post1 - Intro to the Apply Function Family

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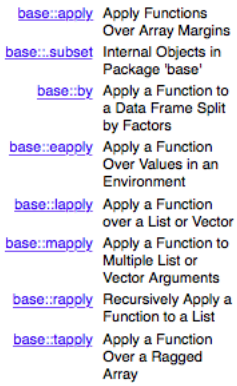
Intro to the Apply Function Family

Purpose

> Remember lab 08 - Intro to Loops? We learned the various ways in which we iterate operations, or perform the same procedure a number of times: `for`, `repeat`, `while`. While understanding the process of loops is essential to programming in general, loops in R in particular can be slow and inefficient. Many users will advise avoiding loops for R, and instead use the `apply()` functions that are much more efficient at carrying out iterations. In this blog post, we will discuss how to use the family of apply functions in R as an alternative to loops.

The `apply` function family is found in the R base package. If you type "??apply" in your R console, you will find the following functions:



apply functions

These functions can be used as a simple alternative method to using loops. They can manipulate data entries from matrices, arrays, lists, and dataframes by calling a function to perform repetitive operations. For the scope of this intro, we will discuss `apply()`, `lapply()`, `mapply()`, `vapply()`, and `tapply()`.

Incomplete work below

1) `apply()`

The `apply()` function operates on arrays.
Description (arguments)
Code (examples)
Visuals
Why wrap up named functions?

2) `lapply()`

Description
Code
Visuals
Bonus: Subsetting with lapply()

3) `mapply()`

Description
Code
Visuals

4) `vapply()`

Description
Code
Visuals

5) `tapply()`

Description
Code
Visuals

6) Summary

Summarise

Know when to use each apply function by observing input data and having a desired subset of that data for output as well as class.

Function Name	Objects the Function Works On	What the Function Sees as Elements	Result Type
apply	Matrix	Rows or columns	Vector, matrix, array, or list
	Array	Rows, columns, or any dimension	Vector, matrix, array, or list
	Data frame	Rows or columns	Vector, matrix, array, or list
sapply	Vector	Elements	Vector, matrix, or list
	Data frame	Variables	Vector, matrix, or list
	List	Elements	Vector, matrix, or list
lapply	Vector	Elements	List
	Data frame	Variables	List
	List	Elements	List

apply, sapply, lapply table

References

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6. https://www.datacamp.com/community/tutorials/r-tutorial-apply-family#as
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