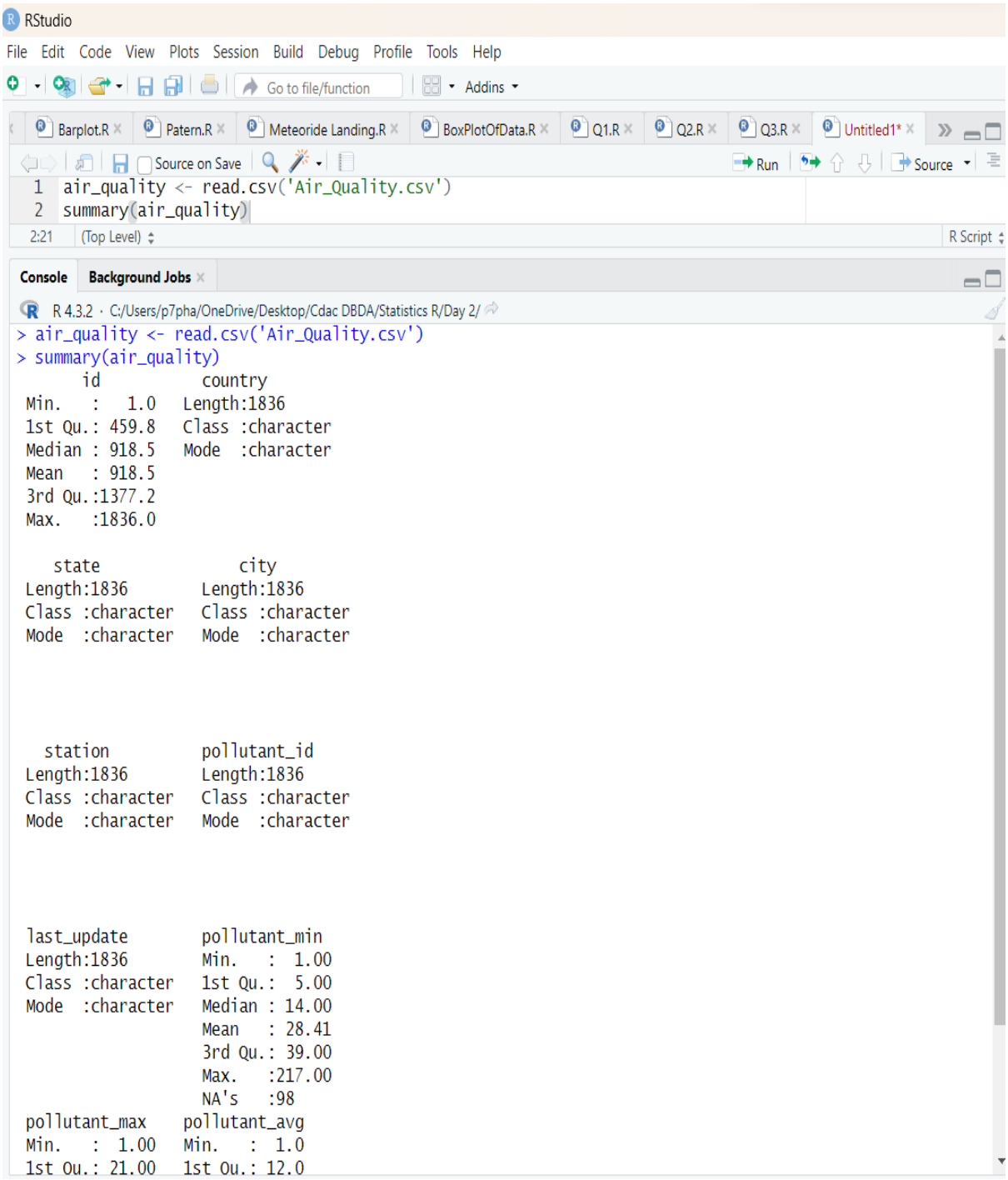
ADVANCED ANALYTICS USING STATISTICS– LAB 2

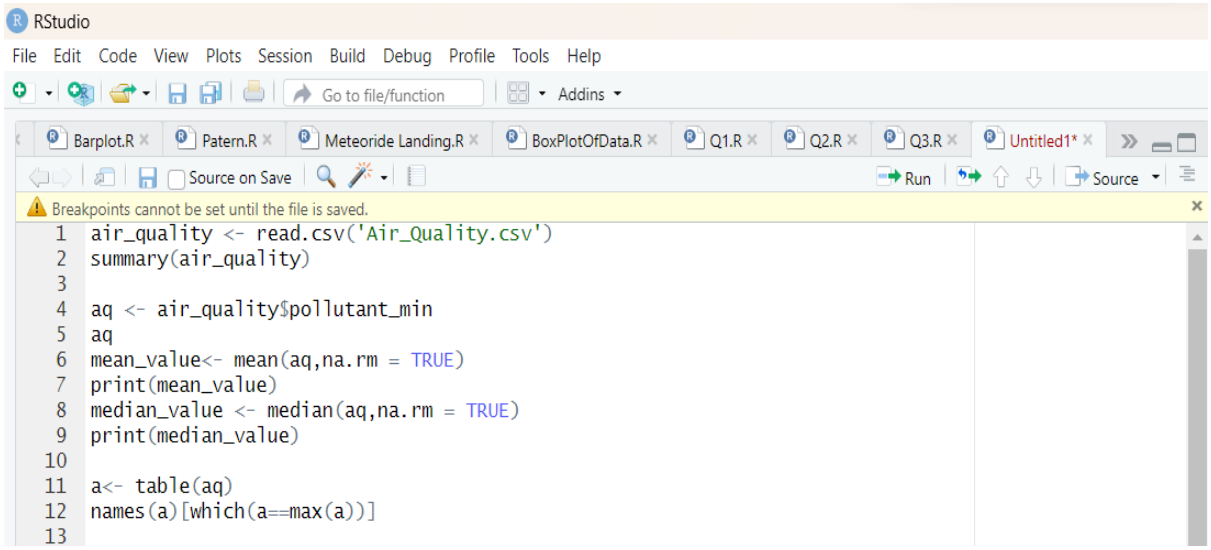
1. Load the dataset of Air_Quality.

Ans=



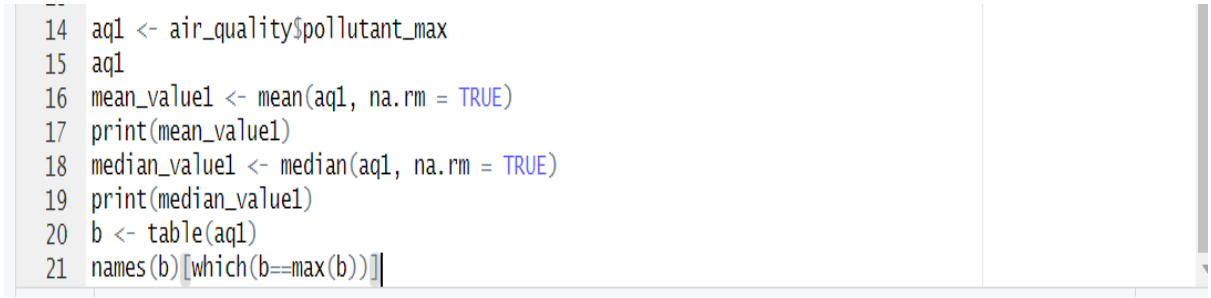
2. Find the measures of central tendency for each numerical column.

Ans= i)pollutant_min:-




```
> mean_value<- mean(aq,na.rm = TRUE)
> print(mean_value)
[1] 28.41427
> median_value <- median(aq,na.rm = TRUE)
> print(median_value)
[1] 14
> a<- table(aq)
> names(a)[which(a==max(a))]
[1] "1"
```

ii)pollutant_max:-




```
> mean_value1 <- mean(aq1, na.rm = TRUE)
> print(mean_value1)
[1] 96.87342
> median_value1 <- median(aq1, na.rm = TRUE)
> print(median_value1)
[1] 63
> b <- table(aq1)
> name(b)[which(b==max(b))]
Error in name(b) : could not find function "name"
> names(b)[which(b==max(b))]
[1] "6"
>
```

