Lab R2 Questions

Josh Nowak

April 9, 2018

Please create a html document using rmarkdown and submit for grading.

Let us start by creating some data.

x <- tibble::tibble(  
 ID = rep(letters[1:5], each = 5),  
 Sex = rep(sample(c("M", "F"), 5, replace = T), each = 5),  
 Status = 1,  
 Year = rep(2011:2015, 5)  
)

We should discuss what was done above and why it worked.

#### Excercises Part 1 (5 pts each)

* Do an operation that returns all the data from before 2013

x %>%  
 filter(Year < 2013)

## # A tibble: 10 x 4  
## ID Sex Status Year  
## <chr> <chr> <dbl> <int>  
## 1 a M 1 2011  
## 2 a M 1 2012  
## 3 b M 1 2011  
## 4 b M 1 2012  
## 5 c F 1 2011  
## 6 c F 1 2012  
## 7 d F 1 2011  
## 8 d F 1 2012  
## 9 e F 1 2011  
## 10 e F 1 2012

* Now return all the data in 2014

x %>%  
 filter(  
 Year == 2014,  
 Sex == "M"  
 )

## # A tibble: 2 x 4  
## ID Sex Status Year  
## <chr> <chr> <dbl> <int>  
## 1 a M 1 2014  
## 2 b M 1 2014

* Now return the data for Males in 2014
* Return the data for Males in 2014, but report only the number of observations of each animal
* How many animals of each sex were surveyed in each year Option #1

x %>%  
 group\_by(Year) %>%  
 summarise(  
 N\_ind = n\_distinct(ID)   
 )

## # A tibble: 5 x 2  
## Year N\_ind  
## <int> <int>  
## 1 2011 5  
## 2 2012 5  
## 3 2013 5  
## 4 2014 5  
## 5 2015 5

Option #2

count(x, Year)

## # A tibble: 5 x 2  
## Year n  
## <int> <int>  
## 1 2011 5  
## 2 2012 5  
## 3 2013 5  
## 4 2014 5  
## 5 2015 5

* What are the unique values of the ID column and how many observations per (Hint: ?dplyr::n())
* Sort the result from the previous step in descending order (Hint: ?dplyr::arrange())
* Change all the values of Status to 2 where Sex is Male using group\_by and mutate

## Part 2 (5 points each)

* Why did that last chunk of code work? Why didn’t we have to call group\_by? How would the result have changed if we did call group\_by first?
* Simulate data for 10 animals and add a randomly assigned sex to each individual. Make the males move more than females when simulating data.
* Summarize the movements by calculating the mean of each sex to prove that your simulation code had the desired effect.