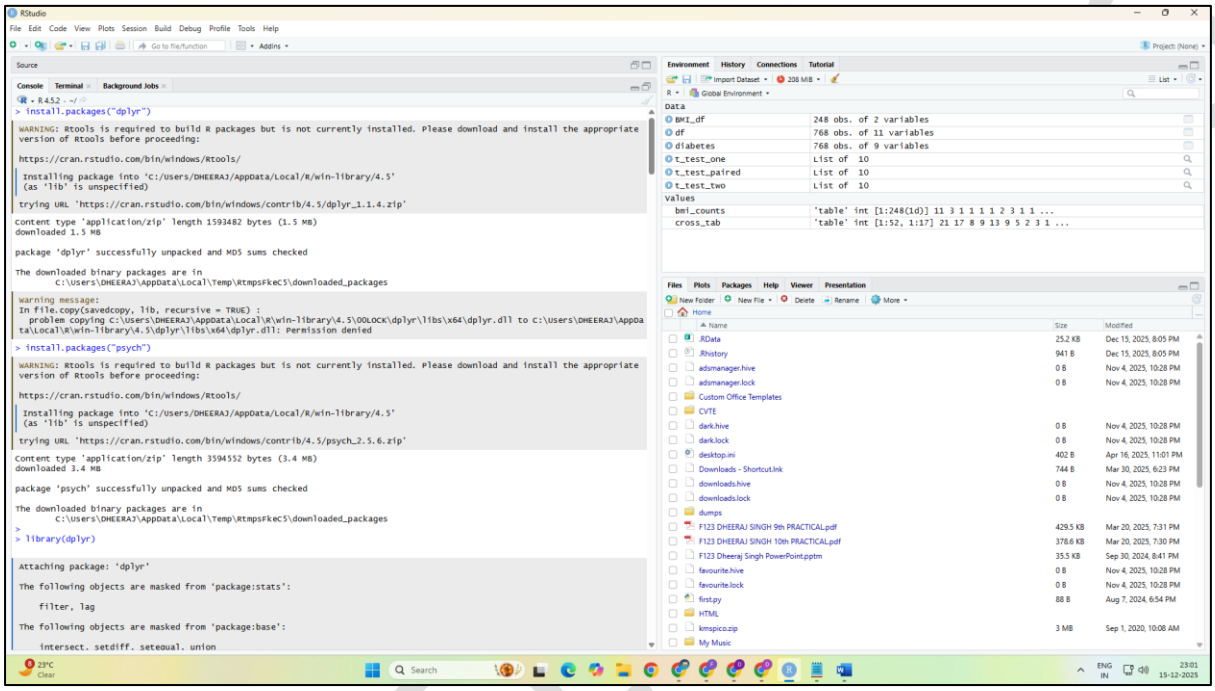
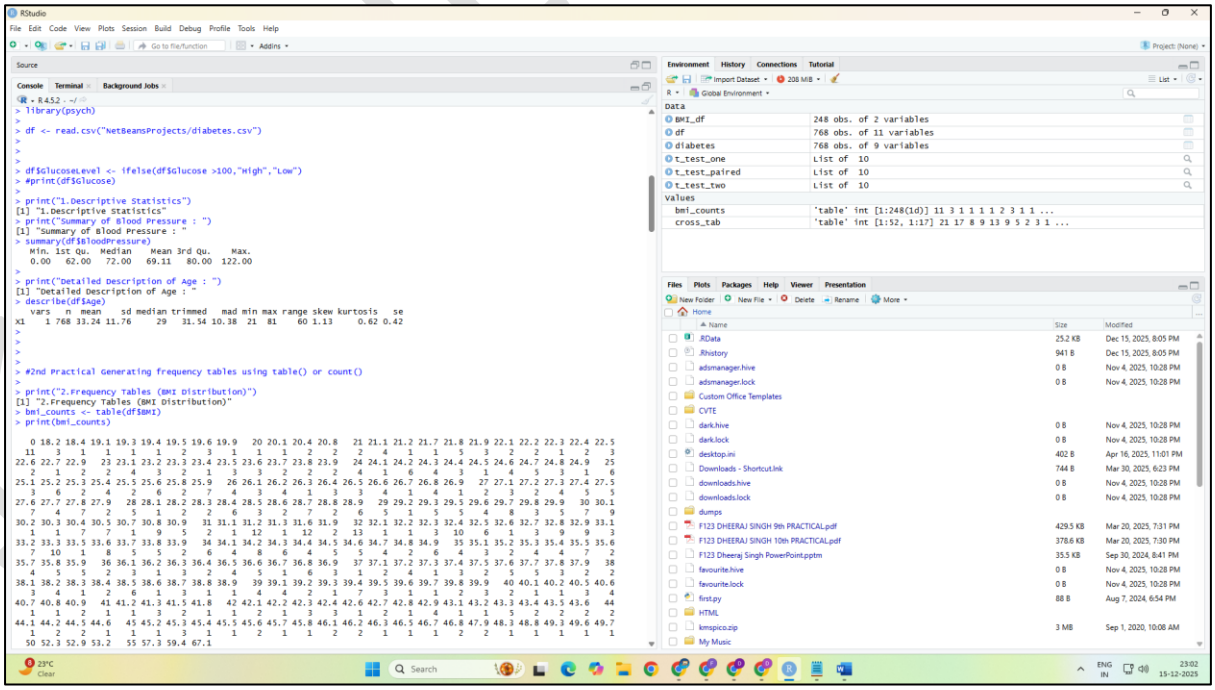
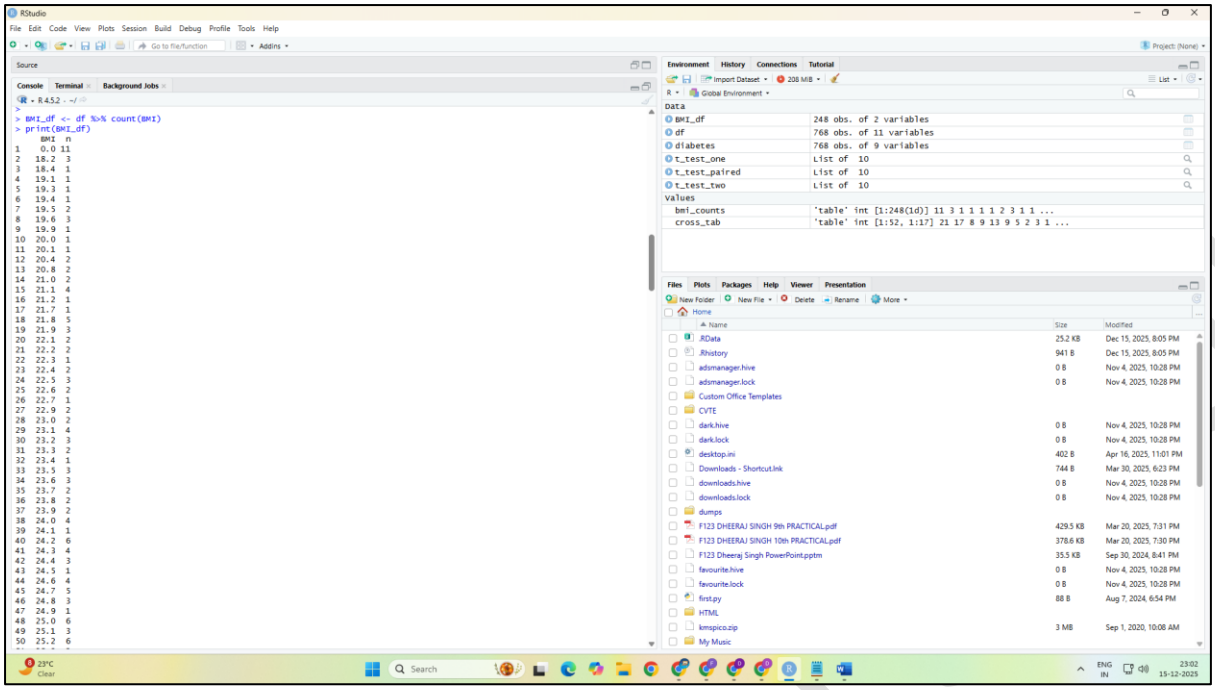
PRACTICAL 1-6 (M2)

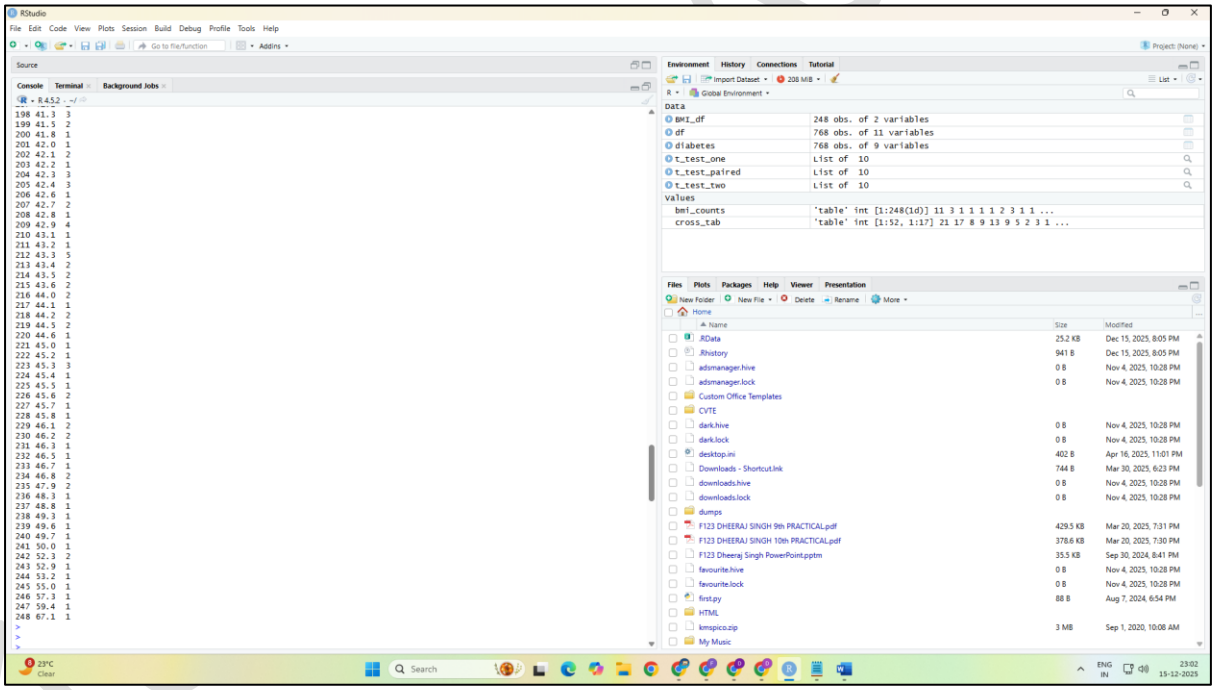
AIM : Practical 1 to 6Generating descriptive statistics using summary() or describe() (R).Generating frequency tables using table() or count() (R). Creating cross-tabulations and two-way tables using table() (R). Performing one-sample t-tests using t.test() (R). Performing independent two-sample t-tests using t.test() with grouping (R). Performing paired t-tests using t.test(paired=TRUE) (R). **NOTE: Use diffenet Dataset**



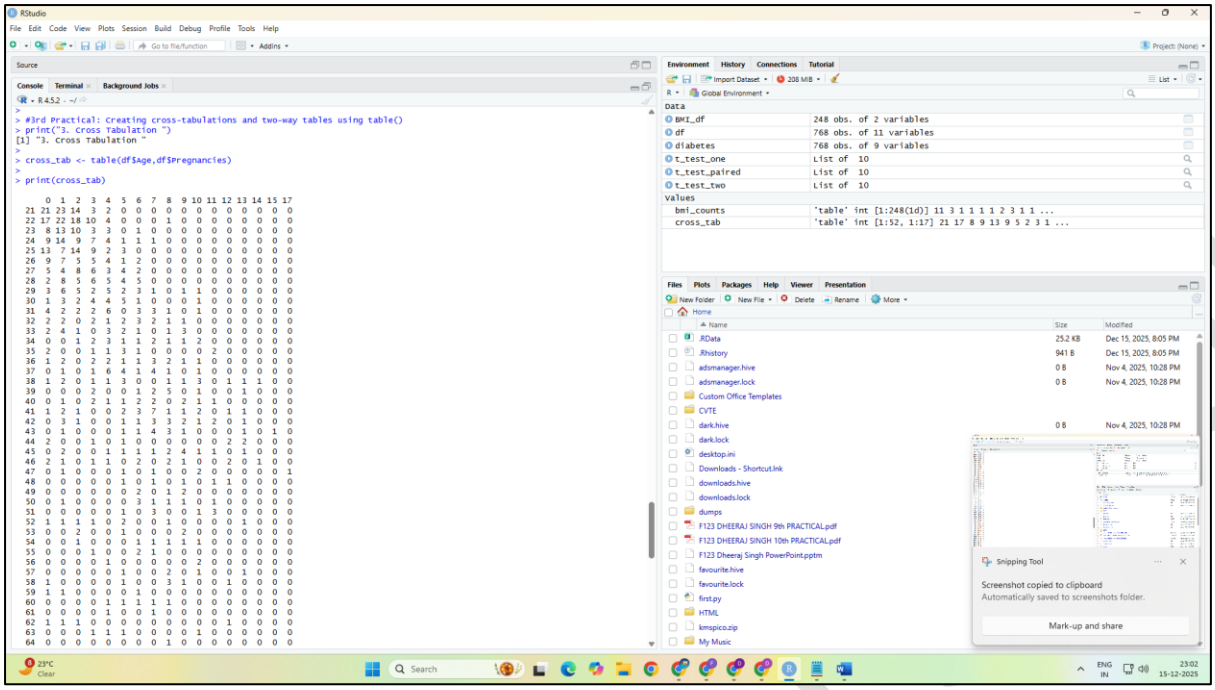




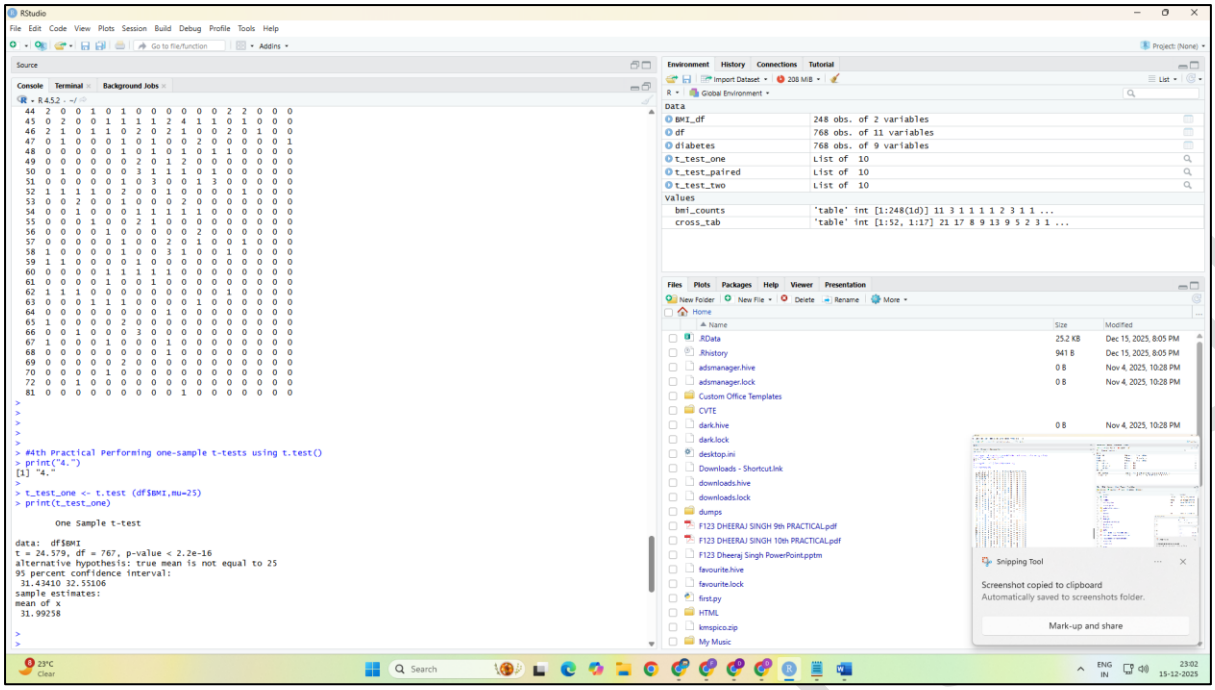
```
> BMI_df <- df %>% count(BMI)
> print(BMI_df)
    BMI  n
1   0.0 11
2  18.2  3
3  18.4  1
4  19.1  1
5  19.3  1
6  19.4  1
7  19.5  2
8  19.6  3
9  19.9  1
10 20.0  1
11 20.1  1
12 20.4  2
13 20.8  2
14 21.0  2
15 21.1  4
16 21.2  1
17 21.7  1
18 21.8  5
19 21.9  3
20 22.1  2
21 22.2  2
22 22.3  1
23 22.4  2
24 22.5  3