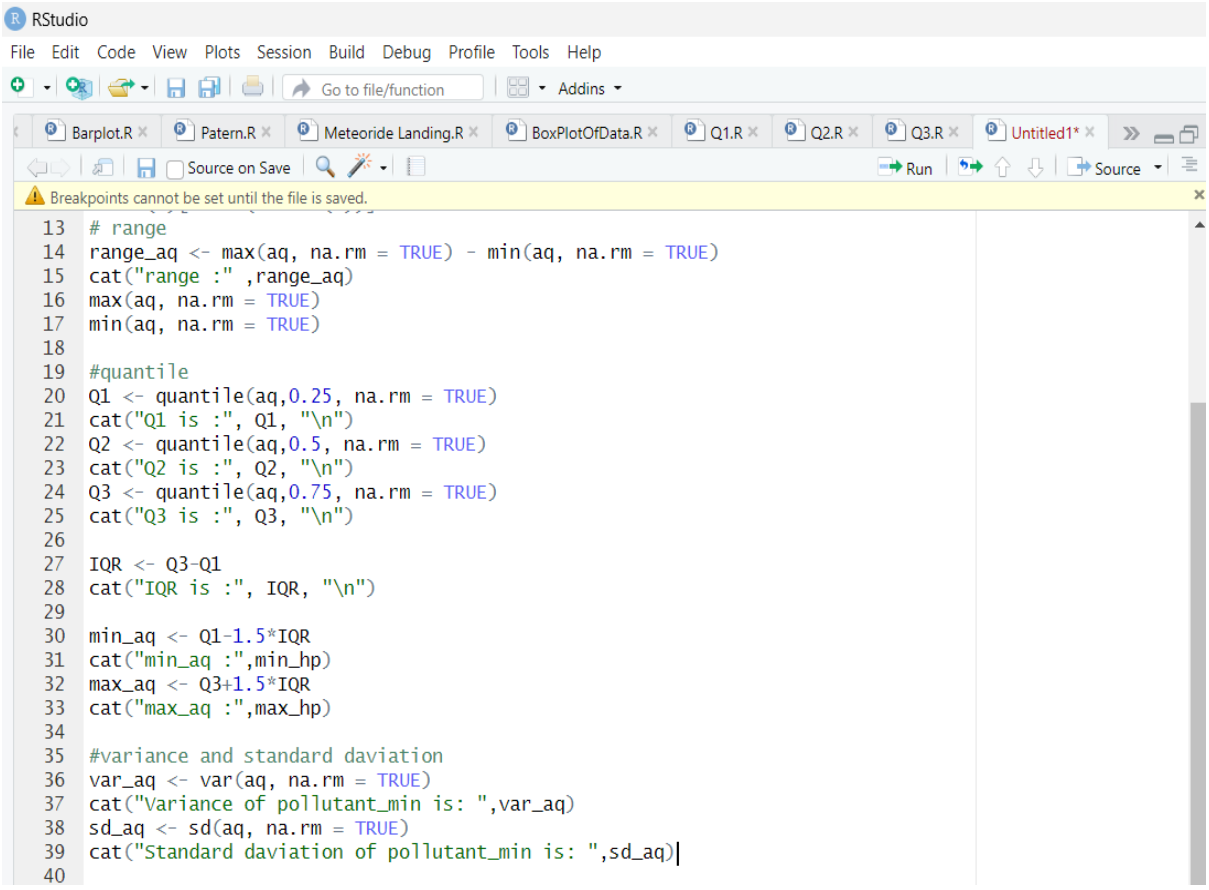
iii)pollutant_avg:-

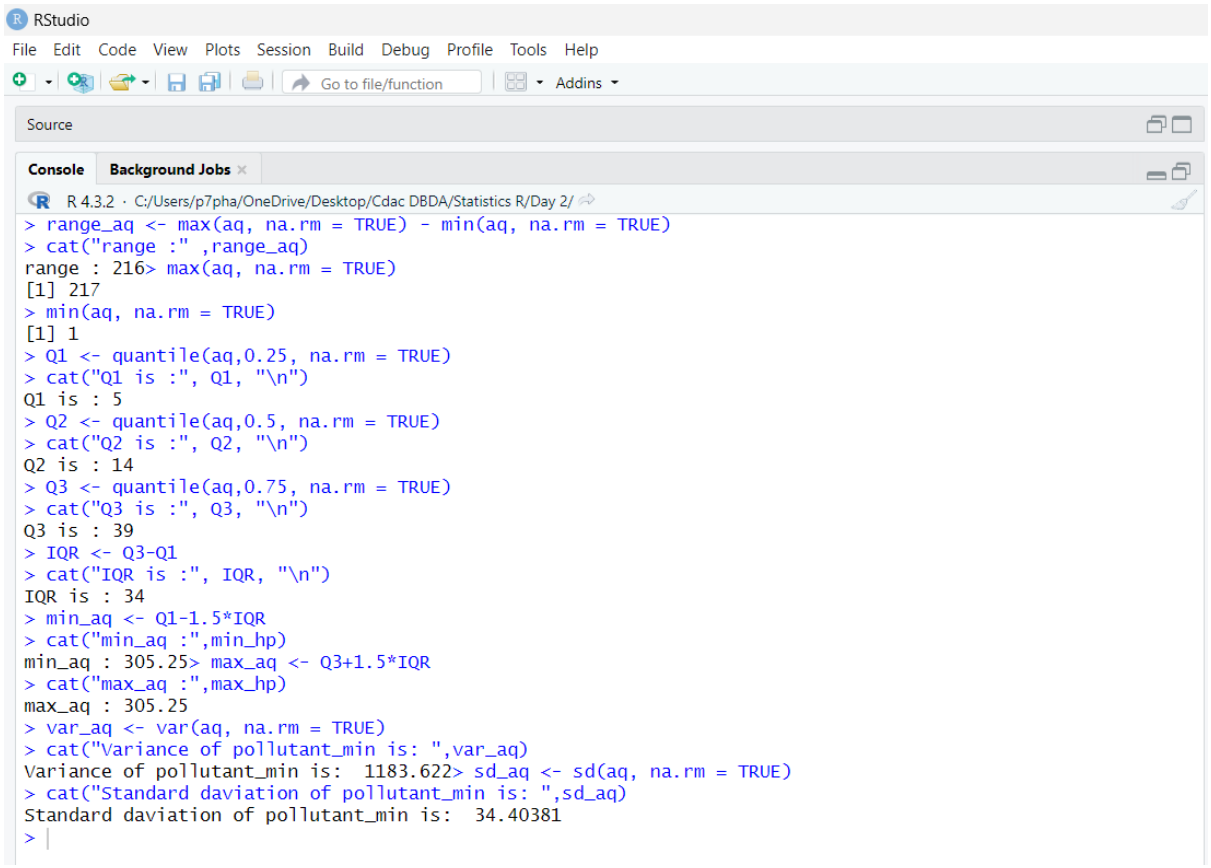
```
aq2 <- air_quality$pollutant_avg
aq2
mean_value2 <- mean(aq2, na.rm = TRUE)
print(mean_value2)
median_value2 <- median(aq2, na.rm = TRUE)
print(mean_value2)
c <- table(aq2)
names(c)[which(c==max(c))]
```

```
> mean_value2 <- mean(aq2, na.rm = TRUE)
> print(mean_value2)
[1] 54.10069
> median_value2 <- median(aq2, na.rm = TRUE)
> print(mean_value2)
[1] 54.10069
> c <- table(aq2)
> names(c)[which(c==max(c))]
[1] "5"
>
```

3. Find the measures of dispersion for each numerical column.

Ans= i)pollutant_min:-





ii)pollutant_max:-

```
51 # range
52 range_aq1 <- max(aq1, na.rm = TRUE) - min(aq1, na.rm = TRUE)
53 cat("range :" ,range_aq1)
54 max(aq1, na.rm = TRUE)
55 min(aq1, na.rm = TRUE)
56
57 #quantile
58 Q1 <- quantile(aq1,0.25, na.rm = TRUE)
59 cat("Q1 is :", Q1, "\n")
60 Q2 <- quantile(aq1,0.5, na.rm = TRUE)
61 cat("Q2 is :", Q2, "\n")
62 Q3 <- quantile(aq1,0.75, na.rm = TRUE)
63 cat("Q3 is :", Q3, "\n")
64
65 IQR <- Q3-Q1
66 cat("IQR is :", IQR, "\n")
67
68 min_aq1 <- Q1-1.5*IQR
69 cat("min_aq1 :",min_hp)
70 max_aq1 <- Q3+1.5*IQR
71 cat("max_aq1 :",max_hp)
72
73 #variance and standard daviation
74 var_aq1 <- var(aq1, na.rm = TRUE)
75 cat("Variance of pollutant_max is: ",var_aq1)
76 sd_aq1 <- sd(aq1, na.rm = TRUE)
77 cat("Standard daviation of pollutant_max is: ",sd_aq1)
78
```

