

SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO: MODULE 2 (1 TO 6)

Outputs:

Module 2 Practical 1

```
Console Terminal Background Jobs
R - R452 - ~/...
$ Matches_won : int 10 12 14 10 11 6 15 9 10 6 ...
$ Matches_lost : int 11 9 7 9 8 12 5 11 9 12 ...
$ Total_pts : int 844 789 792 724 721 698 705 665 663 621 ...
$ Avg_pts : num 38.4 37.6 37.7 38.1 36 ...
$ Successful_raids : int 413 356 351 321 318 369 299 310 288 285 ...
$ Successful_tackles : int 187 209 220 195 203 146 199 171 194 182 ...
$ Raid_pts : int 516 458 420 407 401 462 395 385 352 354 ...
$ Tackle_pts : int 201 227 244 223 221 160 207 188 219 195 ...
$ Avg_raids_pts : num 23.2 21.8 20 21.4 20.1 ...
$ Avg_tackle_pts : num 9.14 10.81 11.62 11.74 11.05 ...
$ Super_tackles : int 22 18 27 28 19 16 10 19 27 14 ...
$ DOD_raids_pts : int 65 63 52 43 56 24 65 45 47 42 ...
$ Total_pts_conceded : int 812 744 728 709 662 807 681 735 687 656 ...
$ Super_raids : int 11 8 11 8 7 8 20 9 11 8 ...
$ Total_raids : int 912 864 844 790 815 751 796 830 807 738 ...
$ All_outs_inflicted : int 35 28 39 31 28 20 30 21 20 21 ...
$ All_outs_conceded : int 24 28 20 30 21 34 20 28 25 27 ...

>
> print("Descriptive statistics using describe() function:")
[1] "Descriptive statistics using describe() function:"
> describe(df)
vars n mean sd median trimmed mad min max range skew kurtosis se
Team* 1 12 6.50 3.61 6.50 6.50 4.45 1.00 12.00 11.00 0.00 -1.50 1.04
Matches_played 2 12 19.50 1.38 19.50 19.40 2.22 18.00 22.00 4.00 0.28 -1.41 0.40
Matches_won 3 12 9.67 3.06 10.00 9.50 3.71 6.00 15.00 9.00 0.24 -1.29 0.88
Matches_lost 4 12 9.67 2.23 10.00 9.90 2.22 5.00 12.00 7.00 -0.61 -0.87 0.64
Total_pts 5 12 699.58 81.43 701.50 697.40 88.21 577.00 844.00 267.00 0.16 -1.19 23.51
Avg_pts 6 12 35.80 2.30 35.65 35.88 3.31 32.06 38.78 6.72 -0.16 -1.61 0.66
Successful_raids 7 12 320.08 45.45 314.00 318.10 43.74 247.00 413.00 166.00 0.42 -0.74 13.12
Successful_tackles 8 12 186.25 21.56 190.50 186.90 22.98 146.00 220.00 74.00 -0.29 -1.08 6.22
Raid_pts 9 12 402.83 55.16 398.00 399.90 57.08 319.00 516.00 197.00 0.46 -0.75 15.92
Tackle_pts 10 12 203.33 25.33 204.00 203.60 24.46 160.00 244.00 84.00 -0.26 -1.11 7.31
Avg_raids_pts 11 12 20.62 2.17 20.02 20.40 1.61 17.72 25.67 7.95 0.92 0.02 0.63
Avg_tackle_pts 12 12 10.42 1.04 10.71 10.45 1.28 8.89 11.74 2.85 -0.25 -1.64 0.30
Super_tackles 13 12 19.08 6.87 19.00 19.50 6.67 6.00 28.00 22.00 -0.35 -1.08 1.98
DOD_raids_pts 14 12 49.83 11.83 49.50 50.90 9.64 24.00 65.00 41.00 -0.45 -0.48 3.42
Total_pts_conceded 15 12 712.42 54.51 698.00 708.10 53.37 656.00 812.00 156.00 0.67 -1.03 15.73
Super_raids 16 12 9.75 3.74 8.50 9.20 2.97 5.00 20.00 15.00 1.48 1.94 1.08
Total_raids 17 12 805.83 51.05 801.50 802.00 59.30 738.00 912.00 174.00 0.51 -0.80 14.74
All_outs_inflicted 18 12 25.67 7.16 24.50 25.20 7.41 17.00 39.00 22.00 0.40 -1.34 2.07
All_outs_conceded 19 12 25.67 4.29 26.00 25.40 3.71 20.00 34.00 14.00 0.22 -1.07 1.24
>
```