25 22.6  2
26 22.7  1
27 22.9  2
28 23.0  2
29 23.1  4
30 23.2  3
31 23.3  2
32 23.4  1
33 23.5  3
34 23.6  3
35 23.7  2
36 23.8  2
37 23.9  2
38 24.0  4
39 24.1  1
40 24.2  6
41 24.3  4
42 24.4  3
43 24.5  1
44 24.6  4
45 24.7  5
46 24.8  3
47 24.9  1
48 25.0  6
49 25.1  3
50 25.2  6
```

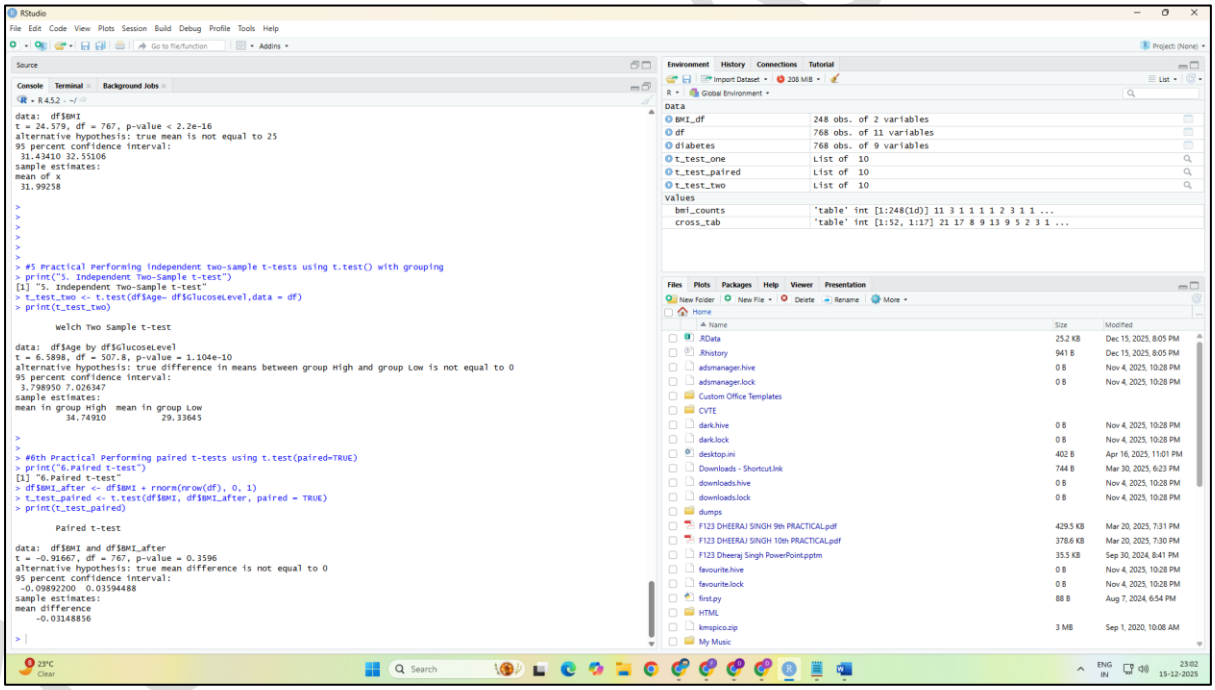


```
198 41.3  3
199 41.5  2
200 41.8  1
201 42.0  1
202 42.1  2
203 42.2  1
204 42.3  3
205 42.4  3
206 42.6  1
207 42.7  2
208 42.8  1
209 42.9  4
210 43.1  1
211 43.2  1
212 43.3  5
213 43.4  2
214 43.5  2
215 43.6  2
216 44.0  2
217 44.1  1
218 44.2  2
219 44.5  2
220 44.6  1
221 45.0  1
222 45.2  1
223 45.3  3
224 45.4  1
225 45.5  1
226 45.6  2
227 45.7  1
228 45.8  1
229 46.1  2
230 46.2  2
231 46.3  1
232 46.5  1
233 46.7  1
234 46.8  2
235 47.9  2
236 48.3  1
237 48.8  1
238 49.3  1
239 49.6  1
240 49.7  1
241 50.0  1
242 52.3  2
243 52.9  1
244 53.2  1
245 55.0  1
246 57.3  1
247 59.4  1
248 67.1  1
```



```
> #3rd Practical: Creating cross-tabulations and two-way tables using table()
