ACADGILD

# SESSION 5: Data Management Using R

## Assignment 1

## PROBLEM STATEMENT

1. How many vowels are there in the names of USA States?

**The R-script for the given problem is as follows:**

```
# 1. How many vowels are there in the names of USA States?

#USA states vowels

USArrests        # data set

library(stringi)

library(stringr)

str_count(states,"a")

str_count(states,"e")

str_count(states,"i")

str_count(states,"o")

str_count(states,"u")

vowela<-str_count(states,"a")

vowele<-str_count(states,"e")

voweli<-str_count(states,"i")

vowelo<-str_count(states,"o")

vowelu<-str_count(states,"u")

sum(vowela,vowele,voweli,vowelo,vowelu)

sum(vowela)

sum(vowele)

sum(voweli)
```

sum(vowelo)

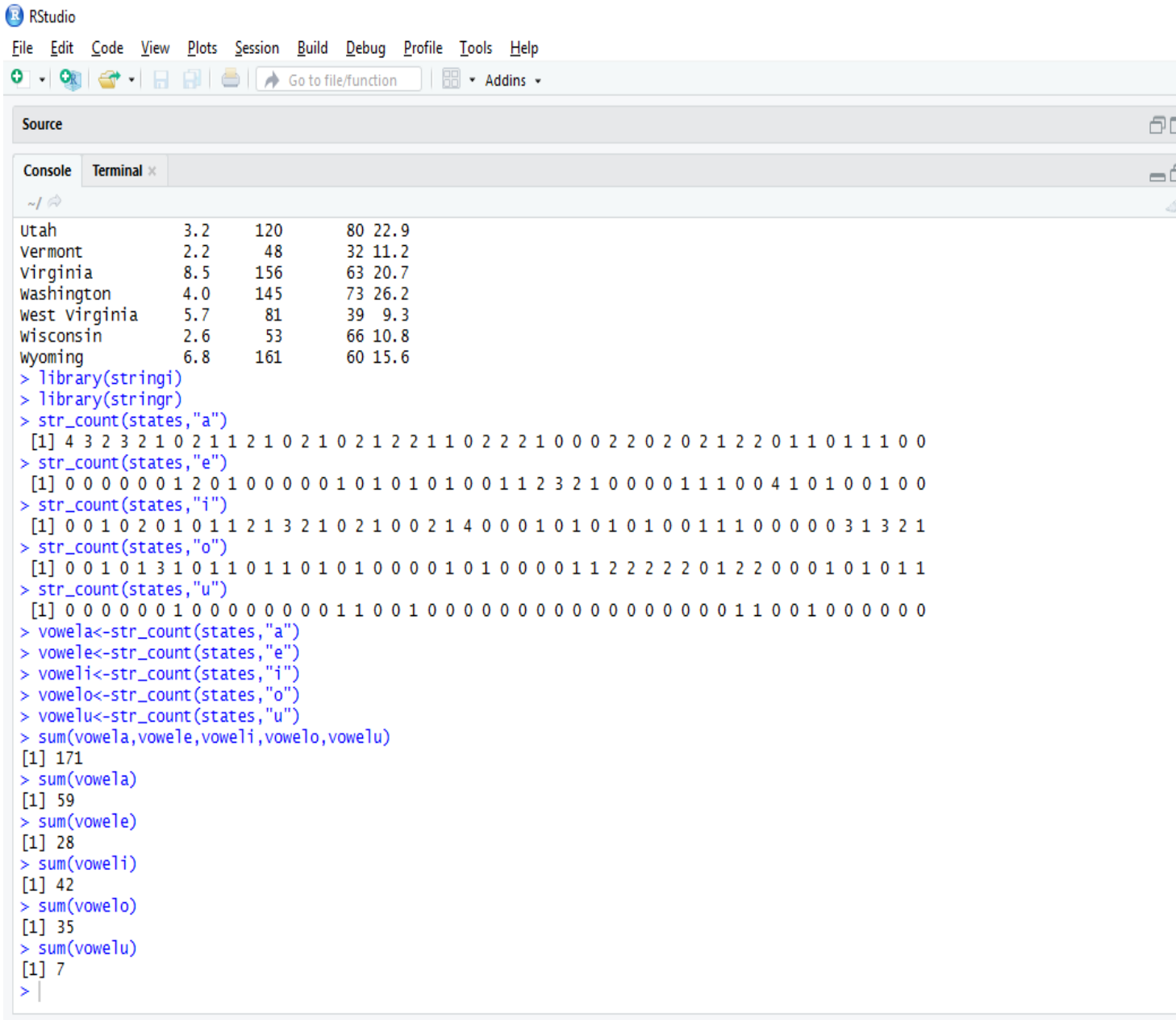
sum(vowelu)