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function | Addins

Source

Console | Background Jobs

R 4.3.2 · C:/Users/p7pha/OneDrive/Desktop/Cdac DBDA/Statistics R/Day 2/

```
> range_aq1 <- max(aq1, na.rm = TRUE) - min(aq1, na.rm = TRUE)
> cat("range :" ,range_aq1)
range : 499> max(aq1, na.rm = TRUE)
[1] 500
> min(aq1, na.rm = TRUE)
[1] 1
> Q1 <- quantile(aq1,0.25, na.rm = TRUE)
> cat("Q1 is :", Q1, "\n")
Q1 is : 21
> Q2 <- quantile(aq1,0.5, na.rm = TRUE)
> cat("Q2 is :", Q2, "\n")
Q2 is : 63
> Q3 <- quantile(aq1,0.75, na.rm = TRUE)
> cat("Q3 is :", Q3, "\n")
Q3 is : 124
> IQR <- Q3-Q1
> cat("IQR is :", IQR, "\n")
IQR is : 103
> min_aq1 <- Q1-1.5*IQR
> cat("min_aq1 :",min_hp)
min_aq1 : 305.25> max_aq1 <- Q3+1.5*IQR
> cat("max_aq1 :",max_hp)
max_aq1 : 305.25
> var_aq1 <- var(aq1, na.rm = TRUE)
> cat("Variance of pollutant_max is: ",var_aq1)
Variance of pollutant_max is:  10975.72> sd_aq1 <- sd(aq1, na.rm = TRUE)
> cat("Standard daviation of pollutant_max is: ",sd_aq1)
Standard daviation of pollutant_max is:  104.7651
>
```

iii)pollutant_avg:-

```
88
89  # range
90  range_aq2 <- max(aq2, na.rm = TRUE) - min(aq2, na.rm = TRUE)
91  cat("range :" ,range_aq2)
92  max(aq2, na.rm = TRUE)
93  min(aq2, na.rm = TRUE)
94
95  #quantile
96  Q1 <- quantile(aq2,0.25, na.rm = TRUE)
97  cat("Q1 is :", Q1, "\n")
98  Q2 <- quantile(aq2,0.5, na.rm = TRUE)
99  cat("Q2 is :", Q2, "\n")
100 Q3 <- quantile(aq2,0.75, na.rm = TRUE)
101 cat("Q3 is :", Q3, "\n")
102
103 IQR <- Q3-Q1
104 cat("IQR is :", IQR, "\n")
105
106 min_aq2 <- Q1-1.5*IQR
107 cat("min_aq2 :",min_hp)
108 max_aq2 <- Q3+1.5*IQR
109 cat("max_aq2 :",max_hp)
110
111 #variance and standard daviation
112 var_aq2 <- var(aq2, na.rm = TRUE)
113 cat("Variance of pollutant_avg is: ",var_aq2)
114 sd_aq2 <- sd(aq2, na.rm = TRUE)
115 cat("Standard daviation of pollutant_avg is: ",sd_aq2)
```

115:55 (Top Level) R Script

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function | Addins

Source

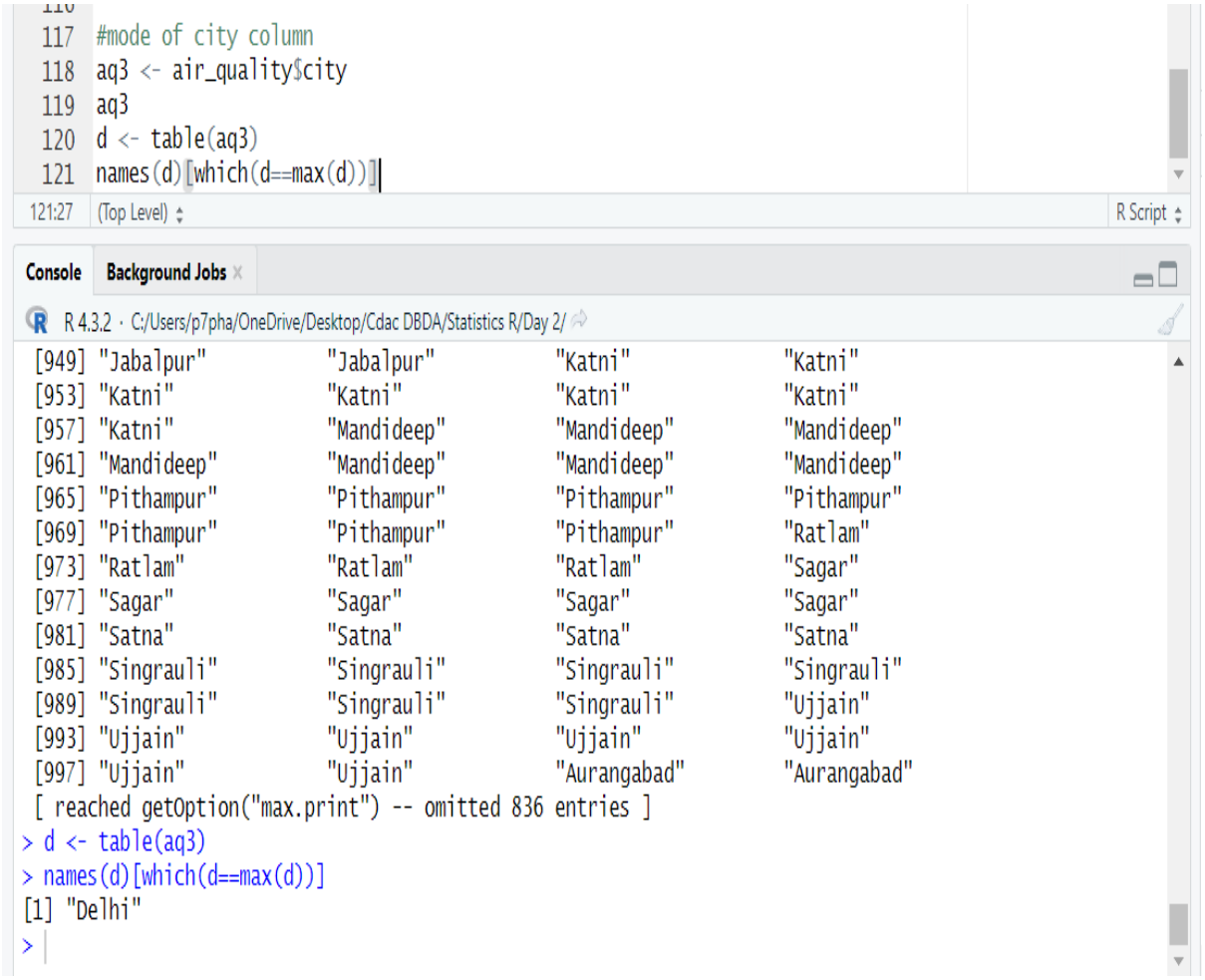
Console | Background Jobs

R 4.3.2 · C:/Users/p7pha/OneDrive/Desktop/Cdac DBDA/Statistics R/Day 2/

```
> range_aq2 <- max(aq2, na.rm = TRUE) - min(aq2, na.rm = TRUE)
> cat("range :" ,range_aq2)
range : 313> max(aq2, na.rm = TRUE)
[1] 314
> min(aq2, na.rm = TRUE)
[1] 1
> Q1 <- quantile(aq2,0.25, na.rm = TRUE)
> cat("Q1 is :", Q1, "\n")
Q1 is : 12
> Q2 <- quantile(aq2,0.5, na.rm = TRUE)
> cat("Q2 is :", Q2, "\n")
Q2 is : 31
> Q3 <- quantile(aq2,0.75, na.rm = TRUE)
> cat("Q3 is :", Q3, "\n")
Q3 is : 70
> IQR <- Q3-Q1
> cat("IQR is :", IQR, "\n")
IQR is : 58
> min_aq2 <- Q1-1.5*IQR
> cat("min_aq2 :",min_hp)
min_aq2 : 305.25> max_aq2 <- Q3+1.5*IQR
> cat("max_aq2 :",max_hp)
max_aq2 : 305.25
> var_aq2 <- var(aq2, na.rm = TRUE)
> cat("Variance of pollutant_avg is: ",var_aq2)
Variance of pollutant_avg is:  3699.578> sd_aq2 <- sd(aq2, na.rm = TRUE)
> cat("Standard daviation of pollutant_avg is: ",sd_aq2)
Standard daviation of pollutant_avg is:  60.82416
>
```

4. Find the mode of city column.

Ans=



```
#mode of city column
aq3 <- air_quality$city
aq3
d <- table(aq3)
names(d)[which(d==max(d))]
```

```
 [949] "Jabalpur"          "Jabalpur"          "Katni"             "Katni"
 [953] "Katni"             "Katni"             "Katni"             "Katni"
 [957] "Katni"             "Mandideep"         "Mandideep"         "Mandideep"
 [961] "Mandideep"         "Mandideep"         "Mandideep"         "Mandideep"
 [965] "Pithampur"         "Pithampur"         "Pithampur"         "Pithampur"
 [969] "Pithampur"         "Pithampur"         "Pithampur"         "Ratlam"
 [973] "Ratlam"            "Ratlam"            "Ratlam"            "Sagar"
 [977] "Sagar"             "Sagar"             "Sagar"             "Sagar"
 [981] "Satna"             "Satna"             "Satna"             "Satna"
 [985] "Singrauli"         "Singrauli"         "Singrauli"         "Singrauli"
 [989] "Singrauli"         "Singrauli"         "Singrauli"         "Ujjain"
 [993] "Ujjain"            "Ujjain"            "Ujjain"            "Ujjain"
 [997] "Ujjain"            "Ujjain"            "Aurangabad"        "Aurangabad"
 [ reached getOption("max.print") -- omitted 836 entries ]
> d <- table(aq3)
> names(d)[which(d==max(d))]
[1] "Delhi"
>
```

