

# Exercise 5: Functions

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9/24/2020

## Prerequisites

1. Open you `ps811-exercises` folder.
2. Go to File > New File > R Script.
3. Save file as `exercise-6-functions.R`.
4. Load R packages installed in Lectures 5 and 6.
5. Download the `national.csv` file from Kaggle.
6. Load the CSV file into your R environment.
7. View the CSV.

## Loops

1. Write a loop to find how many variables there are per observations.
2. Find the mean number of Protestant Christians in each country (i.e., the `state` column) using `tapply()` in both base R and Tidyverse.
3. Check the column type for each variable that is just characters.  
Hint: You can use `sapply(dataset-name-here, class)`.
4. Log the buddhism variables.
5. Write a function that lists all the unique years with more than 300,000 Christians in total.
6. Group by the `code` variable.  
Hint: Use nesting.
7. Create a `model` column. You need to include a linear regression model that examines whether the proportion of Jews (`judaism_percent`) affect whether a country has dual religions.
8. Extract the coefficients into a new column
9. Look at the coefficients.
10. Pull out the `model` column.
11. Unnest the coefficients column.