Practical 2

```
Source Console Terminal Background Jobs
R - R452 - ~/...
[1] "Team" "Matches_played" "Matches_won" "Matches_lost" "Total_pts" "Avg_pts" "Successful_raids" "Successful_tackles"
[9] "Raid_pts" "Tackle_pts" "Avg_raids_pts" "Avg_tackle_pts" "Super_tackles" "DOD_raids_pts" "Total_pts_conceded" "Super_raids"
[17] "Total_raids" "All_outs_inflicted" "All_outs_conceded"

> if ("Team" %in% colnames(df)) {
+ print("Generating frequency table using table() function:")
+ team_table <- table(df$Team)
+ print(team_table)
+ print("Generating frequency table using count() function from dplyr")
+ team_count <- df %>% count(Team)
+ print(team_count)
+ } else {
+ print("Team column not found in the dataset")
+ }
[1] "Generating frequency table using table() function:"
Bengal warriorz 1 Bengaluru Bulls 1 Dabang Delhi KC 1 Gujarat Giants 1 Haryana Steelers 1 Jaipur Pink Panthers 1 Patna Pirates 1 PUNEI PALTAN 1
Tamil thalaivas 1 Telugu Titans 1 U Mumbaia 1 UP Yoddhas 1

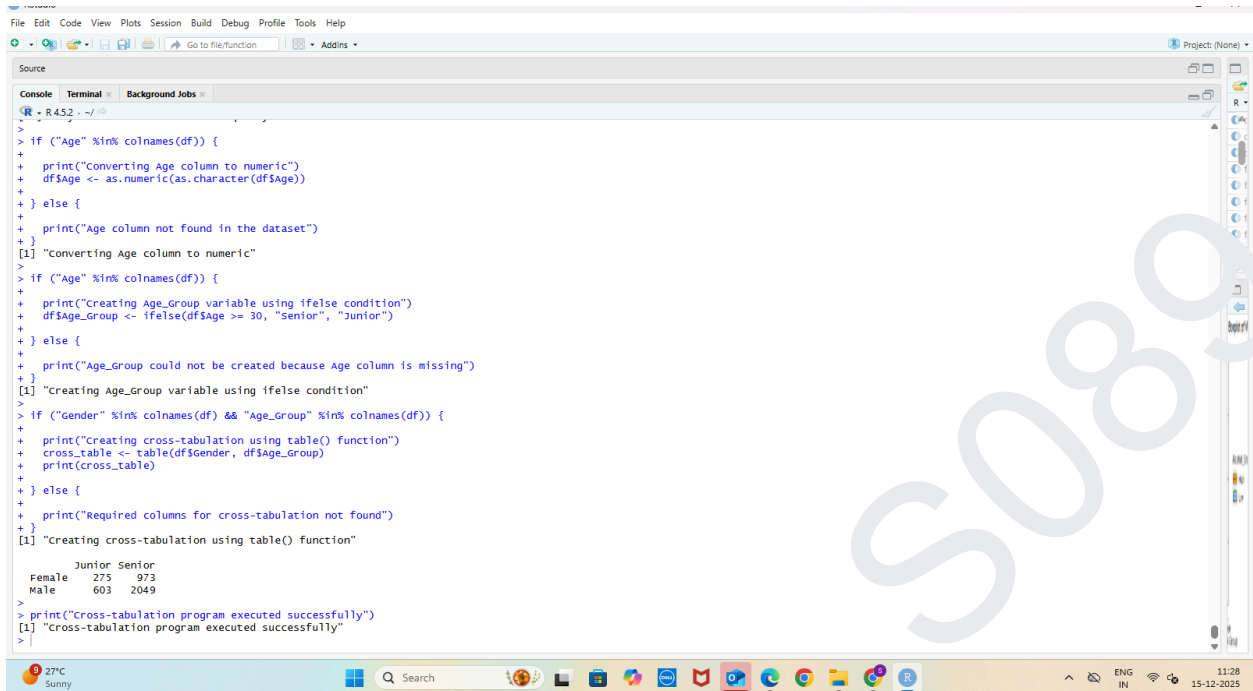
[1] "Generating frequency table using count() function from dplyr:"
Team n
1 Bengal warriorz 1
2 Bengaluru Bulls 1
3 Dabang Delhi KC 1
4 Gujarat Giants 1
5 Haryana Steelers 1
6 Jaipur Pink Panthers 1
7 Patna Pirates 1
8 PUNEI PALTAN 1
9 Tamil thalaivas 1
10 Telugu Titans 1
11 U Mumbaia 1
12 UP Yoddhas 1

> print("Program execution completed successfully")
[1] "Program execution completed successfully"
```

