

SHETH L.U.J & SIR M.V COLLEGE

(DATA ANALYSIS WITH SAS/SPSS/R)

OUTPUTS-

PRAC 1-

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Toolbar:** Includes icons for New Project, Open, Save, Print, Run, Go to file/function, and Addins.
- Source Editor:** Displays R code and its output. The code reads a CSV file, creates a summary of numerical variables, and loads the psych library to describe the data.
- Environment Tab:** Shows the Global Environment with objects df, df1, df2, num1, and num. num1 is described as a large numeric vector (253680 elements, 2 MB).
- Files Tab:** Shows the local directory structure under C:/tanvis087, listing .Rhistory and online_shopping.csv files with their sizes and modification dates.

PRAC 2-

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(DATA ANALYSIS WITH SAS/SPSS/R)

PRAC 3-

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Source

```

R ~ R 4.5.2 - C:\tanvis087/
> df3 <- read.csv("class.csv")
>
> cat_cols <- names(df3)[sapply(df3, is.character)]
>
> table(df3[[cat_cols[1]]], df3[[cat_cols[2]]])
   aardvark antelope bear boar buffalo calf cavy cheetah deer dolp
   hin elephant fruitbat giraffe girl goat gorilla hamster hare leopard lion
   ly
   nx mink mole mongoose opossum oryx platypus polecat pony porpoise puma pussy
   cat raccoon reindeer seal sealion squirrel vampire vole wallaby wolf
   Amphibian
0
   Bird
0
   Bug
0
   Fish
0
   Invertebrate
0
   Mammal
1
   Reptile
0

   bass carp catfish chub dogfish haddock herring pike piranha sea
horse sole stingray tuna
   Amphibian
0
   Bird
0
   Bug
0
   Fish
1
   Invertebrate

```

Environment History Connections Tutorial

Import Dataset 2.42 GB ✓

R Global Environment

Data

- df 7 obs. of 4 variables
- df1 253680 obs. of 22 variables
- df2 7 obs. of 4 variables
- df3 7 obs. of 4 variables

values

- cat_col "Phone"
- cat_cols chr [1:2] "Class_Type" "Animal_Names"

Files Plots Packages Help Viewer Presentation

New Folder New File Delete Rename More

C:\tanvis087

Name	Size	Modified
.Rhistory	12.6 KB	Dec 15, 2025, 11:07 AM
online_shopping.csv	8.7 MB	Dec 15, 2025, 11:00 AM

29°C Sunny 11:57 15-12-2025

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Source

```

R ~ R 4.5.2 - C:\tanvis087/
Bug
0
   Fish
1
   Invertebrate
0
   Mammal
0
   Reptile
0

   chicken crow dove duck flamingo gull hawk kiwi lark ostrich pa
rakeet penguin pheasant rhea skimmer skua sparrow swan vulture wren
   Amphibian
0
   Bird
1
   Bug
0
   Fish
0
   Invertebrate
0
   Mammal
0
   Reptile
0

   clam crab crayfish lobster octopus scorpion seawasp slug starfis
h worm
   Amphibian
0
   Bird
0
   Bug
0
   Fish

```

Environment History Connections Tutorial

Import Dataset 2.42 GB ✓

R Global Environment

Data

- df 7 obs. of 4 variables
- df1 253680 obs. of 22 variables
- df2 7 obs. of 4 variables
- df3 7 obs. of 4 variables

values

- cat_col "Phone"
- cat_cols chr [1:2] "Class_Type" "Animal_Names"

Files Plots Packages Help Viewer Presentation

New Folder New File Delete Rename More

C:\tanvis087

Name	Size	Modified
.Rhistory	12.6 KB	Dec 15, 2025, 11:07 AM
online_shopping.csv	8.7 MB	Dec 15, 2025, 11:00 AM

AIRTELPP -1.00% 11:57 15-12-2025

SHETH L.U.J & SIR M.V COLLEGE

(DATA ANALYSIS WITH SAS/SPSS/R)

RStudio interface showing a t-test on animal data. The console output shows:

```

R > df1 <- read.csv("animal_data.csv")
R > num_col <- names(df1)[sapply(df1, is.numeric)][1]
R > t.test(df1[[num_col]], mu = mean(df1[[num_col]]))

One Sample t-test

data: df1[[num_col]]
t = 0, df = 499, p-value = 1
alternative hypothesis: true mean is not equal to 360.4378
95 percent confidence interval:
355.2729 365.6027
sample estimates:
mean of x
360.4378
  