5. Find if there are outliers in the numerical columns using boxplot and if there is, display the value.

Ans= i)pollutant_min:-

```
34
35 #boxplot and outliers
36 boxplot(aq, na.rm = TRUE)
37 outliers <- aq[aq<min_aq | aq > max_aq]
38 cat("outliers of pollutant_min:", outliers)
```

37:40 (Top Level) R Script

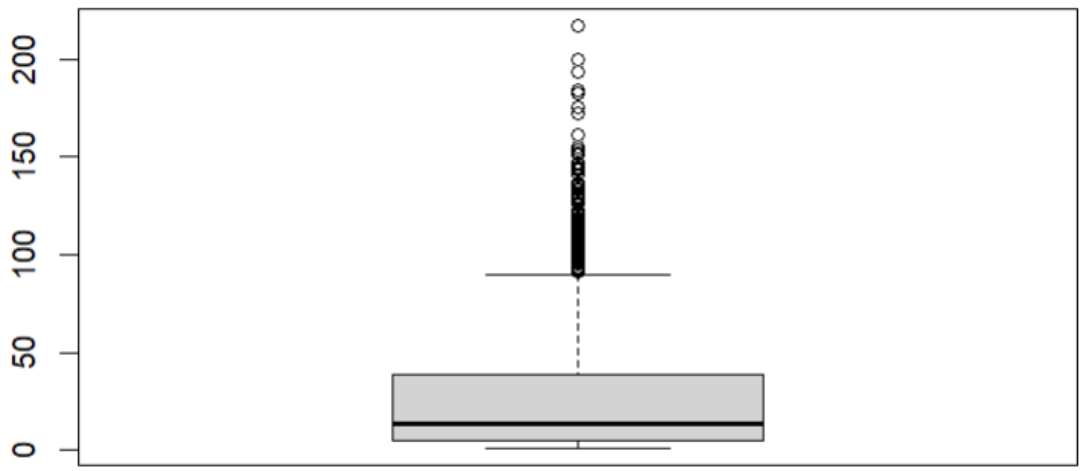
Console Background Jobs

R 4.3.2 · C:/Users/p7pha/OneDrive/Desktop/Cdac DBDA/Statistics R/Day 2/

```
> boxplot(aq, na.rm = TRUE)
> outliers <- aq[aq<min_aq | aq > max_aq]
> cat("outliers of pollutant_min:", outliers)
outliers of pollutant_min: 95 105 NA 113 NA NA 129 111 133 104 102 111 113 131 175 120 133 NA NA NA 127 106
137 108 144 193 136 101 127 123 106 135 120 109 95 NA 110 120 119 161 119 93 121 97 NA 133 NA 172 NA NA 104
126 106 117 113 105 117 96 91 113 99 91 217 100 103 117 129 147 200 144 NA NA NA 102 111 123 146 131 109 NA
126 135 155 120 95 155 NA 184 NA NA NA NA NA NA NA 94 NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
NA NA NA NA NA NA NA 99 91 NA NA 107 91 126 93 93 99 NA NA NA NA 129 NA NA NA NA NA NA NA 107 109 NA NA NA
NA NA NA NA NA NA NA 126 NA NA NA NA NA 104 151 122 110 133 117 103 141 NA 118 127 145 102 152 NA 147 141 1
08 92 107 110 102 109 121 112 128 117 115 146 105 136 153 143 182 130 93 123 136 131 152 134 110 NA NA NA N
A NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
>
```

Files Plots Packages Help Viewer Presentation

Zoom Export Publish



ii)pollutant_max:-

```
78 #boxplot and outliers
79 boxplot(aq1, na.rm = TRUE)
80 outliers1 <- aq1[aq1<min_aq1 | aq1 > max_aq1]
81 cat("outliers of pollutant_mmax:", outliers1)
```

81:46 (Top Level) R Script

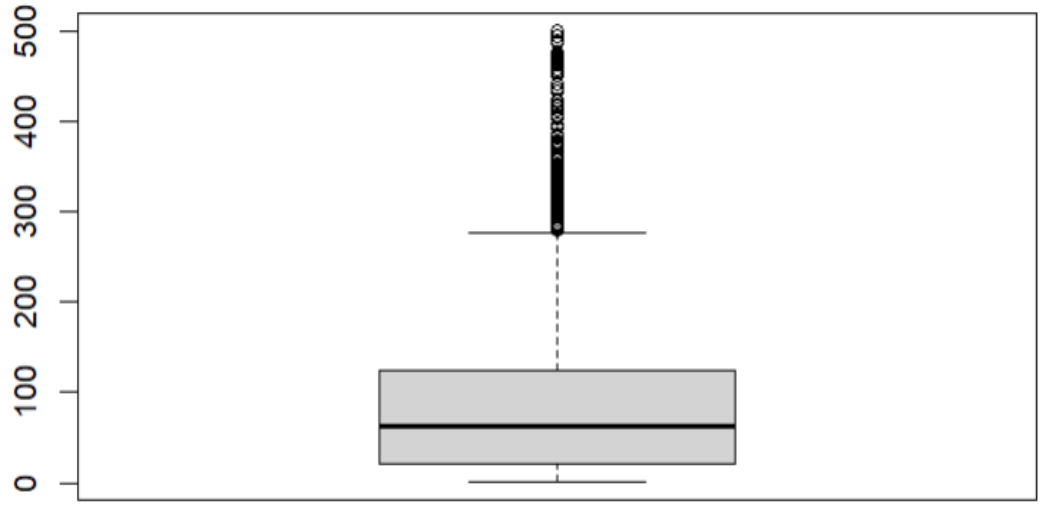
Console Background Jobs

R 4.3.2 · C:/Users/p7pha/OneDrive/Desktop/Cdac DBDA/Statistics R/Day 2/

```
> boxplot(aq1, na.rm = TRUE)
> outliers1 <- aq1[aq1<min_aq1 | aq1 > max_aq1]
> cat("outliers of pollutant_mmax:", outliers1)
outliers of pollutant_mmax: 312 282 474 295 315 403 NA 344 NA NA 281 348 423 321 408 336 303 281 333 500 36
7 304 NA NA NA 315 304 308 348 362 489 396 458 345 500 500 308 312 341 321 348 324 NA 470 318 422 306 473 3
09 342 323 413 NA NA 419 339 NA 347 436 NA 318 368 314 330 313 288 404 306 377 304 403 500 283 422 408 320
304 406 454 361 442 316 500 500 314 301 NA NA NA 309 344 329 NA 350 305 327 326 500 NA 311 298 341 330 467
NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA 282 NA NA 335 417 374 NA NA NA NA NA 302 NA 320
NA NA NA NA 310 NA NA 347 NA NA NA NA 301 NA NA NA NA NA NA NA 286 341 320 371 408 327 360 416 328 332 NA N
A NA 291 281 NA NA 321 NA NA NA NA NA NA NA NA NA NA 346 302 386 464 459 477 314 347 304 310 316 353 346 39
3 487 NA 433 422 363 466 335 406 NA 500 308 295 361 303 378 384 317 287 288 340 281 330 285 362 392 352 469
495 324 352 313 368 322 377 315 358 301 339 450 NA NA NA NA NA NA NA 300 284 NA NA NA NA NA NA NA NA NA NA
NA NA NA 372
>
```