Practical 3

NAME: TANISHKA K KUTWAL
ROLL NO: S089

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```
> if ("Age" %in% colnames(df)) {  
+   print("Converting Age column to numeric")  
+   df$Age <- as.numeric(as.character(df$Age))  
+ } else {  
+   print("Age column not found in the dataset")  
+ }  
[1] "Converting Age column to numeric"  
>  
+ if ("Age" %in% colnames(df)) {  
+   print("Creating Age_Group variable using ifelse condition")  
+   df$Age_Group <- ifelse(df$Age >= 30, "Senior", "Junior")  
+ } else {  
+   print("Age_Group could not be created because Age column is missing")  
+ }  
[1] "Creating Age_Group variable using ifelse condition"  
>  
+ if ("Gender" %in% colnames(df) && "Age_Group" %in% colnames(df)) {  
+   print("Creating cross-tabulation using table() function")  
+   cross_table <- table(df$Gender, df$Age_Group)  
+   print(cross_table)  
+ } else {  
+   print("Required columns for cross-tabulation not found")  
+ }  
[1] "Creating cross-tabulation using table() function"  
  
      Junior Senior  
female      275    973  
male        603   2049  
>  
+ print("Cross-tabulation program executed successfully")  
[1] "Cross-tabulation program executed successfully"  
>
```

Practical 4

NAME: TANISHKA K KUTWAL
ROLL NO: S089

```
Console | Terminal | Background Jobs x
R - R452 - ~/r
> category_counts <- table(df$category)
> print(category_counts)

Footwear-women      480    Fragrance-women      167    Indianwear-women      1131    Jewellery-women      438    Lingerie&nightwear-women      367    Watches-women      329    Westernwear-women      1654

>
> category_df <- df %>% count(category)
> print(category_df)

   category     n
1 Footwear-women 480
2 Fragrance-women 167
3 Indianwear-women 1131
4 Jewellery-women 438
5 Lingerie&nightwear-women 367
6 Watches-women 329
7 Westernwear-women 1654

>
> cross_tab <- table(df$category, df$brandname)
> print(cross_tab)

