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Lab Name : Lab 3

HANDS-ON PRACTICE

Practice and execute the following tasks on Iris dataset:

1. List all available built-in datasets in R.
2. Load the Iris dataset into your R environment.
3. Display the first 6 rows of the Iris dataset.
4. Open the Iris dataset in a data viewer window.
5. Print the entire Iris dataset to the console.
6. Access the help documentation for the Iris dataset.
7. Find the number of rows and columns in the Iris dataset.
8. Retrieve the names of the columns in the Iris dataset.
9. Retrieve the row names of the Iris dataset.
10. Print the 'Sepal.Length' column of the Iris dataset
11. Generate summary statistics for each column of the Iris dataset.
12. Display the structure of the Iris dataset, including data types.

Use R comments for clarification.

Show the outputs for each command (printing)

Submit a report which consists of the following:

- the script & the resulting outputs

1. List all available built-in datasets in R.

```
1 data()
```

```
> data()
```

2. Load the Iris dataset into your R environment.

```
2 data(iris)
```

```
> data(iris)
```

3. Display the first 6 rows of the Iris dataset.

```
3 head(iris)
```

```
> head(iris)
  Sepal.Length Sepal.Width Petal.Length
1          5.1         3.5          1.4
2          4.9         3.0          1.4
3          4.7         3.2          1.3
4          4.6         3.1          1.5
5          5.0         3.6          1.4
6          5.4         3.9          1.7
  Petal.Width Species
1         0.2  setosa
2         0.2  setosa
3         0.2  setosa
4         0.2  setosa
5         0.2  setosa
6         0.4  setosa
```

4. Open the Iris dataset in a data viewer window.

```
4  View(iris)
```

```
> View(iris)
```

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	S
1	5.1	3.5	1.4	0.2	
2	4.9	3.0	1.4	0.2	
3	4.7	3.2	1.3	0.2	
4	4.6	3.1	1.5	0.2	
5	5.0	3.6	1.4	0.2	
6	5.4	3.9	1.7	0.4	
7	4.6	3.4	1.4	0.3	
8	5.0	3.4	1.5	0.2	
9	4.4	2.9	1.4	0.2	
10	4.9	3.1	1.5	0.1	
11	5.4	3.7	1.5	0.2	
12	4.8	3.4	1.6	0.2	
13	4.8	3.0	1.4	0.1	
14	4.3	3.0	1.1	0.1	
15	5.8	4.0	1.2	0.2	
16	5.7	4.4	1.5	0.4	
17	5.4	3.9	1.3	0.4	

5. Print the entire Iris dataset to the console.

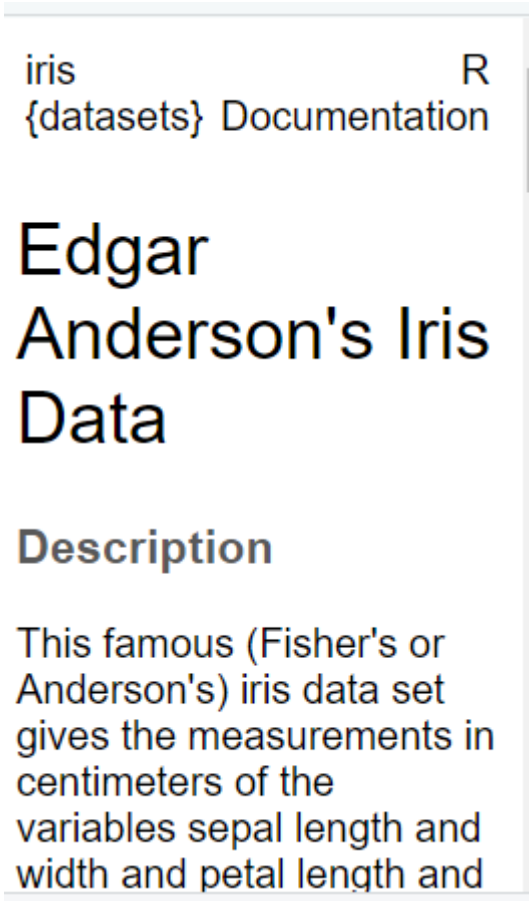
```
5  print(iris)
6  # or simply
7  iris
```

```
> print(iris)
    Sepal.Length Sepal.Width Petal.Length
1            5.1         3.5          1.4
2            4.9         3.0          1.4
3            4.7         3.2          1.3
4            4.6         3.1          1.5
5            5.0         3.6          1.4
6            5.4         3.9          1.7
7            4.6         3.4          1.4
8            5.0         3.4          1.5
9            4.4         2.9          1.4
10           4.9         3.1          1.5
11           5.4         3.7          1.5
12           4.8         3.4          1.6
13           4.8         3.0          1.4
14           4.3         3.0          1.1
15           5.8         4.0          1.2
16           5.7         4.4          1.5
17           5.4         3.9          1.3
18           5.1         3.5          1.4
19           5.7         3.8          1.7
20           5.1         3.8          1.5
21           5.4         3.4          1.7
```

6. Access the help documentation for the Iris dataset.

```
8  ?iris
```

```
> ?iris
```



7. Find the number of rows and columns in the Iris dataset.

```
 9  cat("Number of rows:", nrow(iris), "\n")
10  cat("Number of columns:", ncol(iris), "\n")
```

```
> cat("Number of rows:", nrow(iris), "\n")
Number of rows: 150
> cat("Number of columns:", ncol(iris), "\n")
Number of columns: 5
```