Files Plots Packages Help Viewer Presentation

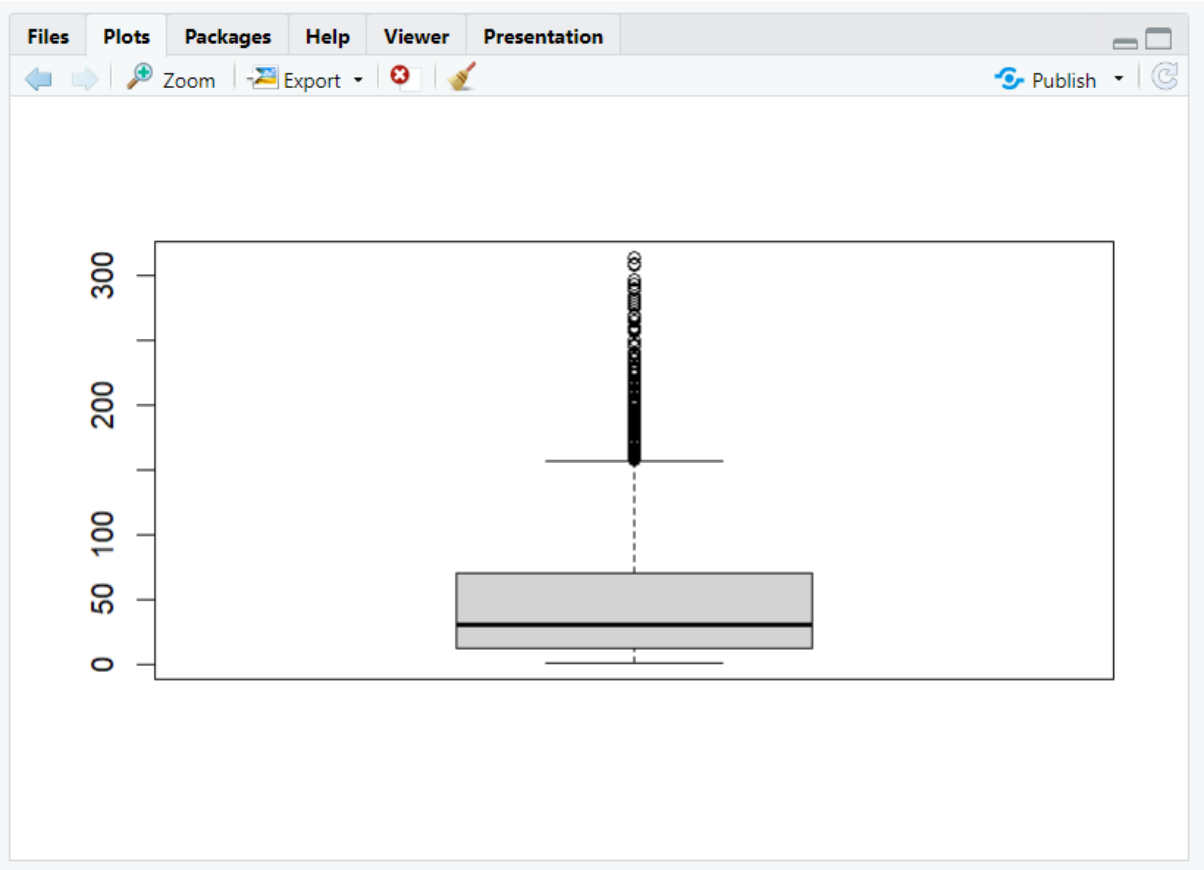
Zoom Export Publish



iii)pollutant_avg:-

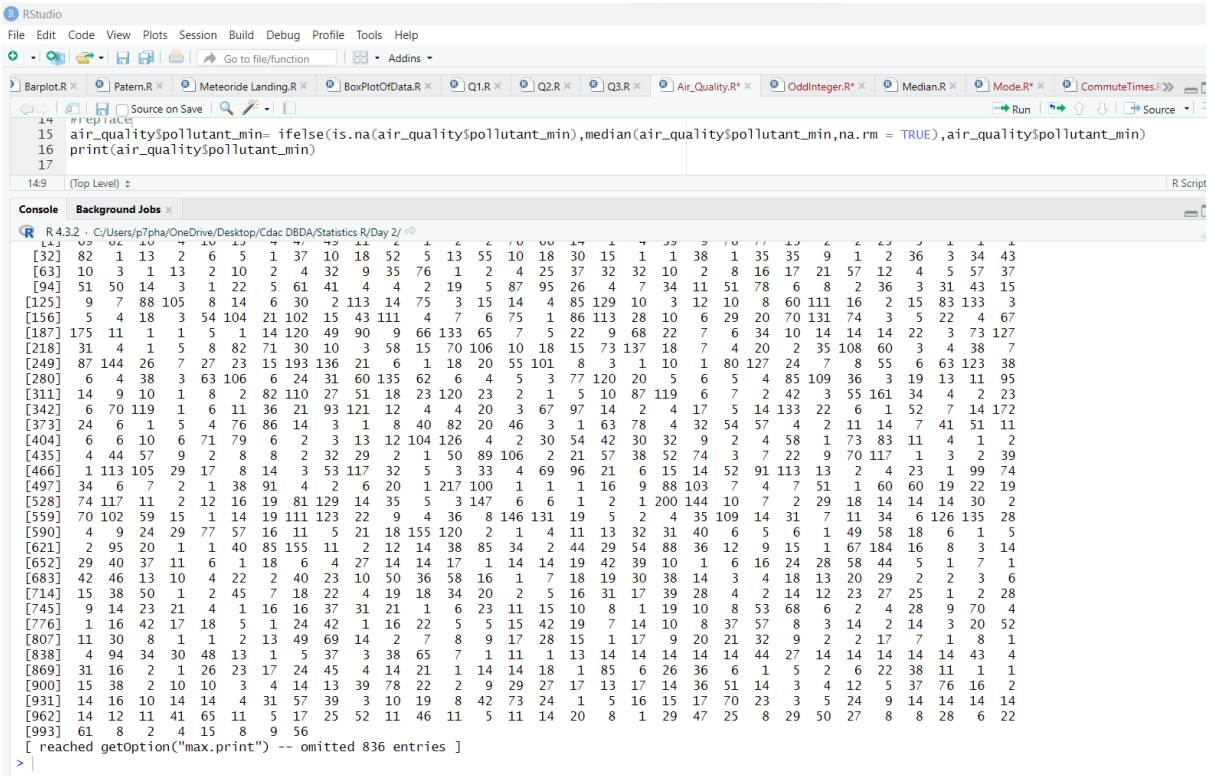
```
#boxplot and outliers
boxplot(aq2, na.rm = TRUE)
outliers2 <- aq2[aq2<min_aq2 | aq2 > max_aq2]
cat("outliers of pollutant_mmax:", outliers2)
```

```
> boxplot(aq2, na.rm = TRUE)
> outliers2 <- aq2[aq2<min_aq2 | aq2 > max_aq2]
> cat("outliers of pollutant_mmax:", outliers2)
outliers of pollutant_mmax: 202 200 223 199 NA 235 NA NA 190 240 205 177 220 199 164 174 173 208 293 280 15
9 NA NA NA 173 160 170 184 185 212 268 297 213 216 178 190 183 165 164 196 182 170 201 165 201 NA 194 195 2
20 275 165 191 205 240 NA 178 NA 260 179 NA 184 NA 250 189 195 179 204 228 309 240 282 188 201 314 250 210
182 174 162 246 265 206 NA NA NA 210 159 215 166 182 NA 277 205 247 167 240 NA 212 257 226 167 NA NA NA NA
NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA 161 178 161 NA NA NA NA NA NA NA NA NA 161 NA NA 1
87 NA NA NA NA 173 NA NA NA NA NA NA NA 162 206 241 164 163 223 219 192 162 NA NA NA NA NA 166 NA NA NA NA
NA NA NA NA NA NA 180 199 247 240 224 189 165 179 204 184 218 165 181 173 195 232 NA 158 270 250 259 290 21
5 239 NA 229 178 202 236 194 229 191 240 169 179 250 204 258 223 206 280 194 308 229 284 289 176 210 158 20
2 176 215 170 194 208 219 NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
>
```