> print("3. Cross Tabulation ")
[1] "3. Cross Tabulation "
>
> cross_tab <- table(df$Age,df$Pregnancies)
>
> print(cross_tab)

    0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 17
21 21 23 14  3  2  0  0  0  0  0  0  0  0  0  0  0  0
22 17 22 18 10  4  0  0  0  1  0  0  0  0  0  0  0  0
23  8 13 10  3  3  0  1  0  0  0  0  0  0  0  0  0  0
24  9 14  9  7  4  1  1  1  0  0  0  0  0  0  0  0  0
25 13  7 14  9  2  3  0  0  0  0  0  0  0  0  0  0  0
26  9  7  5  5  4  1  2  0  0  0  0  0  0  0  0  0  0
27  5  4  8  6  3  4  2  0  0  0  0  0  0  0  0  0  0
28  2  8  5  6  5  4  5  0  0  0  0  0  0  0  0  0  0
29  3  6  5  2  5  2  3  1  0  1  1  0  0  0  0  0  0
30  1  3  2  4  4  5  1  0  0  0  1  0  0  0  0  0  0
31  4  2  2  2  6  0  3  3  1  0  1  0  0  0  0  0  0
32  2  2  0  2  1  2  3  2  1  1  0  0  0  0  0  0  0
33  2  4  1  0  3  2  1  0  1  3  0  0  0  0  0  0  0
34  0  0  1  2  3  1  1  2  1  1  2  0  0  0  0  0  0
35  2  0  0  1  1  3  1  0  0  0  0  2  0  0  0  0  0