## The output of the R-Script (from Console window) is given as follows

```
> USArrests         # data set
```

| | Murder | Assault | UrbanPop | Rape |
|---|---|---|---|---|
| Alabama | 13.2 | 236 | 58 | 21.2 |
| Alaska | 10.0 | 263 | 48 | 44.5 |
| Arizona | 8.1 | 294 | 80 | 31.0 |
| Arkansas | 8.8 | 190 | 50 | 19.5 |
| California | 9.0 | 276 | 91 | 40.6 |
| Colorado | 7.9 | 204 | 78 | 38.7 |
| Connecticut | 3.3 | 110 | 77 | 11.1 |
| Delaware | 5.9 | 238 | 72 | 15.8 |
| Florida | 15.4 | 335 | 80 | 31.9 |
| Georgia | 17.4 | 211 | 60 | 25.8 |
| Hawaii | 5.3 | 46 | 83 | 20.2 |
| Idaho | 2.6 | 120 | 54 | 14.2 |
| Illinois | 10.4 | 249 | 83 | 24.0 |
| Indiana | 7.2 | 113 | 65 | 21.0 |
| Iowa | 2.2 | 56 | 57 | 11.3 |
| Kansas | 6.0 | 115 | 66 | 18.0 |
| Kentucky | 9.7 | 109 | 52 | 16.3 |
| Louisiana | 15.4 | 249 | 66 | 22.2 |
| Maine | 2.1 | 83 | 51 | 7.8 |
| Maryland | 11.3 | 300 | 67 | 27.8 |
| Massachusetts | 4.4 | 149 | 85 | 16.3 |
| Michigan | 12.1 | 255 | 74 | 35.1 |
| Minnesota | 2.7 | 72 | 66 | 14.9 |
| Mississippi | 16.1 | 259 | 44 | 17.1 |
| Missouri | 9.0 | 178 | 70 | 28.2 |
| Montana | 6.0 | 109 | 53 | 16.4 |
| Nebraska | 4.3 | 102 | 62 | 16.5 |
| Nevada | 12.2 | 252 | 81 | 46.0 |
| New Hampshire | 2.1 | 57 | 56 | 9.5 |
| New Jersey | 7.4 | 159 | 89 | 18.8 |
| New Mexico | 11.4 | 285 | 70 | 32.1 |
| New York | 11.1 | 254 | 86 | 26.1 |
| North Carolina | 13.0 | 337 | 45 | 16.1 |
| North Dakota | 0.8 | 45 | 44 | 7.3 |
| Ohio | 7.3 | 120 | 75 | 21.4 |
| Oklahoma | 6.6 | 151 | 68 | 20.0 |
| Oregon | 4.9 | 159 | 67 | 29.3 |
| Pennsylvania | 6.3 | 106 | 72 | 14.9 |

```
Rhode Island      3.4     174       87  8.3
South Carolina   14.4     279       48 22.5
South Dakota      3.8      86       45 12.8
Tennessee        13.2     188       59 26.9
Texas            12.7     201       80 25.5
Utah              3.2     120       80 22.9
Vermont           2.2      48       32 11.2
Virginia          8.5     156       63 20.7
Washington        4.0     145       73 26.2
West Virginia     5.7      81       39  9.3
Wisconsin         2.6      53       66 10.8
Wyoming           6.8     161       60 15.6
```



2. Visualize the vowels distribution.

**The R-script for the given problem is as follows:**

```
vowel_dist <- filter(distribution, USA_States %in% c("a","e","i","o","u"))
vowel_dist
barplot(vowel_dist$Freq, axes = TRUE, axisnames = TRUE, xlab = "Vowels", ylab = "frequency")
```

**The output of the R-Script (from Console window) is given as follows**

```
> vowel_dist <-filter(distribution, USA_States %in% c("a","e","i","o","u"))
> vowel_dist
USA_States Freq
1          a   61
2          e   28
3          I   44
4          o   36
5          u    8
> barplot(vowel_dist$Freq, axes = TRUE, axisnames = TRUE, xlab = "Vowels", ylab = "frequency" )
```