Challenge-5

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Welcome! Hope you have watched the lecture videos and followed the instructions in code-along. Go through the steps described below, *carefully*. It is totally fine to get stuck - **ASK FOR HELP**; reach out to your friends, TAs, or the discussion forum on Canvas.

Here is what you have to do,

1. **Pair** with a neighbor and work
2. **Download** the `Challenge-5.pdf` and `Challenge-5.Rmd` from Canvas
3. **Move** the downloaded files to the folder, "Week-5" that you created previously
4. **Set** it as the working directory
5. **Edit** content in `Challenge-5.Rmd` wherever indicated following instructions in `Challenge-5.pdf`
6. **Remember** to set `eval=TRUE` in the code chunk to generate the output
7. **Ensure** that `echo=TRUE` so that the code is rendered in the final document
8. **Code output** may not be required in all cases, use your discretion
9. **Inform** the tutor/instructor upon completion
10. **Submit** the document on Canvas after they approve
11. **Attendance** will be marked only after submission
12. Once again, **do not hesitate** to reach out to the tutors/instructor, if you are stuck

Questions

Question-1: Local Variable Shadowing

Create an R function that defines a global variable called `x` with a value of 5. Inside the function, declare a local variable also named `x` with a value of 10. Print the value of `x` both inside and outside the function to demonstrate shadowing.

Solutions:

```
# Enter code here
```

Question-2: Modify Global Variable

Create an R function that takes an argument and adds it to a global variable called `total`. Call the function multiple times with different arguments to accumulate the values in `total`.

Solutions:

```
# Enter code here
```

Question-3: Global and Local Interaction

Write an R program that includes a global variable `total` with an initial value of 100. Create a function that takes an argument, adds it to `total`, and returns the updated `total`. Demonstrate how this function interacts with the global variable.

Solutions:

```
# Enter code here
```

Question-4: Nested Functions

Define a function `outer_function` that declares a local variable `x` with a value of 5. Inside `outer_function`, define another function `inner_function` that prints the value of `x`. Call both functions to show how the inner function accesses the variable from the outer function's scope.

Solutions:

```
# Enter code here
```

Question-5: Meme Generator Function

Create a function that takes a text input and generates a humorous meme with the text overlaid on an image of your choice. You can use the `magick` package for image manipulation. You can find more details about the commands offered by the package, with some examples of annotating images here: https://cran.r-project.org/web/packages/magick/vignettes/intro.html

Solutions:

```
# Enter code here
```

Question-6: Text Analysis Game

Develop a text analysis game in which the user inputs a sentence, and the R function provides statistics like the number of words, characters, and average word length. Reward the user with a "communication skill level" based on their input.

Solutions:

```
# Enter code here
```