8. Retrieve the names of the columns in the Iris dataset.

```
11  names(iris)
```

```
> names(iris)
[1] "Sepal.Length" "Sepal.Width"
[3] "Petal.Length" "Petal.Width"
[5] "Species"
```

9. Retrieve the row names of the Iris dataset.

```
rownames(iris)
```

```
> rownames(iris)
  [1] "1"   "2"   "3"   "4"   "5"   "6"   "7"
  [8] "8"   "9"   "10"  "11"  "12"  "13"  "14"
 [15] "15"  "16"  "17"  "18"  "19"  "20"  "21"
 [22] "22"  "23"  "24"  "25"  "26"  "27"  "28"
 [29] "29"  "30"  "31"  "32"  "33"  "34"  "35"
 [36] "36"  "37"  "38"  "39"  "40"  "41"  "42"
 [43] "43"  "44"  "45"  "46"  "47"  "48"  "49"
 [50] "50"  "51"  "52"  "53"  "54"  "55"  "56"
 [57] "57"  "58"  "59"  "60"  "61"  "62"  "63"
 [64] "64"  "65"  "66"  "67"  "68"  "69"  "70"
 [71] "71"  "72"  "73"  "74"  "75"  "76"  "77"
 [78] "78"  "79"  "80"  "81"  "82"  "83"  "84"
 [85] "85"  "86"  "87"  "88"  "89"  "90"  "91"
 [92] "92"  "93"  "94"  "95"  "96"  "97"  "98"
 [99] "99"  "100" "101" "102" "103" "104" "105"
[106] "106" "107" "108" "109" "110" "111" "112"
[113] "113" "114" "115" "116" "117" "118" "119"
[120] "120" "121" "122" "123" "124" "125" "126"
[127] "127" "128" "129" "130" "131" "132" "133"
[134] "134" "135" "136" "137" "138" "139" "140"
[141] "141" "142" "143" "144" "145" "146" "147"
[148] "148" "149" "150"
```

10. Print the 'Sepal.Length' column of the Iris dataset

```
iris$Sepal.Length
# or
print(iris$Sepal.Length)
```

```
> iris$Sepal.Length
  [1] 5.1 4.9 4.7 4.6 5.0 5.4 4.6 5.0 4.4 4.9
 [11] 5.4 4.8 4.8 4.3 5.8 5.7 5.4 5.1 5.7 5.1
 [21] 5.4 5.1 4.6 5.1 4.8 5.0 5.0 5.2 5.2 4.7
 [31] 4.8 5.4 5.2 5.5 4.9 5.0 5.5 4.9 4.4 5.1
 [41] 5.0 4.5 4.4 5.0 5.1 4.8 5.1 4.6 5.3 5.0
 [51] 7.0 6.4 6.9 5.5 6.5 5.7 6.3 4.9 6.6 5.2
 [61] 5.0 5.9 6.0 6.1 5.6 6.7 5.6 5.8 6.2 5.6
 [71] 5.9 6.1 6.3 6.1 6.4 6.6 6.8 6.7 6.0 5.7
 [81] 5.5 5.5 5.8 6.0 5.4 6.0 6.7 6.3 5.6 5.5
 [91] 5.5 6.1 5.8 5.0 5.6 5.7 5.7 6.2 5.1 5.7
[101] 6.3 5.8 7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2
[111] 6.5 6.4 6.8 5.7 5.8 6.4 6.5 7.7 7.7 6.0
[121] 6.9 5.6 7.7 6.3 6.7 7.2 6.2 6.1 6.4 7.2
[131] 7.4 7.9 6.4 6.3 6.1 7.7 6.3 6.4 6.0 6.9
[141] 6.7 6.9 5.8 6.8 6.7 6.7 6.3 6.5 6.2 5.9
```

11. Generate summary statistics for each column of the Iris dataset.

```
summary(iris)
```

```
> summary(iris)
  Sepal.Length    Sepal.Width
 Min.   :4.300   Min.   :2.000
 1st Qu.:5.100   1st Qu.:2.800
 Median :5.800   Median :3.000
 Mean   :5.843   Mean   :3.057
 3rd Qu.:6.400   3rd Qu.:3.300
 Max.   :7.900   Max.   :4.400
  Petal.Length    Petal.Width
 Min.   :1.000   Min.   :0.100
 1st Qu.:1.600   1st Qu.:0.300
 Median :4.350   Median :1.300
 Mean   :3.758   Mean   :1.199
 3rd Qu.:5.100   3rd Qu.:1.800
 Max.   :6.900   Max.   :2.500
       Species
 setosa    :50
 versicolor:50
 virginica :50
```

12. Display the structure of the Iris dataset, including data types.

```
17  str(iris)
```

```
> str(iris)
'data.frame':   150 obs. of  5 variables:
 $ Sepal.Length: num  5.1 4.9 4.7 4.6 5 5.4 4.6 5
4.4 4.9 ...
 $ Sepal.Width : num  3.5 3 3.2 3.1 3.6 3.9 3.4
3.4 2.9 3.1 ...
 $ Petal.Length: num  1.4 1.4 1.3 1.5 1.4 1.7 1.4
1.5 1.4 1.5 ...
 $ Petal.Width : num  0.2 0.2 0.2 0.2 0.2 0.4 0.3
0.2 0.2 0.1 ...
 $ Species     : Factor w/ 3 levels "setosa","ver
sicolor",..: 1 1 1 1 1 1 1 1 1 1 ...
```