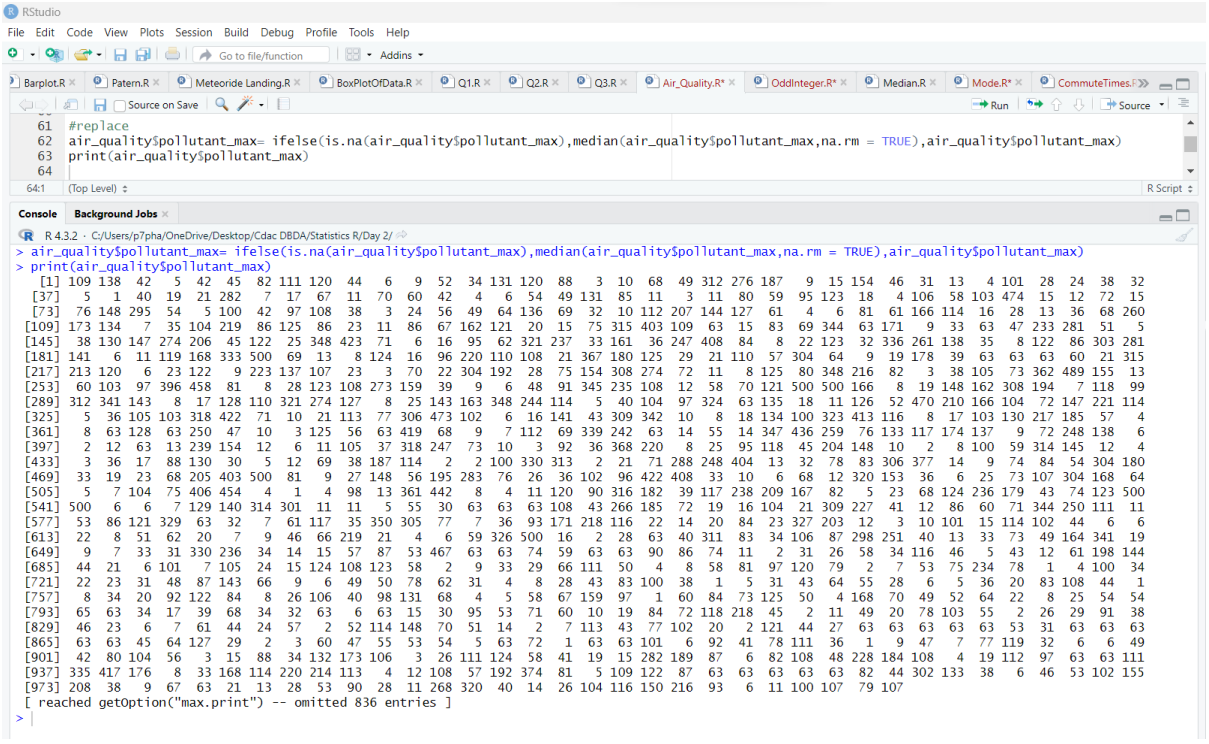


6. Check if there are missing values in the columns. Replace the missing values.

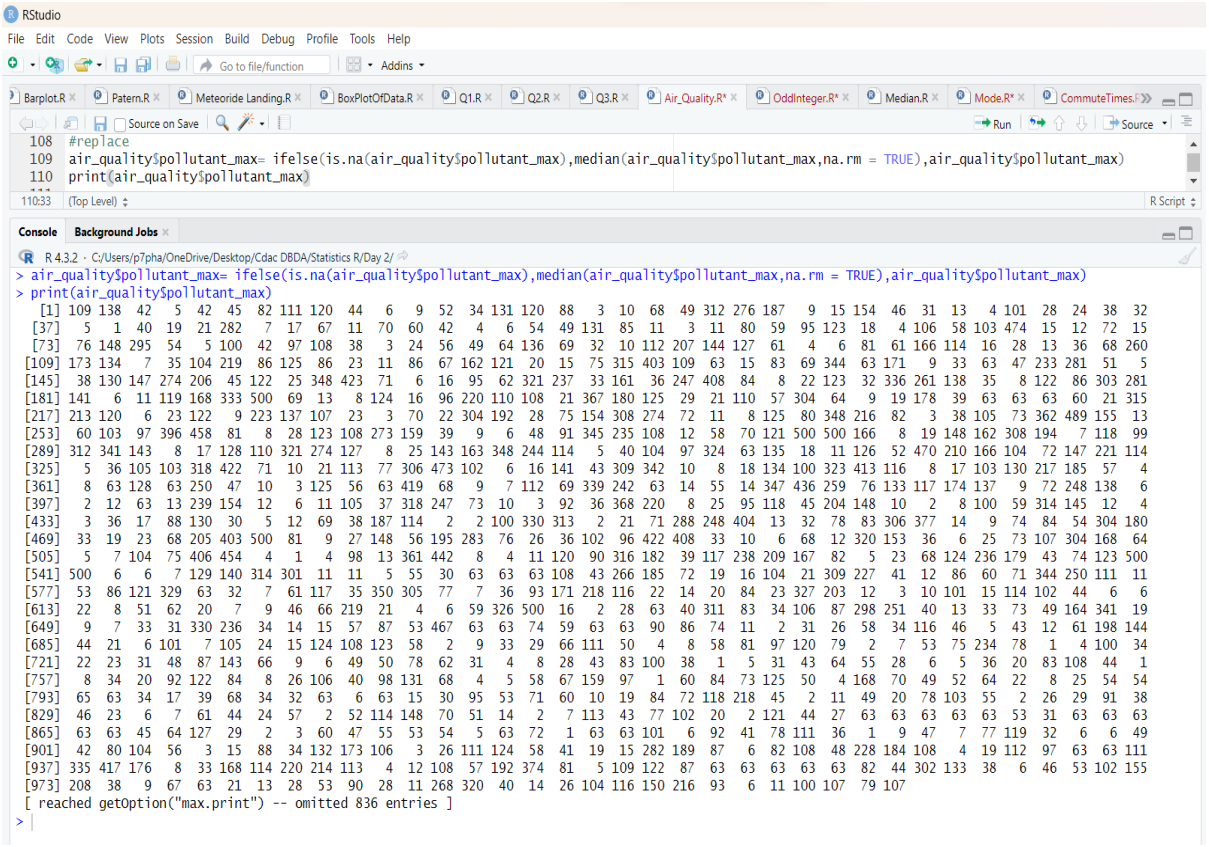
Ans= i)pollutant_min:-



ii)pollutant_max:-

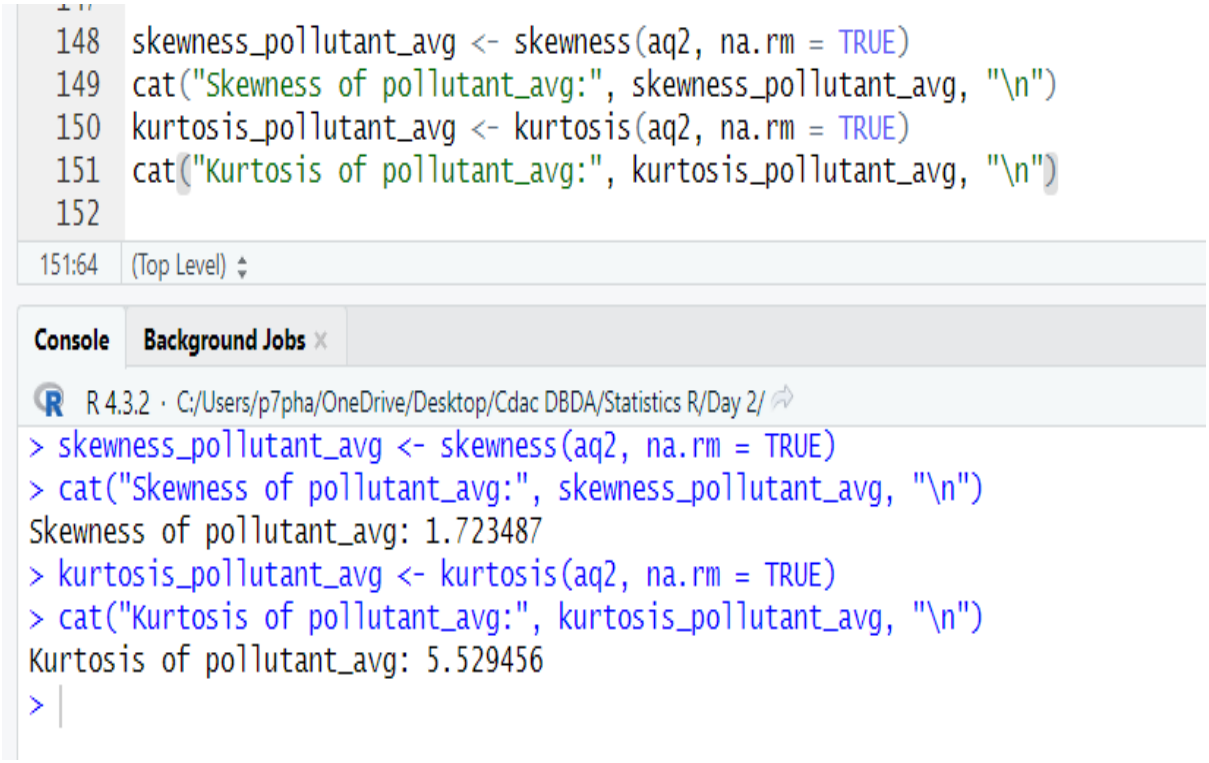


iii)pollutant_avg:-



7. Find the type of skewness and kurtosis of pollutant_avg.

Ans=



```
148 skewness_pollutant_avg <- skewness(aq2, na.rm = TRUE)
149 cat("Skewness of pollutant_avg:", skewness_pollutant_avg, "\n")
150 kurtosis_pollutant_avg <- kurtosis(aq2, na.rm = TRUE)
151 cat("Kurtosis of pollutant_avg:", kurtosis_pollutant_avg, "\n")
152
```

```
151:64  (Top Level)
```

```
Console  Background Jobs
R 4.3.2 · C:/Users/p7pha/OneDrive/Desktop/Cdac DBDA/Statistics R/Day 2/
> skewness_pollutant_avg <- skewness(aq2, na.rm = TRUE)
> cat("Skewness of pollutant_avg:", skewness_pollutant_avg, "\n")
Skewness of pollutant_avg: 1.723487
> kurtosis_pollutant_avg <- kurtosis(aq2, na.rm = TRUE)
> cat("Kurtosis of pollutant_avg:", kurtosis_pollutant_avg, "\n")
Kurtosis of pollutant_avg: 5.529456
>
```