36  1  2  0  2  2  1  1  3  2  1  1  0  0  0  0  0  0
37  0  1  0  1  6  4  1  4  1  0  1  0  0  0  0  0  0
38  1  2  0  1  1  3  0  0  1  1  3  0  1  1  1  0  0
39  0  0  0  2  0  0  1  2  5  0  1  0  0  1  0  0  0
40  0  1  0  2  1  1  2  2  0  2  1  1  0  0  0  0  0
41  1  2  1  0  0  2  3  7  1  1  2  0  1  1  0  0  0
42  0  3  1  0  0  1  1  3  3  2  1  2  0  1  0  0  0
43  0  1  0  0  0  1  1  4  3  1  0  0  0  1  0  1  0
44  2  0  0  1  0  1  0  0  0  0  0  0  2  2  0  0  0
45  0  2  0  0  1  1  1  1  2  4  1  1  0  1  0  0  0
46  2  1  0  1  1  0  2  0  2  1  0  0  2  0  1  0  0
47  0  1  0  0  0  1  0  1  0  0  2  0  0  0  0  0  1
48  0  0  0  0  0  0  1  0  1  0  1  1  1  0  0  0  0
49  0  0  0  0  0  0  0  2  0  1  2  0  0  0  0  0  0
50  0  1  0  0  0  0  0  3  1  1  1  0  1  0  0  0  0
51  0  0  0  0  0  0  1  0  3  0  0  1  3  0  0  0  0
52  1  1  1  1  0  2  0  0  1  0  0  0  0  1  0  0  0
53  0  0  2  0  0  1  0  0  0  2  0  0  0  0  0  0  0
54  0  0  1  0  0  0  0  1  1  1  1  1  0  0  0  0  0
