

Session 3

Assignment 4

Q1

The screenshot shows the RStudio interface with the following components:

- Source Editor:** Contains R code for creating a matrix from the first four rows of the mtcars dataset and applying functions to its columns.
- Console:** Displays the output of the R code, including a matrix of summed values and a summary of the matrix.
- Environment Pane:** Shows the current environment with variables 'mat', 'mydfm', 'myList', and 'mymat'.

Source Editor Code:

```
1 mymat <- head.matrix(mtcars)
2 apply(mymat,1,function(x,y) sum(x)+y , y=5)
3 apply(mymat,2,function(x,y) summary(mymat))
4
```

Console Output:

```
> mymat <- head.matrix(mtcars)
> apply(mymat,1,function(x,y) sum(x)+y , y=5)
      Mazda RX4      Mazda RX4 wag      Datsun 710      Hornet 4 Drive
333.980      334.795      264.580      431.135
Hornet Sportabout      Valiant
595.310      390.540
> apply(mymat,2,function(x,y) summary(mymat))
      mpg      cyl      disp      hp
[1,] "Min.   :18.10" "Min.   :18.10" "Min.   :18.10" "Min.   :18.10"
[2,] "1st Qu.:19.27" "1st Qu.:19.27" "1st Qu.:19.27" "1st Qu.:19.27"
[3,] "Median :21.00" "Median :21.00" "Median :21.00" "Median :21.00"
[4,] "Mean   :20.50" "Mean   :20.50" "Mean   :20.50" "Mean   :20.50"
[5,] "3rd Qu.:21.30" "3rd Qu.:21.30" "3rd Qu.:21.30" "3rd Qu.:21.30"
[6,] "Max.   :22.80" "Max.   :22.80" "Max.   :22.80" "Max.   :22.80"
[7,] "Min.   :4"    "Min.   :4"    "Min.   :4"    "Min.   :4"
```

Environment Pane:

Name	Description
mat	num [1:3, 1:3] 1
mydfm	10 obs. of 10 va
mydfm	10 obs. of 10 va
MyList	List of 2
mymat	6 obs. of 11 var

Q2

RStudio

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```
1 list_data <- list(c("Jan","Feb","Mar"), matrix(c(3,9,5,1,-2,8), nrow = 2),
2 | list("green",12.3))
3
4 # Give names to the elements in the list.
5 names(list_data) <- c("1st Quarter", "A_Matrix", "A Inner list")
6
7 # Access the list element using the name of the element.
8 print(list_data$A_Matrix)
```

2:1 (Top Level) R Script

Console

```
> list_data <- list(c("Jan","Feb","Mar"), matrix(c(3,9,5,1,-2,8), nrow = 2),
+ list("green",12.3))
>
> # Give names to the elements in the list.
> names(list_data) <- c("1st Quarter", "A_Matrix", "A Inner list")
>
> # Access the list element using the name of the element.
> print(list_data$A_Matrix)
      [,1] [,2] [,3]
[1,]    3    5   -2
[2,]    9    1    8
>
```

Environment History Connections

Global Environment

Object	Value
list_data	List of 3
list.xy	List of 2
mat	num [1:3, 1:3] 1 0 0 4 5 0 7 8
my_df	10 obs. of 11 variables
my_list	List of 3
my_matrix	int [1:3, 1:3] 1 2 3 4 5 6 7 8
mydfm	10 obs. of 10 variables
mydfm	10 obs. of 10 variables

Files Plots Packages Help Viewer

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Name	Description
User Library	
<input type="checkbox"/> assertthat	Easy Pre and Post Assertions
<input type="checkbox"/> BH	Boost C++ Header Files
<input type="checkbox"/> binneR	Spectral Processing for High Resolution Flow In Spectrometry
<input type="checkbox"/> cli	Helpers for Developing Command Line Interfac
<input type="checkbox"/> colorspace	A Toolbox for Manipulating and Assessing Colo Palettes
<input type="checkbox"/> crayon	Colored Terminal Output
<input type="checkbox"/> digest	Create Compact Hash Digests of R Objects
<input type="checkbox"/> dplyr	A Grammar of Data Manipulation
<input type="checkbox"/> fansi	ANSI Control Sequence Aware String Functions
<input type="checkbox"/> ggplot2	Create Elegant Data Visualisations Using the Gr Graphics
<input type="checkbox"/> ggthemes	Extra Themes, Scales and Geoms for 'ggplot2'
<input type="checkbox"/> glue	Interpreted String Literals
<input type="checkbox"/> gtable	Arrange 'Grobs' in Tables
<input type="checkbox"/> labeling	Axis Labeling

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