

Week 1 R Activity

Step 1. Open RStudio

Step 2. Begin a new R script by going to “File” -> “New File” -> “R Script”

Step 3. Type the following code in the R script:

```
sample(c("Kevin", "Anna", "Marvine", "Vickie"))
```

Step 4. Highlight the code you just typed and then click the “Run” button on the top right of the script file. Look in the “Console” pane of RStudio. What output do you see? (Note the order of the names)

```
> sample(c("Kevin", "Anna", "Marvine", "Vickie"))  
[1] "Anna"      "Vickie"    "Kevin"     "Marvine"
```

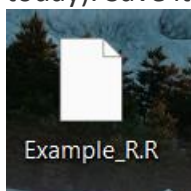
Step 5. In the script, replace each name with the name of a member of your family or friends. Re-run the code by highlighting it again and then pressing the “Run” button. What output do you see in the console? (Note the order of the names)

```
> sample(c("Narendra", "Rahul", "Lalu", "Arvind"))  
[1] "Arvind"    "Rahul"     "Lalu"      "Narendra"
```

Step 6. Without changing the code, highlight and run it three more times. Is the output the same each time? **Take a screenshot of the console window. You will submit this. (5 points)**

```
> sample(c("Kevin", "Anna", "Marvine", "Vickie"))  
[1] "Anna"      "Vickie"    "Kevin"     "Marvine"  
> sample(c("Narendra", "Rahul", "Lalu", "Arvind"))  
[1] "Arvind"    "Rahul"     "Lalu"      "Narendra"  
> sample(c("Narendra", "Rahul", "Lalu", "Arvind"))  
[1] "Narendra"  "Lalu"      "Arvind"    "Rahul"  
> sample(c("Narendra", "Rahul", "Lalu", "Arvind"))  
[1] "Arvind"    "Lalu"      "Rahul"     "Narendra"  
> sample(c("Narendra", "Rahul", "Lalu", "Arvind"))  
[1] "Narendra"  "Rahul"     "Lalu"      "Arvind"  
> |
```

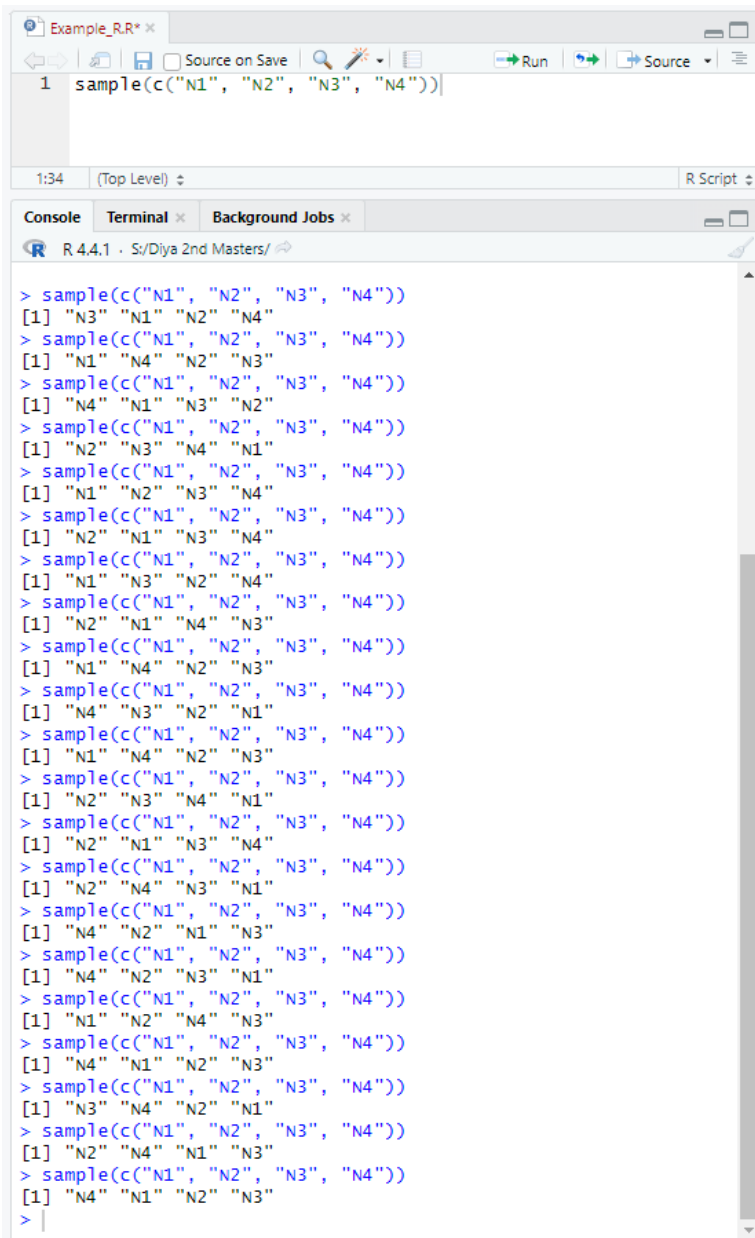
Step 7. Click your cursor in the R script pane and then save this R script by going to “File” -> “Save”. Save the file somewhere that’s easy to find, like on your Desktop (you can delete it after today). Save it with the name “example.R”. Close R Studio.