8. Convert last_update column to the format mm/dd/YYYY.

Ans=

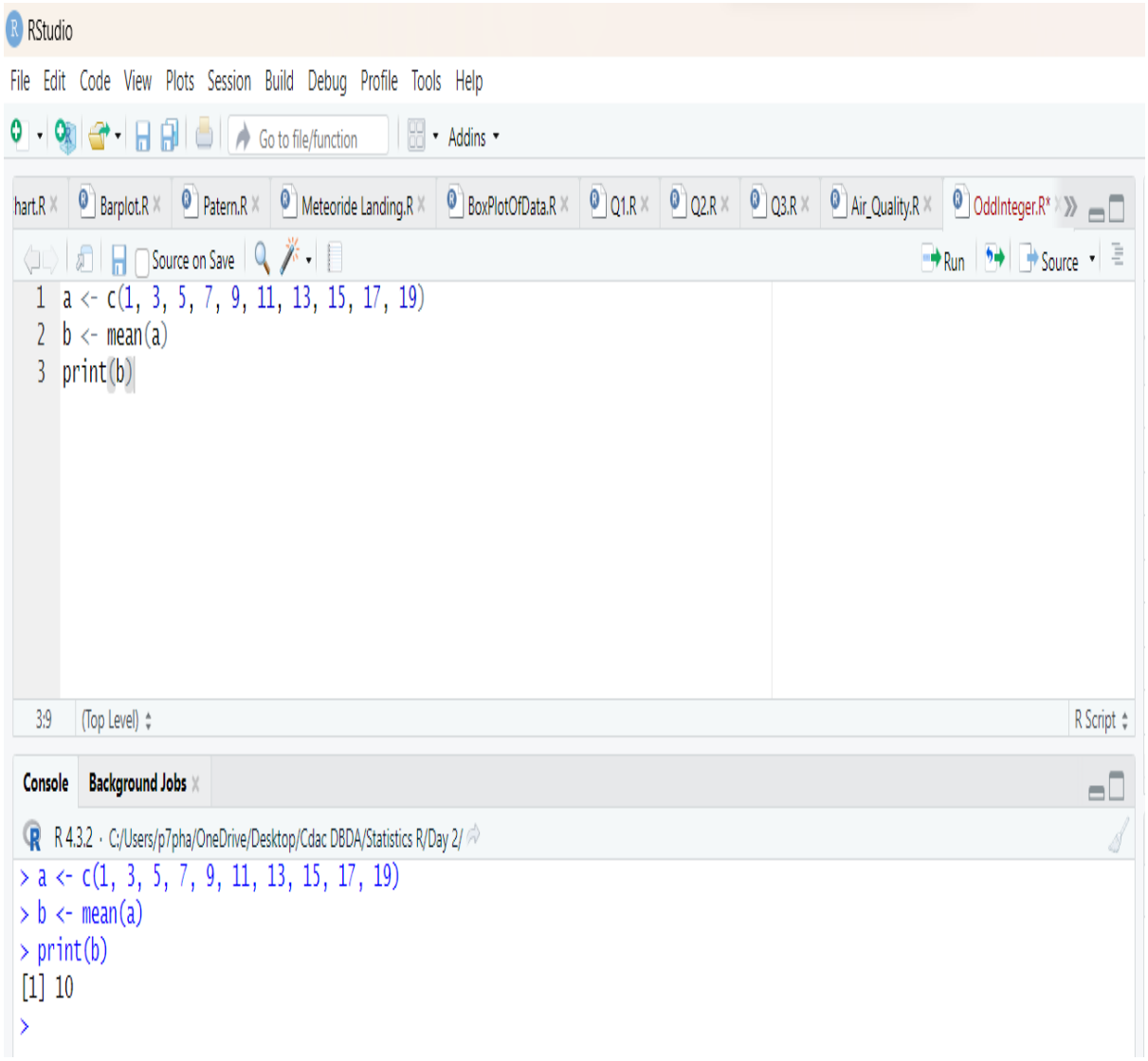
```
150 date_update<-format(as.POSIXct(air_quality$last_update,format='%d-%m-%Y %H:%M'),format='%m/%d/%Y')
151 print(date_update)
152
```

```
> date_update<-format(as.POSIXct(air_quality$last_update,format='%d-%m-%Y %H:%M'),format='%m/%d/%Y')
> print(date_update)
  [1] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
  [8] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [15] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [22] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [29] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [36] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [43] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [50] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [57] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [64] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [71] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [78] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [85] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [92] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
 [99] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[106] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[113] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[120] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[127] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[134] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[141] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[148] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[155] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[162] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[169] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
```

```
[827] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[834] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[841] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[848] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[855] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[862] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[869] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[876] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[883] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[890] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[897] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[904] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[911] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[918] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[925] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[932] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[939] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[946] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[953] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[960] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[967] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[974] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[981] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[988] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[995] "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021" "10/21/2021"
[ reached getOption("max.print") -- omitted 836 entries ]
>
```

9. Find the mean of the first 10 odd integers.

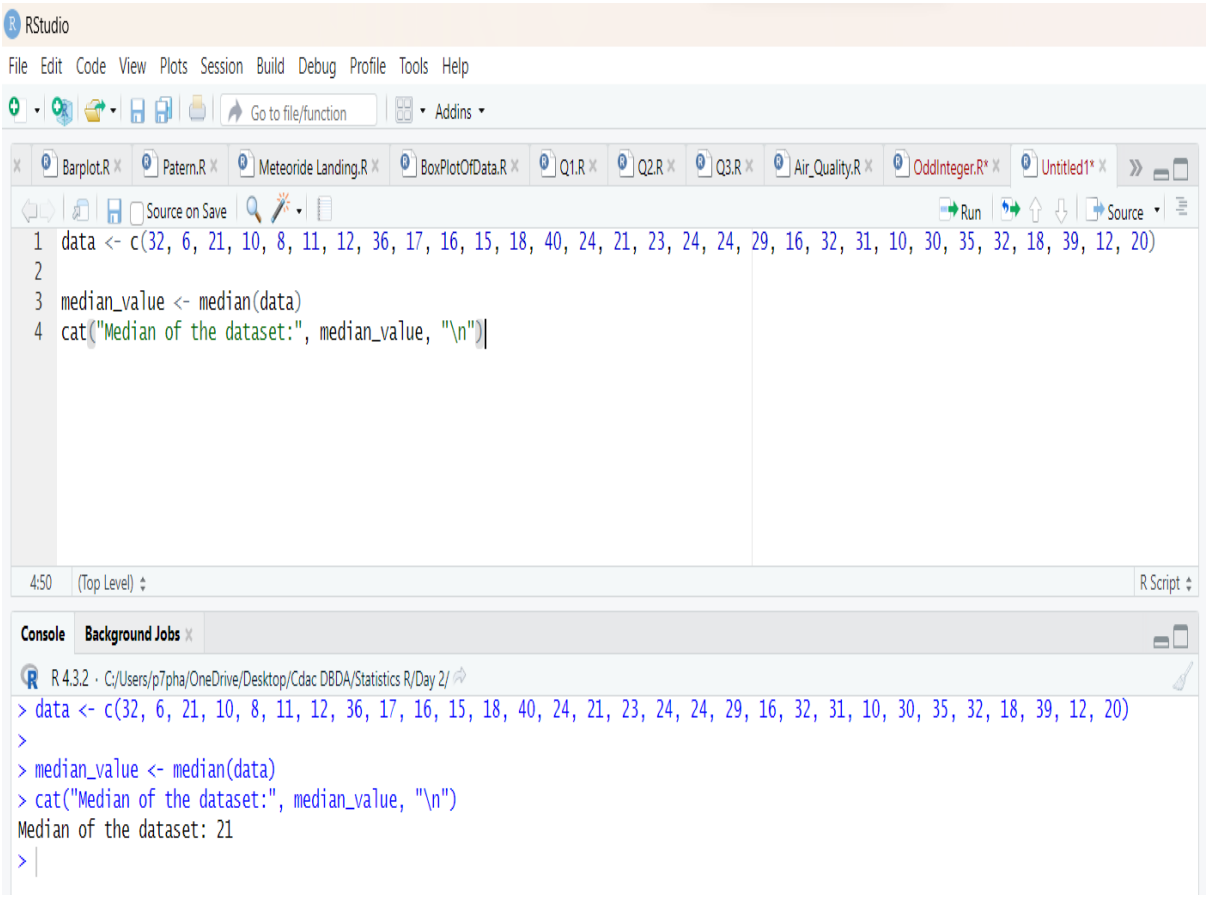
Ans=



10. What is the median of the following dataset?

32, 6, 21, 10, 8, 11, 12, 36, 17, 16, 15, 18, 40, 24, 21, 23, 24, 24, 29, 16, 32, 31, 10, 30, 35, 32, 18, 39, 12, 20.

