```
> states=rownames(USArrests)
> lowerstates <- tolower(states)
> lowerstates
 [1] "alabama"        "alaska"         "arizona"        "arkansas"       "cal
ifornia"     "colorado"
 [7] "connecticut"    "delaware"       "florida"        "georgia"        "haw
aii"          "idaho"
[13] "illinois"       "indiana"        "iowa"           "kansas"         "ken
tucky"       "louisiana"
[19] "maine"          "maryland"       "massachusetts"  "michigan"       "min
nesota"      "mississippi"
[25] "missouri"       "montana"        "nebraska"       "nevada"         "new
hampshire"   "new jersey"
[31] "new mexico"     "new york"       "north carolina" "north dakota"   "ohi
o"           "oklahoma"
[37] "oregon"         "pennsylvania"   "rhode island"   "south carolina" "sou
th dakota"   "tennessee"
[43] "texas"          "utah"           "vermont"        "virginia"       "was
hington"     "west virginia"
[49] "wisconsin"      "wyoming"
> lsdframe<-as.data.frame(lowerstates)
> library(sqldf)
Loading required package: gsubfn
Loading required package: proto
Loading required package: RSQLite
> sqldf("SELECT *
+       FROM lsdframe
+       WHERE `lowerstates`LIKE 'w%'")
    lowerstates
1    washington
2 west virginia
3     wisconsin
4       wyoming
> #. Get states names with 'W'.
> dfstates<- as.data.frame(states)
> dfstates
          states
1        Alabama
2         Alaska
3        Arizona
4       Arkansas
5     California
6       Colorado
7    Connecticut
8       Delaware
9        Florida
10       Georgia
11        Hawaii
12         Idaho
13      Illinois
14       Indiana
15          Iowa
16        Kansas
17      Kentucky
18     Louisiana
19         Maine
20      Maryland
21 Massachusetts
22      Michigan
23     Minnesota
24   Mississippi
25      Missouri
26       Montana
```

```
27       Nebraska
28         Nevada
29  New Hampshire
30     New Jersey
31     New Mexico
32       New York
33 North Carolina
34   North Dakota
35           Ohio
36       Oklahoma
37         Oregon
38   Pennsylvania
39   Rhode Island
40 South Carolina
41   South Dakota
42      Tennessee
43          Texas
44           Utah
45        Vermont
46       Virginia
47     Washington
48  West Virginia
49      Wisconsin
50        Wyoming
> sqldf("SELECT *
+       FROM dfstates
+       WHERE `states`LIKE 'W%'")
         states
1    Washington
2 West Virginia
3     Wisconsin
4       Wyoming
> library(ggplot2)
> states1 <-  as.data.frame(nchar(states))
> #add a column of names to states1 dataframe
> states1$States<- states
> colnames(states1)<-c("Characters","States")
> states1
   Characters         States
1           7        Alabama
2           6         Alaska
3           7        Arizona
4           8       Arkansas
5          10     California
6           8       Colorado
7          11    Connecticut
8           8       Delaware
9           7        Florida
10          7        Georgia
11          6         Hawaii
12          5          Idaho
13          8       Illinois
14          7        Indiana
15          4           Iowa
16          6         Kansas
17          8       Kentucky
18          9      Louisiana
19          5          Maine
20          8       Maryland
21         13  Massachusetts
22          8       Michigan
23          9      Minnesota
24         11    Mississippi
```

```
25          8       Missouri
26          7        Montana
27          8       Nebraska
28          6         Nevada
29         13  New Hampshire
30         10     New Jersey
31         10     New Mexico
32          8       New York
33         14 North Carolina
34         12   North Dakota
35          4           Ohio
36          8       Oklahoma
37          6         Oregon
38         12   Pennsylvania
39         12   Rhode Island
40         14 South Carolina
41         12   South Dakota
42          9      Tennessee
43          5          Texas
44          4           Utah
45          7        Vermont
46          8       Virginia
47         10     Washington
48         13  West Virginia
49          9      Wisconsin
50          7        Wyoming
> ggplot(states1, aes(x=Characters)) + geom_histogram()
```