109f 18.21 man made 4711 aarke abercrombie & fitch accessorize adidas aigner ajmal alcis alexandre christie all good scents allen solly allen scribe
Footwear-women      0      0      0      0      0      86      0      0      0      0      0      0      0      0      0      0      0      0
Fragrance-women      0      1      1      0      5      0      0      2      31      0      0      0      0      3      0      0      0      0
Indianwear-women      0      0      0      43      0      0      0      0      0      0      0      0      0      0      0      0      0      0
Jewellery-women      0      0      0      0      0      0      1      0      0      0      0      0      0      0      0      0      0      0
Lingerie&nightwear-women      0      0      0      1      0      0      22      0      0      0      0      0      0      4      0      0      0
Watches-women      0      0      0      0      0      0      0      0      0      0      1      0      0      0      0      0      0      0
Westernwear-women    114      0      0      1      0      0      0      140      0      14      0      0      0      0      0      0      15      0

atlife amante amazfit amukti and anne klein antonio banderas arcelia ariana armani exchange arteastrif aspen athome aurelia ayesha back to earth belleziya
Footwear-women      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0
Fragrance-women      0      0      0      0      7      0      13      21      0      0      0      1      0      0      0      0      0      0
Indianwear-women      0      0      0      93      13      0      0      0      0      0      138      0      0      486      69      0      0      0
Jewellery-women      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      74      0
Lingerie&nightwear-women      0      193      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0
Watches-women      0      0      16      0      0      56      0      0      0      31      0      0      0      0      0      0      0      0
Westernwear-women    161      0      0      0      689      0      0      0      0      2      0      0      0      1      0      2      0      0

betty barclay beverly hills polo club biba black panther boucheron burberry calvin klein calvin klein underwear campus sutra carolina herrera caso catwalk
Footwear-women      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      237
Fragrance-women      1      1      2      0      0      0      1      15      16      0      0      0      0      25      0      0      0      0
Indianwear-women      0      0      0      288      0      0      0      0      0      0      0      0      0      0      0      0      0      0
Jewellery-women      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0      0

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Console | Terminal | Background Jobs x
R - R452 - ~/r
>
>
> t_test_one <- t.test(df$sellprice, mu = )
> print(t_test_one)

one sample t-test

data: df$sellprice
t = 30.06, df = 4565, p-value < 2.2e-16
alternative hypothesis: true mean is not equal to 1000
```

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```
File Edit Code View Plots Session Build Debug Profile Tools Help
Source
Console Terminal Background Jobs
R 4.5.2 ~ /
alternative hypothesis: true mean is not equal to 1000
95 percent confidence interval:
1939.664 2070.781
sample estimates:
mean of x
2005.223

>
> df$Price_Group <- ifelse(df$sellPrice >= median(df$sellPrice), "High", "Low")
>
> t_test_two <- t.test(sellPrice ~ Price_Group, data = df)
> print(t_test_two)

welch Two Sample t-test

data: sellPrice by Price_Group
t = 45.45, df = 2386.5, p-value = 2.2e-16
alternative hypothesis: true difference in means between group High and group Low is not equal to 0
95 percent confidence interval:
2400.968 2617.491
sample estimates:
mean in group High mean in group Low
3249.9457 740.7161

>
> df$old_Price <- df$sellPrice + runif(nrow(df), 100, 500)
>
> t_test_paird <- t.test(df$sellPrice, df$old_Price, paired = TRUE)
> print(t_test_paird)

paired t-test

data: df$sellPrice and df$old_Price
t = -175.31, df = 4565, p-value = 2.2e-16
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
-302.6663 -295.9718
sample estimates:
mean difference
-299.3191

> |
```

Scoping Tool
Screen not copied to clipboard
Auto-ically saved to screenshots folder.
Mark-up and share

