 'data.frame':    608 obs. of  3 variables:
##  $ CommonName    : Factor w/ 41 levels "American Crow",..: 6 14 1 17 22 15 35 7 7 20 ...
##  $ ScientificName: Factor w/ 41 levels "Accipitridae sp.",..: 31 20 10 38 21 27 9 12 12 28 ...
##  $ Hour          : int  6 6 6 6 6 6 6 6 6 6 ...
## Source: local data frame [41 x 2]
##
##                    CommonName Count
##                         (fctr) (int)
## 1                American Crow    46
## 2           American Goldfinch    14
## 3               American Robin    12
## 4         American Tree Sparrow     5
## 5                   Bald Eagle     3
## 6       Black-capped Chickadee   180
## 7                     Blue Jay    50
## 8             Boreal Chickadee    18
## 9                Brown Creeper     1
## 10 Bullock's/Baltimore Oriole     1
## ..                         ...   ...
## Source: local data frame [16 x 2]
##
##                          CommonName Count
##                               (fctr) (int)
## 1                       American Crow    46
## 2                  American Goldfinch    14
## 3                      American Robin    12
## 4             Black-capped Chickadee   180
## 5                           Blue Jay    50
## 6                   Boreal Chickadee    18
## 7                       Common Raven    11
## 8  Dark-eyed Junco (Slate-colored)    20
## 9                   Downy Woodpecker    11
## 10                 European Starling    22
## 11           Golden-crowned Kinglet    22
## 12                     Herring Gull    56
## 13                     Mourning Dove    12
## 14             Red-breasted Nuthatch    16
## 15      Rock Pigeon (Feral Pigeon)    17
## 16                     Ruffed Grouse    25
```

```
## .
##  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21
## 74 53 48 32 28 19 33 21 24 21 28 31 31 48 56 61
```