

Session 3

Assignment 3

Q1

The screenshot displays the RStudio environment with the following components:

- Source Editor:** Contains R code for creating a matrix and applying functions.
- Console:** Shows the execution of the code, including the creation of the matrix and the output of the apply functions.
- Environment:** Lists the objects in the global environment, including 'mymat' and 'values'.
- Packages:** Lists installed and available packages, including 'assertthat', 'BH', 'binneR', 'cli', 'colorspace', 'crayon', 'digest', 'dplyr', 'fansi', 'ggplot2', 'ggthemes', 'glue', 'gtable', and 'labeling'.

```
1 mymat <- matrix(rep(seq(5), 4), ncol=5)
2 apply(mymat, 2, sum)
3 apply(mymat, 1, sum)
4 apply(mymat, 1, function(x, y) sum(x) + y, y=15)
5
6 apply(mymat, 2, function(x,y) summary(mymat))
```

Console Output:

```
> mymat <- matrix(rep(seq(5), 4), ncol=5)
> apply(mymat, 2, sum)
[1] 10 11 12 13 14
> apply(mymat, 1, sum)
[1] 15 15 15 15
> apply(mymat, 1, function(x, y) sum(x) + y, y=15)
[1] 30 30 30 30
>
> apply(mymat, 2, function(x,y) summary(mymat))
      [,1]      [,2]      [,3]      [,4]
[1,] "Min.   :1.00" "Min.   :1.00" "Min.   :1.00" "Min.   :1.00"
[2,] "1st Qu.:1.75" "1st Qu.:1.75" "1st Qu.:1.75" "1st Qu.:1.75"
[3,] "Median :2.50" "Median :2.50" "Median :2.50" "Median :2.50"
[4,] "Mean   :2.50" "Mean   :2.50" "Mean   :2.50" "Mean   :2.50"
[5,] "3rd Qu.:3.25" "3rd Qu.:3.25" "3rd Qu.:3.25" "3rd Qu.:3.25"
```

Environment:

Object	Class	Attributes
mymat	matrix	10 005.00 10 variables
values	matrix	int [1:4, 1:5] 1 2 3 4 5 1 2 3 4 5 ...
b	num	[1:9] 0 2 6 8 9 11 10 12 15
ctr	45	
i	1L	
j	1L	
m	10	
n	10	

Packages:

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