Practical 5

```
Console Terminal Background Jobs
R 4.5.2 ~ /
> df <- read.csv("winequality-white new.csv")
> head(df)
fixed.acidity volatile.acidity citric.acid residual.sugar chlorides free.sulfur.dioxide total.sulfur.dioxide density pH sulphates quality alcohol
1 7.0 0.27 0.36 20.7 45.00 45 170 1.1 3.00 0.45 6 RS 45.512,00
2 6.3 0.30 0.34 1.6 49.00 14 132 994. 3.30 0.49 6 RS 45.421,00
3 8.1 0.28 0.40 6.9 0.05 6 97 9.1 3.26 0.44 6 RS 45.301,00
4 7.2 0.23 0.32 8.5 58.00 4 100 956 3.19 0.40 6 RS 45.544,00
5 7.2 0.23 0.32 8.5 58.00 4 100 956 3.19 0.40 6 RS 45.544,00
6 8.1 0.28 0.40 6.9 0.05 6 97 9.951 3.26 0.44 6 RS 45.301,00

> str(df)
'data.frame': 4898 obs. of 12 variables:
 $ fixed.acidity : num 7 6.3 8.1 7.2 7.2 8.1 6.2 7 6.3 8.1 ...
 $ volatile.acidity : num 0.27 0.3 0.28 0.23 0.23 0.28 0.32 0.27 0.3 0.22 ...
 $ citric.acid : num 0.36 0.34 0.4 0.32 0.32 0.4 0.16 0.3 0.34 0.43 ...
 $ residual.sugar : num 20.7 1.6 6.9 8.5 8.5 6.9 7 20.7 1.6 ...
 $ chlorides : num 45 49 0.05 58 58 0.05 45 45 49 44 ...
 $ free.sulfur.dioxide : num 45 14 30 47 47 30 30 45 14 28 ...
 $ total.sulfur.dioxide : num 170 132 97 186 186 97 136 170 129 ...
 $ density : num 1.994 9.95 9.96 9.96 ...
 $ pH : num 3 3.3 3.26 3.19 3.19 3.7 3.18 3 3.3 3.22 ...
 $ sulphates : num 0.45 0.49 0.44 0.4 0.4 0.4 0.47 0.45 0.49 0.45 ...
 $ quality : fnc 6 6 6 6 6 6 6 6 ...
 $ alcohol : chr "RS 45.512,00" "RS 45.421,00" "RS 45.301,00" "RS 45.544,00" ...

> summary(df)
fixed.acidity volatile.acidity citric.acid residual.sugar chlorides free.sulfur.dioxide total.sulfur.dioxide density pH sulphates
Min. : 3.800 Min. : 0.08 Min. : 0.000 Min. : 0.600 Min. : 0.02 Min. : 2.00 Min. : 9.0 Min. : 0.990 Min. : 2.720 Min. : 0.2200
1st Qu.: 6.300 1st Qu.: 0.21 1st Qu.: 0.30 1st Qu.: 1.700 1st Qu.: 0.33 1st Qu.: 23.00 1st Qu.: 108.0 1st Qu.: 9.943 1st Qu.: 3.090 1st Qu.: 0.4100
Median : 6.800 Median : 0.27 Median : 0.33 Median : 5.200 Median : 0.05 Median : 34.00 Median : 134.0 Median : 98.948 Median : 3.180 Median : 0.4700
Mean : 6.855 Mean : 0.27 Mean : 0.33 Mean : 5.200 Mean : 0.05 Mean : 35.31 Mean : 138.4 Mean : 113.540 Mean : 3.180 Mean : 0.4898
3rd Qu.: 7.300 3rd Qu.: 0.33 3rd Qu.: 0.3900 3rd Qu.: 48.00 3rd Qu.: 46.00 3rd Qu.: 167.0 3rd Qu.: 99.418 3rd Qu.: 3.280 3rd Qu.: 0.5500
Max. : 14.200 Max. : 0.9650 Max. : 1.6600 Max. : 65.800 Max. : 346.00 Max. : 289.00 Max. : 999.000 Max. : 3.820 Max. : 1.0800
quality alcohol
Min. : 3.000 Length:4898
1st Qu.: 5.000 Class : character
Median : 6.000 Mode : character
Mean : 5.878
3rd Qu.: 6.000
Max. : 9.000

> df$alcohol <- as.numeric(df$alcohol)
Warning message:
In as.numeric(df$alcohol) :
  coercing S4 class 'chr' to 'character'
```