Step 8. Open the file in RStudio (open RStudio, and then go to “File” -> “Open File” and select the file from where you saved it in your computer). Or you can probably double click the file from where you saved it and RStudio should open.

Step 9. Try highlighting and running this code again.

Step 10. Change the names in the code again. Run the code again several times. (Note the order of the names). Comment on the output that you see. How does the pattern compare to the first time you ran the code? Is it the same? **Put your answer to this question in the Comments field of the assignment submission page. (5 Points)**



The screenshot shows the RStudio interface. The script editor at the top contains a single line of code: `1 sample(c("N1", "N2", "N3", "N4"))`. The console at the bottom shows the results of running this code 20 times. Each time, the output is a vector of four elements, representing a random sample of the four categories. The order of elements varies across the 20 runs, demonstrating randomness.

```
> sample(c("N1", "N2", "N3", "N4"))
[1] "N3" "N1" "N2" "N4"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N1" "N4" "N2" "N3"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N4" "N1" "N3" "N2"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N2" "N3" "N4" "N1"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N1" "N2" "N3" "N4"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N2" "N1" "N3" "N4"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N1" "N3" "N2" "N4"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N2" "N1" "N4" "N3"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N1" "N4" "N2" "N3"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N4" "N3" "N2" "N1"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N1" "N4" "N2" "N3"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N2" "N3" "N4" "N1"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N2" "N1" "N3" "N4"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N2" "N4" "N3" "N1"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N4" "N2" "N1" "N3"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N4" "N2" "N3" "N1"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N1" "N2" "N4" "N3"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N4" "N1" "N2" "N3"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N3" "N4" "N2" "N1"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N2" "N4" "N1" "N3"
> sample(c("N1", "N2", "N3", "N4"))
[1] "N4" "N1" "N2" "N3"
>
```

The R code `sample(c("N1", "N2", "N3", "N4"))` performs a random sampling operation. Here's a breakdown of what this code does:

1. **`c("N1", "N2", "N3", "N4")`**: This creates a character vector containing the elements "N1", "N2", "N3", and "N4".
2. **`sample(c("N1", "N2", "N3", "N4"))`**: The `sample()` function in R takes this vector and returns a randomly shuffled version of it. By default, `sample()` returns a permutation of the input vector.

So, the code `sample(c("N1", "N2", "N3", "N4"))` will return the elements "N1", "N2", "N3", and "N4" in a random order each time you run it. For example, it might return `c("N3", "N1", "N4", "N2")` on one run and `c("N2", "N3", "N1", "N4")` on another run.