Writing Functions

### Task: Rainy Days

Steps to writing a function.

1. Explain the task in words: Calculate the proportion days that it rained.
2. Code for a specific example

rain1 = c(3, 2, 0, 5, 5, 5, 20, 5, 5, 20)  
sum(rain1 > 0) / length(rain1)

## [1] 0.9

1. Abstract the code and identify variables. Define the signature of the function
2. Encapsulate code into a function with the generic variables as input arguments. Take the above code for the specific situation of rain1 and substitute x for rain1:
3. Test the code:

### Generalize our function

1. Explain the task: We want to eliminate days where are trace amounts of rain, such as 5 100ths of an inch, from our calculation of the fraction of rainy days.
2. Code for a specific example: We can again use rain1. We need only a small change to our earlier code.

sum( ) / length(rain1)

1. Abstract the code and identify variables. Write the function signature:
2. Encapsulate code into a function with the generic variables as input arguments. Complete the function body.
3. Test the code.

### Task: Typical Size of a Rain Storm

1. Explain the task: Calculate the average amount of rain on a day when it rains.
2. Code for a specific example: For rain1, we want to find the average for all days when the rainfall is positive, i.e.,
3. Abstract the code and identify variables. Write the function’s definition
4. Write the body of the function.
5. Test the code:

### Another Generalization of our Function

1. Explain the task in words: Allow the caller to specify the summary statistic to use in the calculation.