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```
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R - R4.5.2 - ~/RStudio
warning message:
NAS introduced by coercion

> df$quality <- as.numeric(df$quality)
> df <- df %>% filter(!is.na(quality))
> summary(df$quality)
  Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
     3       6       6       6       7       7
> quality_freq <- table(df$quality)
> print(quality_freq)
 3  4  5  6  7
1  1  4 16  9
>
> quality_count <- df %>% count(quality)
> print(quality_count)
  quality     n
1       3     1
2       4     1
3       5     4
4       6    16
5       7     9
>
> quality_alcohol_crosstab <- table(df$quality, df$alcohol)
> print(quality_alcohol_crosstab)
  FALSE TRUE
3      1    0
4      1    0
5      2    2
6      5   11
7      3    6
>
> t.test(df$quality, mu = mean(df$quality))

One Sample t-test

data: df$quality
t = 0, df = 30, p-value = 1
alternative hypothesis: true mean is not equal to 6

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function Addins
Source
Console Terminal Background Jobs
R - R4.5.2 - ~/RStudio
alternative hypothesis: true mean is not equal to 6
95 percent confidence interval:
 5.658525 6.341475
sample estimates:
mean of x
        6
>
> df$Alcohol_Group <- ifelse(df$alcohol >= median(df$alcohol), "High", "Low")
> df$Alcohol_Group <- factor(df$Alcohol_Group)
>
> t.test(quality ~ Alcohol_Group, data = df)

Welch Two Sample t-test

data: quality by Alcohol_Group
t = 1.4176, df = 14.702, p-value = 0.172
alternative hypothesis: true difference in means between group High and group Low is not equal to 0
95 percent confidence interval:
 -0.2753297  1.3630490
sample estimates:
mean in group High mean in group Low
        6.210526         5.666667
>
> set.seed(123)
> df$quality_before <- rnorm(nrow(df), mean = 0, sd = 0.5)
>
> t.test(df$quality, df$quality_before, paired = TRUE)

Paired t-test

data: df$quality and df$quality_before
t = 0.181, df = 30, p-value = 0.856
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
 -0.1616711  0.1934985
sample estimates:
mean difference
        0.0159136
> |
```

Practical 6

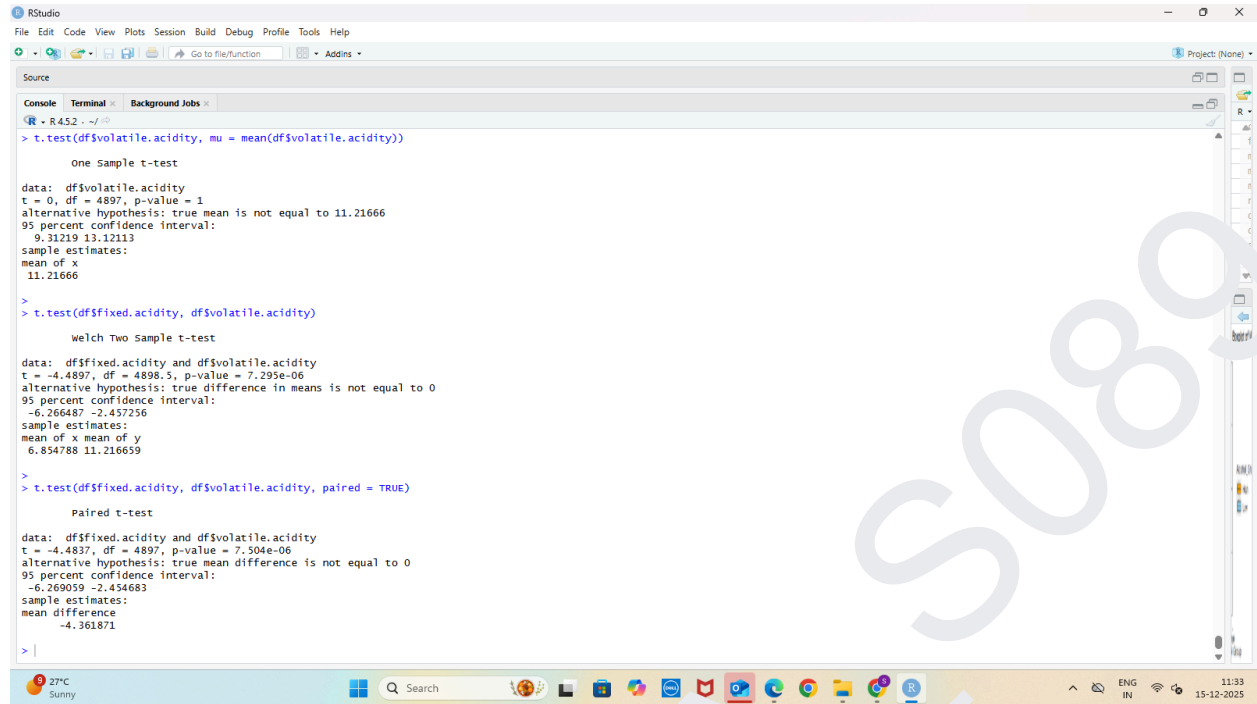
NAME: TANISHKA K KUTWAL
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PRACTICAL NO: MODULE 2 (1 TO 6)