```

The Environment pane shows:

- Data: df (7 obs. of 4 variables), df1 (253680 obs. of 22 variables), df2 (7 obs. of 4 variables), df3 (7 obs. of 4 variables)
- values: cat_col ("Phone"), cat_cols ("Class_Type" "Animal_Names")
- Files: .Rhistory (12.6 KB, Dec 15, 2025, 11:07 AM), online_shopping.csv (8.7 MB, Dec 15, 2025, 11:00 AM)

PRAC-4

RStudio interface showing a t-test on mental health data. The console output shows:

```

R > df4 <- read.csv("mental_health_digital_behavior_data.csv")
R > num_col <- names(df4)[sapply(df4, is.numeric)][1]
R > t.test(df4[[num_col]], mu = mean(df4[[num_col]]))

One Sample t-test

data: df4[[num_col]]
t = 0, df = 499, p-value = 1
alternative hypothesis: true mean is not equal to 360.4378
95 percent confidence interval:
355.2729 365.6027
sample estimates:
mean of x
360.4378
  
```

The Environment pane shows:

- Data: df2 (7 obs. of 4 variables), df3 (7 obs. of 4 variables), df4 (500 obs. of 9 variables)
- values: cat_col ("Phone"), cat_cols ("Class_Type" "Animal_Names"), cat2 ("iPhone 12 and iPhone 12 Mini" "Galaxy S21"), num_col ("daily_screen_time_min")
- Files: .Rhistory (12.6 KB, Dec 15, 2025, 11:07 AM), online_shopping.csv (8.7 MB, Dec 15, 2025, 11:00 AM)

SHETH L.U.J & SIR M.V COLLEGE

(DATA ANALYSIS WITH SAS/SPSS/R)

PRAC 5-

RStudio interface showing R code and its execution results:

```

> df5 <- read.csv("online_shopping.csv")
>
> num_col <- names(df5)[sapply(df5, is.numeric)][1]
> cat_col <- names(df5)[sapply(df5, is.character)][1]
>
> df_temp <- df5[, c(num_col, cat_col)]
> df_temp[[cat_col]] <- as.factor(df_temp[[cat_col]])
>
> df_temp <- df_temp[df_temp[[cat_col]] %in% levels(df_temp[[cat_col]])[1:2], ]
>
> t.test(df_temp[[num_col]] ~ df_temp[[cat_col]])

Welch Two Sample t-test

data: df_temp[[num_col]] by df_temp[[cat_col]]
t = 310.65, df = 33026, p-value < 2.2e-16
alternative hypothesis: true difference in means between group F and group F is not equal to 0
95 percent confidence interval:
 25797.97 26125.58
sample estimates:
mean in group F mean in group F
      52939.00      26977.22
> |

```

The RStudio environment pane shows variables: df3 (7 obs. of 4 variables), df4 (500 obs. of 9 variables), df5 (52955 obs. of 21 variables). The values pane shows cat_col as "Gender", cat_cols as "chr [1:2] "Class_Type" "Animal_Names", cat2 as "chr [1:7] " iPhone 12 and iPhone 12 Mini " "Galax...", and num_col as "X". The file pane shows .Rhistory (12.6 KB, Dec 15, 2025) and online_shopping.csv (8.7 MB, Dec 15, 2025).

PRAC 6-

RStudio interface showing R code and its execution results:

```

> df6 <- read.csv("emails.csv")
>
> nums6 <- df6[, sapply(df6, is.numeric)]
>
> t.test(nums6[,1], nums6[,2], paired = TRUE)

Paired t-test

data: nums6[, 1] and nums6[, 2]
t = 5.2872, df = 5171, p-value = 1.293e-07
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
 0.2846774 0.6201950
sample estimates:
mean difference
 0.4524362
> |

```

The RStudio environment pane shows variables: df5 (52955 obs. of 21 variables), df6 (5172 obs. of 3002 variables), and nums6 (5172 obs. of 3001 variables). The values pane shows cat_col as "Gender", cat_cols as "chr [1:2] "Class_Type" "Animal_Names", cat2 as "chr [1:7] " iPhone 12 and iPhone 12 Mini " "Galax...", and num_col as "X". The file pane shows .Rhistory (12.6 KB, Dec 15, 2025) and online_shopping.csv (8.7 MB, Dec 15, 2025).