

**SHETH L.U.J. & SIR M.V. COLLEGE OF SCIENCE
SUBJECT - Data Analysis with R/SAS/SPSS**

Aim - Performing one-sample t-tests using `t.test()` (R).

Output :

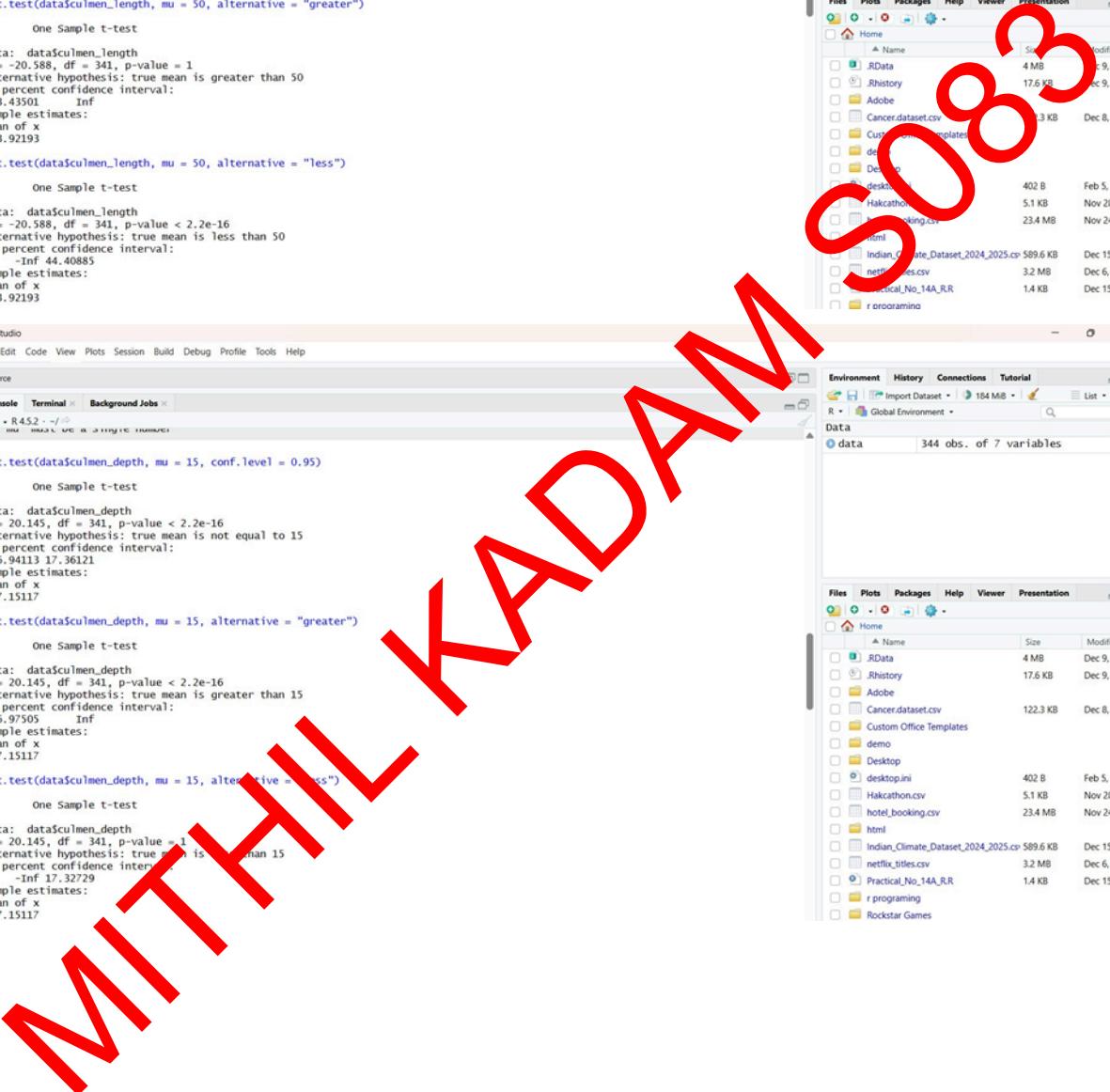
RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help