```
source
Console Terminal Background Jobs
R - R4.5.2 - ~/R
Max. : 9,000
>
> df$fixed.acidity <- as.numeric(df$fixed.acidity)
> df$volatile.acidity <- as.numeric(df$volatile.acidity)
>
> sum(is.na(df$fixed.acidity))
[1] 0
> sum(is.na(df$volatile.acidity))
[1] 0
>
> df <- df %>% filter(!is.na(fixed.acidity), !is.na(volatile.acidity))
>
> summary(df$fixed.acidity)
  Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 3.800  6.300   6.800   6.855  7.300  14.200
> summary(df$volatile.acidity)
  Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 0.08   0.21   0.27   11.22   0.33  965.00
>
> fixed_freq <- table(df$fixed.acidity)
> print(fixed_freq)
 3.8  3.9  4.2  4.4  4.5  4.6  4.7  4.8  4.9  5  5.1  5.2  5.3  5.4  5.5  5.6  5.7  5.8  5.9  6  6.1  6.15  6.2  6.3  6.4  6.45  6.5  6.6  6.7  6.8  6.9  7  7.1  7.2  7.3
 1  1  2  3  1  1  5  9  7  24  23  28  27  28  31  71  88  121  103  184  155  2  192  188  280  1  225  290  236  308  241  232  200  2  206  6
 7.4  7.5  7.6  7.7  7.8  7.9  8  8.1  8.2  8.3  8.4  8.5  8.6  8.7  8.8  8.9  9  9.1  9.2  9.3  9.4  9.5  9.6  9.7  9.8  9.9  10  10.2  10.3  10.7  11.8  14.2
194 123 153  93  93  74  80  56  56  52  35  32  25  15  18  16  17  6  21  3  11  2  5  4  8  2  3  1  2  2  1  1

