

ASSIGNMENT 4.3

Problem Statement

1. `states=rownames(USArrests)`

- Get states names with 'w'.

Answer: Use `grep()` function to find the rownames of `USArrests` with "w".

`grep(pattern = 'w', x= states, value = TRUE)`

- Get states names with 'W'.

Answer: Use `grep()` function to find the rownames with "W". Also, using `toupper()` function within the `grep()` function to fetch only "W" rownames.

`grep(pattern ='W', x=toupper(states), value = TRUE)`

Output

```
> grep(pattern = 'w', x= states, value = TRUE)
[1] "Delaware"      "Hawaii"        "Iowa"          "New Hampshire" "New Jersey"
[6] "New Mexico"    "New York"
> #get states names with "W"
> grep(pattern ='W', x=toupper(states), value = TRUE)
[1] "DELAWARE"      "HAWAII"        "IOWA"          "NEW HAMPSHIRE" "NEW JERSEY"
[6] "NEW MEXICO"    "NEW YORK"      "WASHINGTON"    "WEST VIRGINIA" "WISCONSIN"
[11] "WYOMING"
> |
```

2. Prepare a histogram of the number of characters in each US state.

Answer: To know the number of the character on each state names, we use –

```
m<- nchar(states)
```

```
m
```

```
> m<- nchar(states)
> m
[1] 7 6 7 8 10 8 11 8 7 7 6 5 8 7 4 6 8 9 5 8 13 8 9 11 8 7 8
[28] 6 13 10 10 8 14 12 4 8 6 12 12 14 12 9 5 4 7 8 10 13 9 7
```

And the, use **hist()** function to create the histogram for these numbers of the characters

```
hist(m, main = "Histogram", xlab = "number of characters in US state names")
```

Output:

```
10
11
12 #Prob02-Prepare a histogram of the number of characters in each US state
13
14 m<- nchar(states)
15 m
16 hist(m, main = "Histogram", xlab = "number of characters in US state names")
17 |

17:1 (Top Level) : R Script
Console Terminal x
~/
> m<- nchar(states)
> m
[1] 7 6 7 8 10 8 11 8 7 7 6 5 8 7 4 6 8 9 5 8 13 8 9 11 8 7 8
[28] 6 13 10 10 8 14 12 4 8 6 12 12 14 12 9 5 4 7 8 10 13 9 7
> hist(m, main = "Histogram", xlab = "number of characters in US state names")
> |
```