Source

```
Console Terminal < Background Jobs <  
> R 4.5.2 - ~/  
> rm(list = ls())  
> data <- read.csv("penguins.csv")  
> head(data)  
#> #> species island culmen_length culmen_depth flipper_length body_mass sex  
#> 1 Adelie Torgersen 39.1 18.7 181 3750 MALE  
#> 2 Adelie Torgersen 39.5 17.4 186 3800 FEMALE  
#> 3 Adelie Torgersen 40.3 18.0 195 3250 FEMALE  
#> 4 Adelie Torgersen NA NA NA <NA>  
#> 5 Adelie Torgersen 36.7 19.3 193 3450 FEMALE  
#> 6 Adelie Torgersen 39.3 20.6 190 3650 MALE  
> str(data)  
'data.frame': 344 obs. of 7 variables:  
 $ species : chr "Adelie" "Adelie" "Adelie" ...  
 $ island   : chr "Torgersen" "Torgersen" "Torgersen" ...  
 $ culmen_length: num 39.1 39.5 40.3 NA 36.7 39.3 38.9 39.2 34.1 42 ...  
 $ culmen_depth: num 18.7 17.4 18.0 19.3 20.6 17.8 19.6 18.1 20.2 ...  
 $ flipper_length: int 181 186 195 NA 193 190 181 195 193 190 ...  
 $ body_mass : int 3750 3800 3250 NA 3450 3650 3625 4675 3475 4250 ...  
 $ sex      : chr "MALE" "FEMALE" "FEMALE" NA ...  
> summary(data$culmen_length)  
 Min. 1st Qu. Median Mean 3rd Qu. Max. NA's  
 32.10 39.23 44.45 43.92 48.50 59.60 2  
> summary(data$culmen_depth)  
 Min. 1st Qu. Median Mean 3rd Qu. Max. NA's  
 13.10 15.60 17.30 17.15 18.70 21.50 2  
> summary(data$flipper_length)  
 Min. 1st Qu. Median Mean 3rd Qu. Max. NA's  
 172.0 190.0 197.0 200.9 213.0 231.0 2  
> summary(data$body_mass)  
 Min. 1st Qu. Median Mean 3rd Qu. Max. NA's  
 2700 3550 4050 4202 4750 6300 2  
> t.test(data$culmen_length, mu = 0)  
  
One Sample t-test  
  
data: data$culmen_length  
t = 148.78, df = 341, p-value < 2.2e-16  
alternative hypothesis: true mean is not equal to 0  
95 percent confidence interval:  
 43.34125 44.50261  
sample estimates:  
mean of x
```

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The image displays two side-by-side screenshots of the RStudio interface. Both screenshots show the R console, environment, and file browser panes.

Top Screenshot (RStudio Console):

```
R > t.test(data$culmen_length, mu = 50, conf.level = 0.95)
One Sample t-test

data: data$culmen_length
t = -20.588, df = 341, p-value < 2.2e-16
alternative hypothesis: true mean is not equal to 50
95 percent confidence interval:
43.34125 44.50261
sample estimates:
mean of x
43.92193

R > t.test(data$culmen_length, mu = 50, alternative = "greater")

One Sample t-test

data: data$culmen_length
t = -20.588, df = 341, p-value = 1
alternative hypothesis: true mean is greater than 50
95 percent confidence interval:
43.43501 Inf
sample estimates:
mean of x
43.92193

R > t.test(data$culmen_length, mu = 50, alternative = "less")

One Sample t-test

data: data$culmen_length
t = -20.588, df = 341, p-value < 2.2e-16
alternative hypothesis: true mean is less than 50
95 percent confidence interval:
-Inf 44.40885
sample estimates:
mean of x
43.92193
```

Bottom Screenshot (RStudio Console):

```
R > t.test(data$culmen_depth, mu = 15, conf.level = 0.95)
One Sample t-test

data: data$culmen_depth
t = 20.145, df = 341, p-value < 2.2e-16
alternative hypothesis: true mean is not equal to 15
95 percent confidence interval:
16.94113 17.36121
sample estimates:
mean of x
17.15117

R > t.test(data$culmen_depth, mu = 15, alternative = "greater")

One Sample t-test

data: data$culmen_depth
t = 20.145, df = 341, p-value < 2.2e-16
alternative hypothesis: true mean is greater than 15
95 percent confidence interval:
16.97505 Inf
sample estimates:
mean of x
17.15117

R > t.test(data$culmen_depth, mu = 15, alternative = "less")

One Sample t-test

data: data$culmen_depth
t = 20.145, df = 341, p-value = 1
alternative hypothesis: true mean is less than 15
95 percent confidence interval:
-Inf 17.32729
sample estimates:
mean of x
17.15117
```

The RStudio interface includes a top menu bar with File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. The left pane contains the Source, Console, Terminal, and Background Jobs tabs. The right pane shows the Environment, History, Connections, and Tutorial tabs. The bottom pane displays the Data, Files, Plots, Packages, Help, Viewer, and Presentation tabs. A large red watermark with the text "MITHIL KADAM S083" is diagonally overlaid across both screenshots.

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