> volatile_freq <- table(df$volatile.acidity)
> print(volatile_freq)
 0.08  0.09  0.1  0.11  0.12  0.13  0.14  0.15  0.16  0.17  0.18  0.19  0.2  0.21  0.22  0.23  0.24  0.25  0.26  0.27  0.28  0.29  0.3  0.31  0.32  0.33  0.34  0.35  0.36  0.37  0.38  0.39  0.4  0.41  0.42  0.43  0.44  0.45  0.46  0.47  0.48  0.49  0.5  0.51  0.52  0.53  0.54  0.55  0.56  0.57  0.58  0.59  0.6  0.61  0.62  0.63  0.64  0.65  0.66  0.67  0.68  0.69  0.7  0.71  0.72  0.73  0.74  0.75  0.76  0.77  0.78  0.79  0.8  0.81  0.82  0.83  0.84  0.85  0.86  0.87  0.88  0.89  0.9  0.91  0.92  0.93  0.94  0.95  0.96  0.97  0.98  0.99  1  1.1  1.2  1.3  1.4  1.5  1.6  1.7  1.8  1.9  2  2.1  2.2  2.3  2.4  2.5  2.6  2.7  2.8  2.9  3  3.1  3.2  3.3  3.4  3.5  3.6  3.7  3.8  3.9  4  4.1  4.2  4.3  4.4  4.5  4.6  4.7  4.8  4.9  5  5.1  5.2  5.3  5.4  5.5  5.6  5.7  5.8  5.9  6  6.1  6.2  6.3  6.4  6.5  6.6  6.7  6.8  6.9  7  7.1  7.2  7.3  7.4  7.5  7.6  7.7  7.8  7.9  8  8.1  8.2  8.3  8.4  8.5  8.6  8.7  8.8  8.9  9  9.1  9.2  9.3  9.4  9.5  9.6  9.7  9.8  9.9  10  10.2  10.3  10.7  11.8  14.2
275 285 295 305 315 325 335 345 355 365 375 385 395 405 415 425 435 445 455 465 475 485 495 505 515 525 535 545 555 565 575 585 595 605 615 625 635 645 655 665 675 685 695 705 715 725 735 745 755 765 775 785 795 805 815 825 835 845 855 865 875 885 895 905 915 925 935 945 955 965 975 985 995 1005 1015 1025 1035 1045 1055 1065 1075 1085 1095 1105 1115 1125 1135 1145 1155 1165 1175 1185 1195 1205 1215 1225 1235 1245 1255 1265 1275 1285 1295 1305 1315 1325 1335 1345 1355 1365 1375 1385 1395 1405 1415 1425 1435 1445 1455 1465 1475 1485 1495 1505 1515 1525 1535 1545 1555 1565 1575 1585 1595 1605 1615 1625 1635 1645 1655 1665 1675 1685 1695 1705 1715 1725 1735 1745 1755 1765 1775 1785 1795 1805 1815 1825 1835 1845 1855 1865 1875 1885 1895 1905 1915 1925 1935 1945 1955 1965 1975 1985 1995 2005 2015 2025 2035 2045 2055 2065 2075 2085 2095 2105 2115 2125 2135 2145 2155 2165 2175 2185 2195 2205 2215 2225 2235 2245 2255 2265 2275 2285 2295 2305 2315 2325 2335 2345 2355 2365 2375 2385 2395 2405 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1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 
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SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO: MODULE 2 (1 TO 6)



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RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function Addins
Project: (None)

Source
Console Terminal Background Jobs
R - R 4.5.2 - ~/R
> t.test(df$volatile.acidity, mu = mean(df$volatile.acidity))

one Sample t-test

data: df$volatile.acidity
t = 0, df = 4897, p-value = 1
alternative hypothesis: true mean is not equal to 11.21666
95 percent confidence interval:
 9.31219 13.12113
sample estimates:
mean of x
11.21666

>
> t.test(df$fixed.acidity, df$volatile.acidity)

welch Two Sample t-test

data: df$fixed.acidity and df$volatile.acidity
t = -4.4897, df = 4898.5, p-value = 7.295e-06
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
-6.266487 -2.457256
sample estimates:
mean of x mean of y
 6.854788 11.216659

>
> t.test(df$fixed.acidity, df$volatile.acidity, paired = TRUE)

paired t-test

data: df$fixed.acidity and df$volatile.acidity
t = -4.4837, df = 4897, p-value = 7.504e-06
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
-6.269059 -2.454683
sample estimates:
mean difference
-4.361871

> |
```

27°C Sunny Search 11:33 15-12-2025

NAME: TANISHKA K KUTWAL
ROLL NO: S089