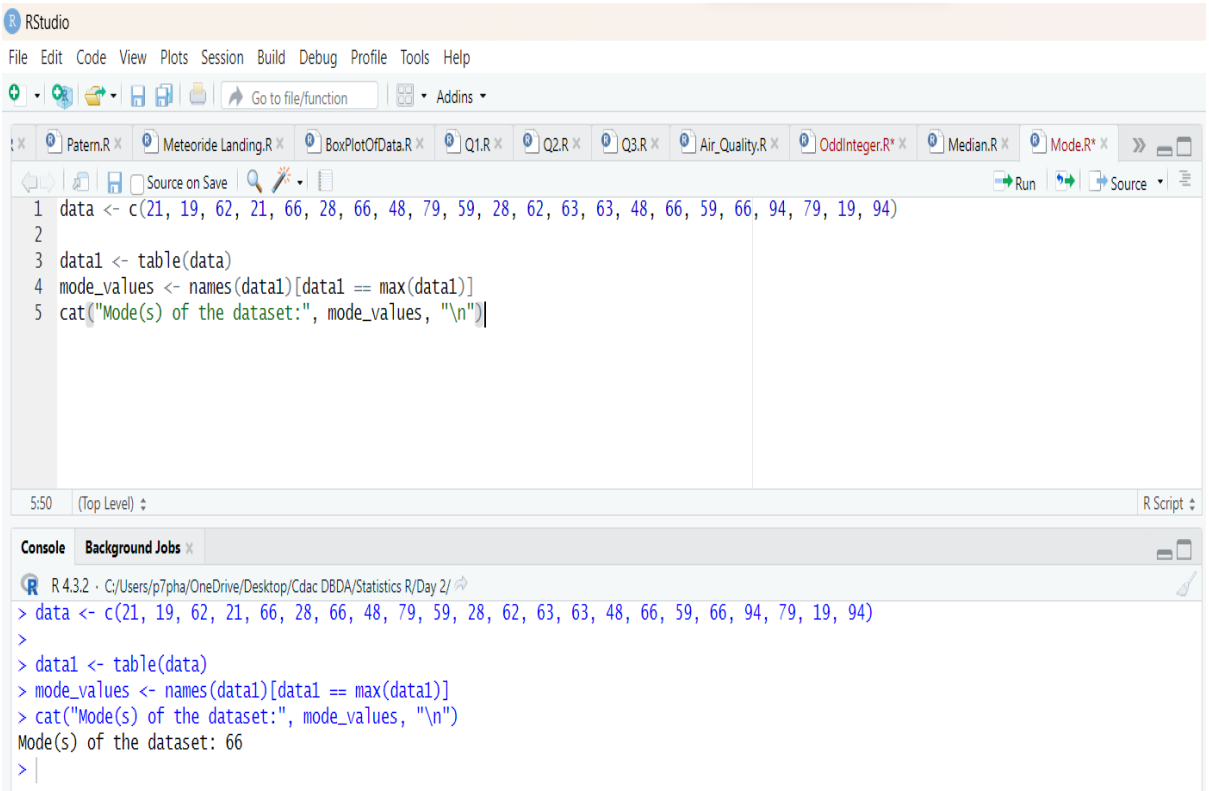
Ans=



11. Identify the mode for the following dataset

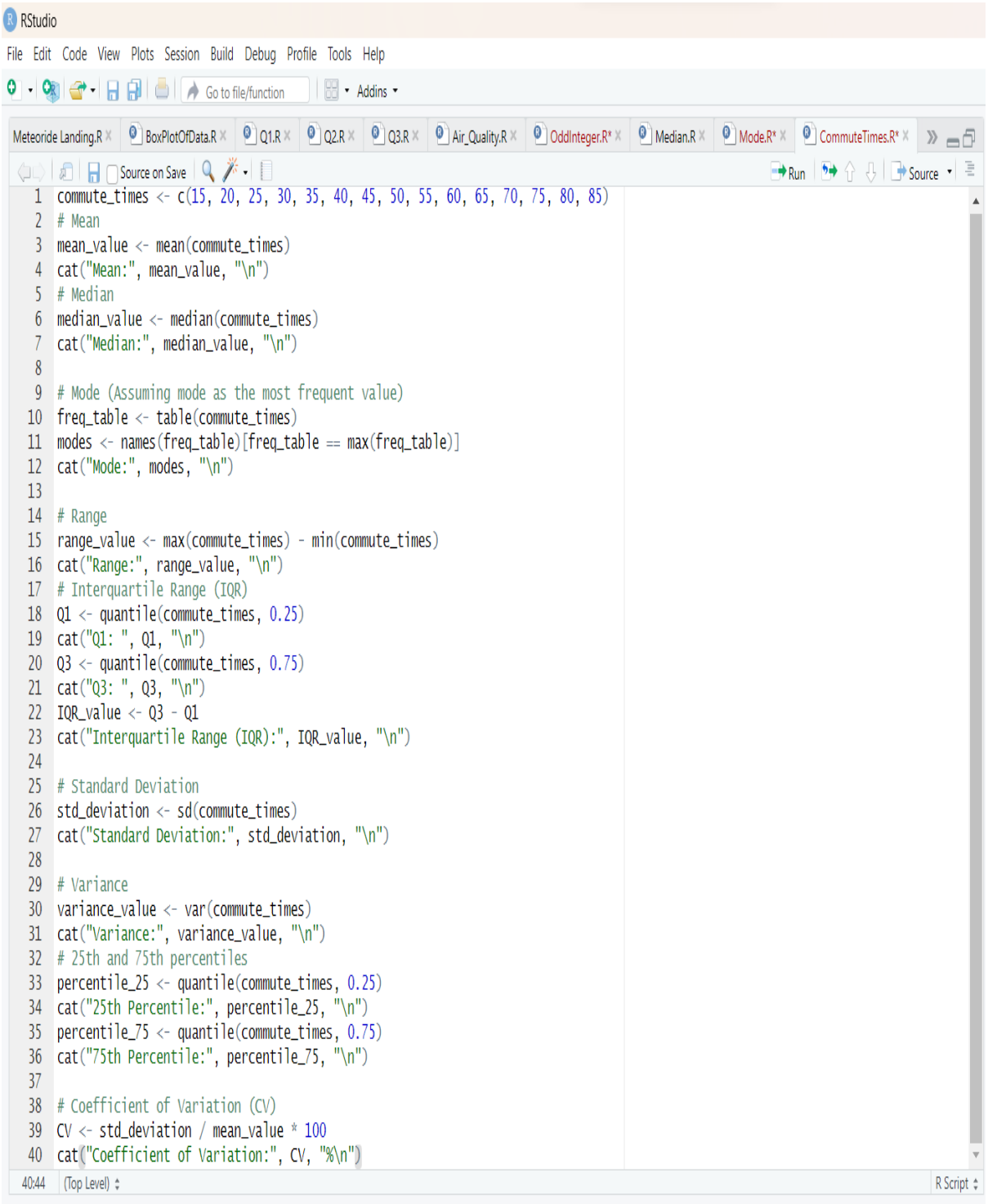
21, 19, 62, 21, 66, 28, 66, 48, 79, 59, 28, 62, 63, 63, 48, 66, 59, 66, 94, 79, 19, 94.

Ans=



12. You are provided with a dataset representing the daily commute times (in minutes) of a group of employees. Your task is to perform a comprehensive analysis using various statistical measures. The dataset is as follows: commute_times <- c(15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85).

Ans=



RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

Source

Console Background Jobs

R 4.3.2 · C:/Users/p7pha/OneDrive/Desktop/Cdac DBDA/Statistics R/Day 2/

```
> mean_value <- mean(commute_times)
> cat("Mean:", mean_value, "\n")
Mean: 50
> median_value <- median(commute_times)
> cat("Median:", median_value, "\n")
Median: 50
> freq_table <- table(commute_times)
> modes <- names(freq_table)[freq_table == max(freq_table)]
> cat("Mode:", modes, "\n")
Mode: 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
> range_value <- max(commute_times) - min(commute_times)
> cat("Range:", range_value, "\n")
Range: 70
> Q1 <- quantile(commute_times, 0.25)
> cat("Q1: ", Q1, "\n")
Q1:  32.5
> Q3 <- quantile(commute_times, 0.75)
> cat("Q3: ", Q3, "\n")
Q3:  67.5
> IQR_value <- Q3 - Q1
> cat("Interquartile Range (IQR):", IQR_value, "\n")
Interquartile Range (IQR): 35
> std_deviation <- sd(commute_times)
> cat("Standard Deviation:", std_deviation, "\n")
Standard Deviation: 22.36068
> variance_value <- var(commute_times)
> cat("Variance:", variance_value, "\n")
Variance: 500
> percentile_25 <- quantile(commute_times, 0.25)
> cat("25th Percentile:", percentile_25, "\n")
25th Percentile: 32.5
> percentile_75 <- quantile(commute_times, 0.75)
> cat("75th Percentile:", percentile_75, "\n")
75th Percentile: 67.5
> CV <- std_deviation / mean_value * 100
> cat("Coefficient of Variation:", CV, "%\n")
Coefficient of Variation: 44.72136 %
>
```