55  0  0  0  1  0  0  0  2  1  0  0  0  0  0  0  0  0
56  0  0  0  0  1  0  0  0  0  0  2  0  0  0  0  0  0
57  0  0  0  0  0  0  1  0  0  2  0  1  0  0  1  0  0
58  1  0  0  0  0  0  1  0  0  3  1  0  0  1  0  0  0
59  1  1  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0
60  0  0  0  0  1  1  1  1  1  0  0  0  0  0  0  0  0
61  0  0  0  0  1  0  0  1  0  0  1  0  0  0  0  0  0
62  1  1  1  0  0  0  0  0  0  0  0  0  0  1  0  0  0
63  0  0  0  1  1  1  0  0  0  0  0  1  0  0  0  0  0
64  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0
65  1  0  0  0  0  2  0  0  0  0  0  0  0  0  0  0  0
66  0  0  1  0  0  0  3  0  0  0  0  0  0  0  0  0  0
67  1  0  1  0  1  0  0  0  1  0  0  0  0  1  0  0  0
68  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0
69  0  0  0  0  0  2  0  0  0  0  0  0  0  0  0  0  0
70  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0
72  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0
81  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0
>
>
>
>
> #4th Practical Performing one-sample t-tests using t.test()
> print("4.")
[1] "4."
>
> t_test_one <- t.test (df$BMI,mu=25)
> print(t_test_one)

        One Sample t-test

data:  df$BMI
t = 24.579, df = 767, p-value < 2.2e-16
alternative hypothesis: true mean is not equal to 25
95 percent confidence interval:
 31.43410 32.55106
sample estimates:
mean of x
 31.99258

>
>
```


RStudio
> #4th Practical Performing one-sample t-tests using t.test()
> print("4.")
[1] "4."
> t_test_one <- t.test (df$BMI,mu=25)
> print(t_test_one)
One Sample t-test
data: df$BMI
t = 24.579, df = 767, p-value < 2.2e-16
alternative hypothesis: true mean is not equal to 25
95 percent confidence interval:
31.43410 32.55106
sample estimates:
mean of x
31.99258
Snipping Tool
Screenshot copied to clipboard
Automatically saved to screenshots folder.
Mark-up and share


RStudio
data: df$BMI
t = 24.579, df = 767, p-value < 2.2e-16
alternative hypothesis: true mean is not equal to 25
95 percent confidence interval:
31.43410 32.55106
sample estimates:
mean of x
31.99258
> #5 Practical Performing Independent two-sample t-tests using t.test() with grouping
> print("5. Independent Two-Sample t-test")
[1] "5. Independent Two-Sample t-test"
> t_test_two <- t.test(df$Age~ df$GlucoseLevel,data = df)
> print(t_test_two)
Welch Two Sample t-test
data: df$Age by df$GlucoseLevel
t = 6.5898, df = 507.8, p-value = 1.104e-10
alternative hypothesis: true difference in means between group High and group Low is not equal to 0
95 percent confidence interval:
3.798950 7.026347
sample estimates:
mean in group High mean in group Low
34.74910 29.33645
> #6th Practical Performing paired t-tests using t.test(paired=TRUE)
> print("6.Paired t-test")
[1] "6.Paired t-test"
> df$BMI_after <- df$BMI + rnorm(nrow(df), 0, 1)
> t_test_paired <- t.test(dfBMI, dfBMI_after, paired = TRUE)
> print(t_test_paired)
Paired t-test
data: df$BMI and df$BMI_after
t = -0.91667, df = 767, p-value = 0.3596
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
-0.09892200 0.03594488
sample estimates:
mean difference
-0.03148856