STAT 435
Spring 2024

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<u>Lab Assignment#4 (*15 points*)</u>

Notes: ~~~~~~

- If you need help on an R function/command, type *?functionname* or *?commandname* and help for this function/command will appear in the Help window.
- Create a new folder on your desktop and name it **LA4_*your name***. Set this as your working directory in RStudio.
- In RStudio, open a blank source file (R Script) to work in, and make sure all History and Environment entries are cleared before you start your work on the following questions.
- In the R Script, add *<u>Lab Assignment-4 (by **your name**)</u>* as a comment line, and clearly label your answer to each question.

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1. (a) Being a huge movie fan, you decide to start storing information on good movies with the help of lists.

Title	Actors	Reviews
"The Shining"	Jack Nicholson Shelley Duvall Scatman Crothers Danny Lloyd Barry Nelson	Good Perfect Bad Good OK Perfect Good

- Using the data in the above table, create a list naming it `shining_list`. The list must contain the movie title first as `"title"`, then the actor names as `"actors"`, and finally the <u>ordered</u> review scores factor as `"reviews"`. Pay attention to the correct naming! Print the list to inspect its contents.
- Select the actors from `shining_list`, assign the result to `act,` and print it.
- Create a new list containing only the title and the reviews of `shining_list`; save the new list in `sublist` and print it.
- Display the structure of `sublist`.
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- Select from the `shining_list` the first actor, assign the result to `first_actor`, and print it.
- Select from the `shining_list` the fourth review score (which is a factor). Store the result in `fourth_review` and print it.
- Write and run the command that returns "Scatman Crothers" from the `shining_list`.
- Write and run the command that returns the only "Bad" review from the `shining_list`.

(b) Being proud of your first list, you shared it with the members of your movie hobby club. However, one of the senior members noted that you forgot to add the release year (1980). Given your ambitions to become next year's president of the club, you decide to add this information to the list. To fully make up for your mistake, you also decide to add the name of the director (Stanley Kubrick).

- Add the release year to `shining_list` under the name "year".

  Add the director to the list with the name "director".
- Print `shining_list` .
- Finally, display and inspect the structure of `shining_list`.

(c) Extend the `shining_list` with a list containing both my opinion ("Hate it!") and your opinion ("Love it!") on the movie, naming this list `opinions`. Name this extended list `shining_list_ext` and print it, making sure that it has six components.

2. Create a new list (naming it `my.list`) that contains, in this order, a character vector with work-days of the week; a numeric vector `c(5, -2, 4, 4, 7, -6, -9, 3, 8, 7);` and a 4 × 2 matrix of the numeric vector `c(1, 2, 3, 4, 5, 6, 7, 8)` filled row-wise.

   Print the list to inspect its contents. Then, do the following:

   (a) Name the components of `my.list` using: `"mydays", "myvector", "mymatrix"`

   (b) Extend the `mydays` component of `my.list` by adding "Sat" and "Sun" to it.

   (c) Using the built-in `letters` function, add the following as the fourth component to `my.list`, naming the new component `myletters`

   ```
   "a" "b" "c" "d" "e" "f" "g" "h"
   ```

   Then, print `my.list` to inspect its contents.

(d) Use one line of code with the `myvector` component of `my.list` to select all elements of the vector that are greater than or equal to five AND calculate their median. Report the result here: 7

(e) Use the `myvector` component of `my.list` to find the proportion of observations with negative values and report it here: 0.3

(f) Use one line of code to overwrite the `mymatrix` component of `my.list` with the following matrix (*Hint:* Make use of the `t()` and `rbind()` functions)

```
     [,1] [,2] [,3] [,4]
[1,]    1    3    5    7
[2,]    2    4    6    8
[3,]   10   11   12   13
```

Then, print `my.list` to inspect its contents.

(g) Overwrite the second row of the matrix from part (f) with that same row sorted from largest to smallest. (*Hint*: Use `sort()` function. For help on this function, type *?sort* in the Console).

Then, print `my.list` to inspect its contents.

(h) From `my.list` remove the first and third components. Then, print the list to inspect its contents.

Save your RScript naming it **RScript_*your name***. Then, email it along with this lab assignment file (with the blanks filled in and saved) to the professor at sgazioglu@mtech.edu.

Have '**Stat435 – LA4**' in the subject line of the e-mail.